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CITES

A RAPID RESPONSE ASSESSMENT

ELEPHANTS IN THE DUST
THE AFRICAN ELEPHANT CRISIS

IUCN

TRAFFIC
the wildlife trade monitoring network

This report is produced as an inter-agency collaboration between UNEP, CITES, IUCN and TRAFFIC.

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ELEPHANTS IN THE DUST
THE AFRICAN ELEPHANT CRISIS

A RAPID RESPONSE ASSESSMENT

Editorial Team Christian Nellemann *(Editor in Chief)*
Rannveig Knutsdatter Formo
Julian Blanc
Diane Skinner
Tom Milliken
Tom De Meulenaer

Cartography Riccardo Pravettoni

PREFACE

In Central and West Africa, the elephant may soon disappear from whole areas unless urgent action is taken.

The African elephant, the largest remaining land mammal on the planet, is facing the greatest crisis in decades. Reports of mass elephant killings in the media vividly illustrate the situation across many African elephant range States. This Rapid Response Assessment provides an overview of the current state of the African elephant alongside recommendations for action to ensure its protection.

Results from monitoring and systematic surveys conducted under the UNEP-hosted CITES treaty reveal that poaching levels have tripled in recent years, with several elephants killed every single hour of the day. In Central and West Africa, the elephant may soon disappear from whole areas unless urgent action is taken.

Organized syndicates ship several tons of ivory at a time to markets in Asia, and hundreds of elephants are killed for every container sent. Indeed, this report documents nearly a tripling in the number of large-scale ivory seizures by customs authorities, revealing the scale and heavy involvement of international criminal networks that must be addressed.

The report, however, also provides optimism if action is taken by governments within Africa and in ivory market countries. Improved law enforcement methods, international collaboration with the United Nations Office for Drugs and Crime, the World Customs Organization and INTERPOL and measures to reduce demand can be implemented with success if countries and donors join forces. Indeed, large and previously secure elephant populations in Southern Africa are evidence of the fact that both elephants and their habitats cannot only be well-managed, but, coupled with tourism, can also become a source of income.

Improved public awareness is also key. Many people including businessmen and women are often unaware that the ivory they may be exchanging as gifts could have been sourced illegally. Among other awareness activities, UNEP is currently working with its Goodwill Ambassador, actress Li Bingbing, and the City of Shanghai to bring the issue of ivory poaching to the attention of the public.

Resources must be made urgently available to provide the full scale of efforts needed to ensure the survival of the elephant. This year marks CITES' 40th anniversary. Its successful track-record shows that change is possible. Now is the time to take action.

Achim Steiner
UN Under-Secretary General and UNEP Executive Director

PREFACE

At the African MIKE monitoring sites alone, an estimated 17,000 elephants were illegally killed in 2011 – a figure likely to be over 25,000 continent-wide.

Elephants are now at dire risk due to a dramatic rise in poaching for their ivory. Reports have reached CITES and the media on mass and gruesome killings of elephants, with their heads and tusks removed, from near every corner of their range in Africa. The CITES-led Monitoring the Illegal Killing of Elephants (MIKE) and the Elephant Trade Information System (ETIS), managed under our partnership with TRAFFIC, together with African Elephant range States, have been gathering and analyzing data on the killing of elephants and illegal trade in ivory for over a decade.

Faced with increasingly alarming statistics from MIKE and ETIS, CITES initiated a UNEP Rapid Response Assessment to provide a graphic overview of the current situation, enriched with the latest elephant population status information from IUCN, and to identify ways to respond.

The results are quite devastating. Systematic surveys document a tripling in both poaching levels and the number of large-scale seizures of ivory intended for Asia over the last 5 years. At the African MIKE monitoring sites alone, an estimated 17,000 elephants were illegally killed in 2011 – a figure likely to be over 25,000 continent-wide. For many of the range states in Central and Western Africa, the extent of the killings now far exceeds the natural population growth rates, forcing their elephants into widespread decline and putting them at risk of extinction in those countries.

This report shows, through expert consultations with IUCN and elephant experts, that the total African elephant populations remain stable owing to effective protection in parts of Southern and Eastern Africa, where the majority of the elephant populations reside. However, poaching and the smuggling of ivory is spreading further south and east, destined for illicit markets in Asia, requiring enhanced regional and international collaboration to combat these trends.

This report provides clear evidence that adequate human and financial resources, the sharing of know-how, raising public awareness in consumer countries, and strong law enforcement must all be in place if we are to curb the disturbing rise in poaching and illegal trade. The International Consortium on Combating Wildlife Crime (ICCWC) will play an increasingly important role in supporting range States, transit and consumer countries in tackling transnational organized criminal networks and in some cases rebel militia.

For the second time in the 40-year history of CITES elephants are facing a crisis. A well targeted and collaborative effort is required to put an end this senseless slaughter and ensure the survival of these majestic animals in the wild.

John E. Scanlon
CITES Secretary-General

SUMMARY AND RECOMMENDATIONS

Surges in poaching, the illegal ivory trade and accelerating habitat and range loss have put African elephant populations at risk. This Rapid Response Assessment provides an overview of the status of elephants, poaching and illegal ivory trafficking along the entire ivory trade supply chain.

Findings presented here were obtained from a range of sources, including The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Monitoring the Illegal Killing of Elephants (MIKE) Programme, the Elephant Trade Information System (ETIS), the IUCN/SSC African Elephant Specialist Group (AfESG), the African and Asian Elephant Database, the International Consortium on Combating Wildlife Crime (ICCWC), expert consultations and a range of other sources.

A pronounced upward trend in both the poaching of African elephants and the illicit trade in ivory is particularly evident from 2007 onwards. Illicit ivory trade activity and the weight of ivory behind this trade has more than doubled since 2007, and is over three times greater than it was in 1998. Viewing all of these data together and considering a range of other information, it is clear that African elephants are facing the most serious conservation crisis since the species was moved from CITES Appendix II to Appendix I in 1989, and a ban on commercial trade in ivory and other elephant specimens came into effect (the African elephant populations of Botswana, Namibia, South Africa and Zimbabwe subsequently returned to Appendix II, allowing them to trade certain elephant specimens under strict conditions, including on two occasions – in 1999 and 2008 – stocks of raw ivory).

Current population estimates suggest alarming declines in elephant numbers in parts of Central and West Africa, as well as an increasing risk of the local extinction of some populations. Previously secure populations in Eastern and Southern Africa are under growing threat, as a wave of poaching seems to be spreading east and southwards across the African continent. Currently, it is likely that the total continental population estimate is in the range of 420,000 to 650,000 African elephants (IUCN/AfESG 2013), with just three countries, Botswana, Tanzania and Zimbabwe accounting for well over half of these elephants. However, these numbers could change rapidly if present trends continue. In 2011, poaching levels were at their highest since MIKE began monitoring the trends in illegal killing in 2001, and indications suggest that the situation did not improve in 2012. Similarly, the seizure of large shipments of ivory hit an all-time high in 2011, indicating an increasingly active, profitable and well-organized illegal ivory trade between Africa and Asia.

Poaching is spreading primarily as a result of a rising demand for illegal ivory in the rapidly growing economies of Asia, particularly China and Thailand, which are the two major end-use markets globally. The high levels of poaching are, in some cases, facilitated by conflicts that, through lawlessness and ensuing abundance of small arms, provide optimal conditions for illegal killing of elephants. Further along the trade chain, highly-organized criminal networks operate with relative impunity to move large shipments of ivory off the continent and to markets in Asia. The prevalence of unregulated domestic ivory markets in many African cities, coupled with the large number of potential Asian buyers residing in Africa associated with infrastructure projects and resource extraction operations, also fuel the demand for ivory. This situation is further exacerbated in many countries due to weak governance and collusive corruption, at all levels. Poverty facilitates the ability of organized criminals to recruit, bribe or threaten locals and underpaid police, military personnel and wildlife rangers.

Poachers are becoming better equipped, conducting more sophisticated operations, and are better supported by illegal traders and criminal networks. A variety of smuggling methods by land, river and sea are used. Currently, the vast majority of the seized ivory is shipped in containers by ocean vessels from East African seaports, although in the recent past, some seizures have origi-

nated from seaports in West and Southern Africa, perhaps as an adaptation to law enforcement efforts directed at Indian Ocean seaports. There is also some criminal intelligence suggesting that fishing vessels moving between Asia and Africa may be involved in smuggling, and these are rarely inspected.

Elephants are also threatened by increasing loss of habitat and subsequent loss of range as a result of rapid human population growth and agricultural expansions. Currently, some models suggest that 29 per cent of the existing elephant range is affected by infrastructure development, human population growth and rapid urban and agricultural expansion (see www.globio.info). The projections are that this figure may increase to 63 per cent by 2050, particularly in West, Central and Eastern Africa. Even if the current high levels of poaching are slowed, habitat and range loss will continue to threaten the future of elephant populations across the African continent. Disruptions and barriers to seasonal movements of elephants in search of water and forage are also critical threats as their current range becomes increasingly fragmented and disconnected, also leading to increasing human-elephant conflicts.

It should be noted that while African elephant populations in some parts of the continent may be suffering heavy poaching losses and increasing habitat loss and fragmentation, populations in other parts of the species' range, mainly those south of the Zambezi River, continue to be large, well-managed and healthy.

Immediate action is needed in terms of support, training and improved law enforcement in border regions on the ground, as well as in and around protected areas, if local extinctions of elephants in Africa are to be avoided in the near future. The African Elephant Action Plan, developed by African elephant range States and adopted in 2010, provides a broad, overarching framework for the actions needed to provide adequate protection and management of African elephant populations. Targeted law enforcement efforts at key points in the illegal ivory trade chain, and effective public awareness campaigns are needed in order to address the recent surge in poaching and to reduce the demand for illegal ivory in consumer countries. Nowhere is the need for demand reduction more critical than in China.

Unless the necessary resources can be mobilized to significantly improve local conservation efforts and enforcement along the entire ivory trade chain, elephant populations will falter, poaching will continue and illegal trade in ivory will continue unabated.

The CITES-mandated ETIS and MIKE monitoring systems continue to work together closely and in collaboration with the IUCN/SSC African and Asian Elephant Specialist Groups, which provide critical data on the status of elephant populations. Long-term funding needs to be secured for these programmes. Otherwise, the critical information base for assessing elephants in crisis will be lost, just at the time when an unprecedented surge in poaching and illegal trade is taking place.

RECOMMENDATIONS FOR ACTION

The recommendations below are drawn from those adopted by the Standing Committee at its 62nd meeting (Geneva, July 2012), which were based on document SC62 Doc. 46.1 (Rev. 1); and those proposed by the Secretariat to the Conference of the Parties to CITES at its 16th meeting (Bangkok, March 2013), as contained in documents COP16 Doc. 53.1, 53.2.1 and 53.2.2. They also complement activities proposed in the African Elephant Action Plan, agreed by the African elephant range States in the sidelines of the 15th meeting of the Conference of the Parties (Doha, 2010) (see document COP15 Inf. 68).

1) Support and enhance anti-poaching tracking and intelligence operations, through the development, training and education of tactical tracker and intelligence units in all protected areas.

2) Facilitate appropriate mandates to allow park rangers to pursue poachers and conduct patrols outside park boundaries, and develop international agreements to facilitate cross border cooperation to pursue, arrest and extradite poachers and illegal traders.

3) Strengthen anti-smuggling operations, customs controls and container search programmes (including the controls of small airstrips, and boats in ports and estuaries). Enhance and improve the use of controlled deliveries and forensic analysis to identify the source of ivory and support the investigations of the criminal networks operating along the entire illegal ivory supply chain.

4) Enhance national and international interagency collaboration to fight organized wildlife crime by supporting programmes that target enforcement along the entire illegal ivory supply chain, such as through the ICCWC and regional criminal intelligence units and networks, as well through judiciary training and the practical application of 'best practice' techniques and methodologies for conducting investigations and joint enforcement activities.

5) Address weak governance and corruption at all levels, including in customs, the military, the police, the wildlife departments and other governmental agencies, using transboundary criminal intelligence units and further improving training and organization of specialized, well-paid and strongly-mandated anti-poaching units working inside and outside protected areas to undertake both intelligence and enforcement operations.

6) Reduce market demand for illegal ivory by conducting targeted and effective awareness-raising campaigns about the devastating impacts of the illegal trade in ivory, and aimed at potential or current buyers in East and South East Asia.

7) Strengthen national legislation as necessary, and strictly enforce relevant provisions to eradicate illegal or unregulated domestic ivory markets, especially in Africa and Asia.

8) Maintain and improve the connectivity of elephant landscapes in Africa by increasing the extent of conservation areas and the investment in their effective management and protection to help reduce habitat loss and consequent range loss. This requires prioritized land use planning in non-protected elephant habitat, and is particularly critical for regions with growing human population densities and agricultural pressures. This, in turn, will help mitigate human-elephant conflict.

9) Urgently assist and financially support the African Elephant Fund to enable elephant range States to improve their capacity to manage and conserve their elephant populations through improved law enforcement and anti-poaching activities, habitat restoration and conservation, dealing with human-elephant conflicts, and monitoring and research, as laid out in the African Elephant Action Plan. Provide access to the Global Environment Facility to support the implementation of the African Elephant Action Plan.

10) Establish sustainable funding mechanisms for the continued implementation of MIKE, ETIS and the African and Asian Elephant Database, to ensure continuous monitoring of the overall status of African and Asian elephant populations and their habitats, levels of illegal killing of elephants and the international trade in illegal ivory.

CONTENTS

INTRODUCTION

Ivory poaching, particularly the poaching of African elephants, has increased dramatically in recent years. Dramatic declines in elephant populations caused by excessive poaching during the 1970s–1980s was followed by increases in much of the Eastern and Southern African regions.

During the 1990s, elephant poaching in Southern and Eastern Africa either dropped in areas where poaching had been high or remained low in the areas where there had been little poaching. In most of Central and West Africa on the other hand, poaching gradually increased during this period (Poilecot, 2010; Poilecot *et al.* 2010a; Bouché *et al.* 2010; Bouché *et al.* 2012). By the mid to late 2000s, elephant poaching had once again picked up across Africa, to a level similar to the elephant killings of the 1970s and 1980s (Okello *et al.* 2008; Poilecot 2010; Poilecot *et al.* 2010a; 2010b; Bouché *et al.* 2010; 2011; 2012; Maingi *et al.* 2012).

Rapid economic development and changes in consumption patterns in Asia have increased demand for ivory, particularly in China and in Thailand. Other products from endangered wildlife species, including rhino horn, are also in demand in Asia, particularly in Viet Nam. The demand for these products derives from their use in alternative medicine and from their use as symbols of status (Blanc and Burnham 2011; Christy 2012; Martin *et al.* 2011).

This rise in demand coincides with an increase in the number of potential consumers not just in Asia, but also on the ground in

What is CITES and how does it work?

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement to which States (countries) adhere voluntarily. States that have agreed to be bound by the Convention ('joined' CITES) are known as Parties. The purpose of the Convention is to regulate the international trade in endangered species of fauna and flora to ensure their survival is not threatened. CITES entered into force in 1975 and today 177 States are signatories to the Convention (CITES 2013a).

CITES works by subjecting the international trade in specimens of selected species to certain controls, and all Parties to the Convention are obliged to implement a licensing system to designate one or more Management Authorities to the administration of that licensing system and to designate one or more Scientific Authorities to advise them on the effects of trade on the status of the species. All Parties have to report annually to the CITES Secretariat on the number of specimens traded, as well as on what national measures they have taken to fulfil their international obligations (CITES 2013b; Lemieux and Clarke 2009).

Today, close to 35,000 species are protected under the CITES. These are listed in three Appendices according to their status of protection. International, commercial trade in species listed in Appendix I is approved only in exceptional circumstances. The international trade in species listed in Appendix II is allowed but is regulated and controlled to ensure that it is legal and sustainable, and that it does not threaten the species survival in the wild. Appendix III includes species that are protected in at least one member country, which has asked the other Parties for assistance in controlling the trade of this species (CITES 2013b).

Africa. The growing number of foreign investors and businessmen in the mining and timber sectors, along with those involved in infrastructure development projects, has resulted in an influx of buyers of ivory which in turn has contributed to an increase in poaching (Blake *et al.* 2007; Boafo and Massalatchi 2011).

Political instability, armed militias, criminals, and most importantly, the rise in market demand, have once again resulted in a rise in poaching. While poaching has often taken place during or following conflicts, it is now happening across much of Africa in conflict and non-conflict zones. Poaching operations range from the old-fashioned camel- and horse-based marauders to active intelligence units and helicopters, the use of which suggests substantial demand.

The scale of elephant poaching has now reached such levels that it is endangering elephant populations. This report has been written in close consultation with experts and a range of sources including CITES Monitoring Illegal Killing of Elephants (MIKE) Programme, the Elephant Trade Information System (ETIS), the IUCN African and Asian Elephant Specialist Groups, and the International Consortium on Combating Wildlife Crime (ICCWC). The findings provide a clear overview of the current African elephant crisis.

Regulated, legal sales in ivory

The African elephant, *Loxodonta africana*, has been listed in CITES Appendix II since 1977. The species was transferred from Appendix II to Appendix I in 1989, but some populations were transferred back to Appendix II, under a set of conditions, in 1997 (Botswana, Namibia and Zimbabwe) and 2000 (South Africa). Over the last three decades, the management of elephants in Africa and the regulation of trade in its ivory has been one of the main topics of discussion at the meetings of the Conference of the Parties, which are held every three years. In 1997, the Parties agreed that Botswana, Namibia and Zimbabwe would be allowed to sell government-held stocks of raw ivory under tightly controlled conditions to Japan, while revenues had to be invested in elephant conservation. The sale (valued at around USD 5 million) and import by Japan took place in June 1999, involving 49,574 kg of raw ivory.

A second sale of government-owned ivory stocks took place in October/November 2008 and involved China and Japan purchasing 107,770 kg of raw ivory, from Botswana, Namibia, South Africa and Zimbabwe under highly conditional circumstances. These conditions had originally been agreed at COP 12 in 2002, and were then modified and strengthened in the context of an "African compromise" to include Zimbabwe at COP 14 in 2007. The auctions generated nearly USD 15.5 million (USD 157 per kilogram on average). The Standing Committee verified that the proceeds were used for elephant conservation and community conservation and development programmes within or adjacent to the elephant range.

Other African countries (Tanzania, Zambia) have submitted proposals to include their elephant populations in Appendix II (with or without the intention to trade raw ivory), but these proposals did not obtain the necessary support from the Parties. On the other hand, proposals to ban all trade in ivory for very prolonged periods of time have not received the required support from the Parties either.

Instead, it was agreed at COP 14 to develop a decision-making mechanism for a process of future trade in ivory. This mechanism, which was further discussed at COP 16, should establish a basis for a decision to be made under CITES on whether or not there should be international trade in elephant ivory, under what circumstances, criteria and safeguards such trade could take place, and what would be the related institutional arrangements. At present, only a minority of the 38 African elephant range States is seeking to reopen trade in raw ivory. The 5 to 8 countries concerned, all in Southern and Eastern Africa, host well over half of all elephants in Africa.

China today has the largest ivory market in the world, much of it carved from poached African elephant tusks.

ELEPHANT POPULATIONS – RANGE, TRENDS, SIZE AND CHALLENGES

ELEPHANT RANGE

Elephants are found in habitats across sub-Saharan Africa including in tropical swamp forests, savannahs and deserts. Elephants often move over great distances, and their seasonal movements are difficult to predict. For this reason, 'range area' is broadly defined and covers all areas where elephants occur (Cumming *et al.* 1990). Elephants have been extinct in North Africa since the European Middle Ages and are today only found in 35–38 countries, or 'range States' in sub-Saharan Africa. Their presence in three countries, namely Senegal, Somalia and Sudan remains uncertain (CITES 2011). An estimated 39 per cent of the African elephant range is found in Southern Africa, 29 per cent in Central Africa, 26 per cent in Eastern Africa and only 5 per cent in West Africa (Blanc *et al.* 2007).

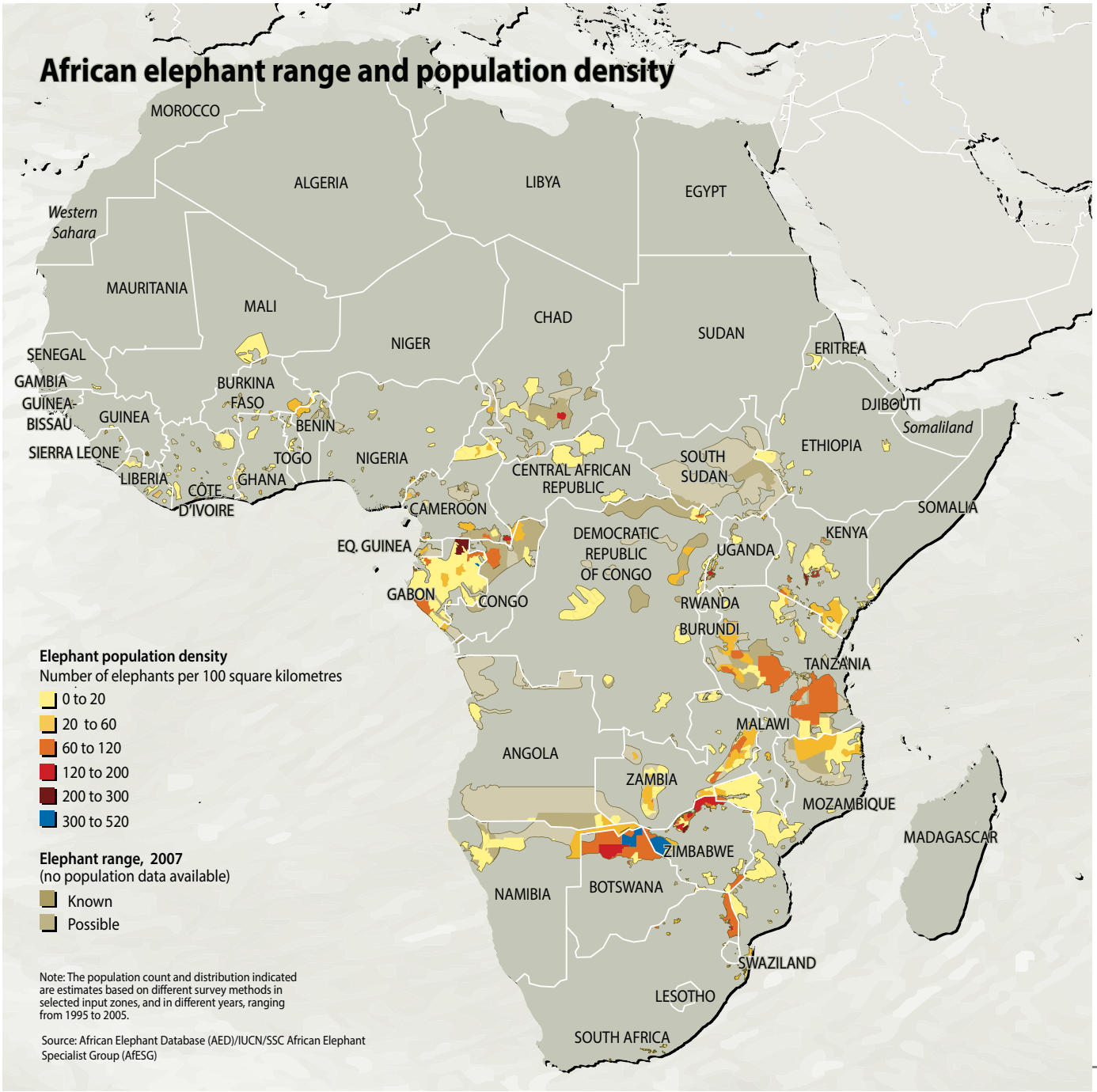
Determining elephant range is a difficult exercise and the information used for range maps is often collected from a single person in a range State. In other words, the data on elephant range is strongly influenced by subjective opinion and frequently, by limited knowledge. In many cases, elephant range boundaries match protected areas in a country, but this is often more the result of a lack of knowledge about elephant movements outside protected areas, than a reflection of the actual range. Elephants are known to move outside protected areas and there are numerous examples of individuals and smaller groups of elephants moving far beyond the ranges identified in most range maps.

RANGE AND HABITAT LOSS

While poaching is an immediate and direct threat to the African elephant, range and habitat loss are the most significant long-term threat to the species' survival.

There is good reason to believe that the total elephant range in Africa has been in decline over the last two decades. In 1995, the total range area of the African elephant was estimated at 26 per cent of the continent's total land cover (Said *et al.* 1995). However, the latest African Elephant Status Report, published in 2007, estimated that the total range area was 15 per cent of total land cover (Blanc *et al.* 2007). Most of this reduction in range area reflects better information rather than range loss, however it also reflects the actual reduction in range due to habitat encroachment, increased human population densities, urban expansion, agricultural development, deforestation and infrastructure development. While countries in Central and West Africa have likely experienced real reduction in elephant range, other countries such as Botswana have experienced an increase in elephant range in recent years (Blanc *et al.* 2007; Craig in Blanc *et al.* 2002).

The GLOBIO models have been used to project range and biodiversity loss in over 75 global, regional and topical studies (Nellemann *et al.* 2003; Leemans *et al.* 2007; Benítez-López *et al.* 2010; Pereira *et al.* 2010; Visconti *et al.* 2011; Newbold *et al.* 2013).


African elephant range and population density
MOROCCO
ALGERIA
LIBYA
EGYPT
Western Sahara
MAURITANIA
MALI
NIGER
CHAD
SUDAN
ERITREA
DJIBOUTI
Somaliland
SENEGAL
GAMBIA
GUINEA-BISSAU
GUINEA
BURKINA FASO
BENIN
SIERRA LEONE
LIBERIA
CÔTE D'IVOIRE
GHANA
TOGO
NIGERIA
CAMEROON
CENTRAL AFRICAN REPUBLIC
SOUTH SUDAN
ETHIOPIA
SOMALIA
KENYA
EQ. GUINEA
GABON
CONGO
DEMOCRATIC REPUBLIC OF CONGO
UGANDA
RWANDA
BURUNDI
TANZANIA
MALAWI
ANGOLA
ZAMBIA
MOZAMBIQUE
MADAGASCAR
ZIMBABWE
NAMIBIA
BOTSWANA
SWAZILAND
LESOTHO
SOUTH AFRICA
Elephant population density
Number of elephants per 100 square kilometres
0 to 20
20 to 60
60 to 120
120 to 200
200 to 300
300 to 520
Elephant range, 2007
(no population data available)
Known
Possible
Note: The population count and distribution indicated are estimates based on different survey methods in selected input zones, and in different years, ranging from 1995 to 2005.
Source: African Elephant Database (AED)/IUCN/SSC African Elephant Specialist Group (AfESG)

The African Elephant Database

http://elephantdatabase.org

The African Elephant Database is managed by the IUCN/SSC African Elephant Specialist Group and is a collaborative effort between conservation agencies and researchers in African elephant range States. Information on elephant distribution and abundance is collected through field surveys and questionnaires, and stored in the African Elephant Database. In the past, every three to five years, the data on elephant populations and range have been assembled and presented in an African Elephant Status Report. Four such reports have been published and these reports are recognized as the most reliable and authoritative data on elephant populations in Africa. Shifting to an online interface in 2012, and including data on the Asian elephant from the IUCN/SSC Asian Elephant Specialist Group, the African and Asian Elephant Database will now publish annual updates on the status of the African elephant. The online database also includes the latest submissions of data for individual elephant populations as they come in, providing up to date information to the public at the population level.

The model integrates data from satellite imagery as well as land use changes from the IMAGE model, including human population density and growth, resource abundance and exploration, pollution, climate change and many other additional factors (see Alkemade *et al*. 2009 for review and www.globio.info).

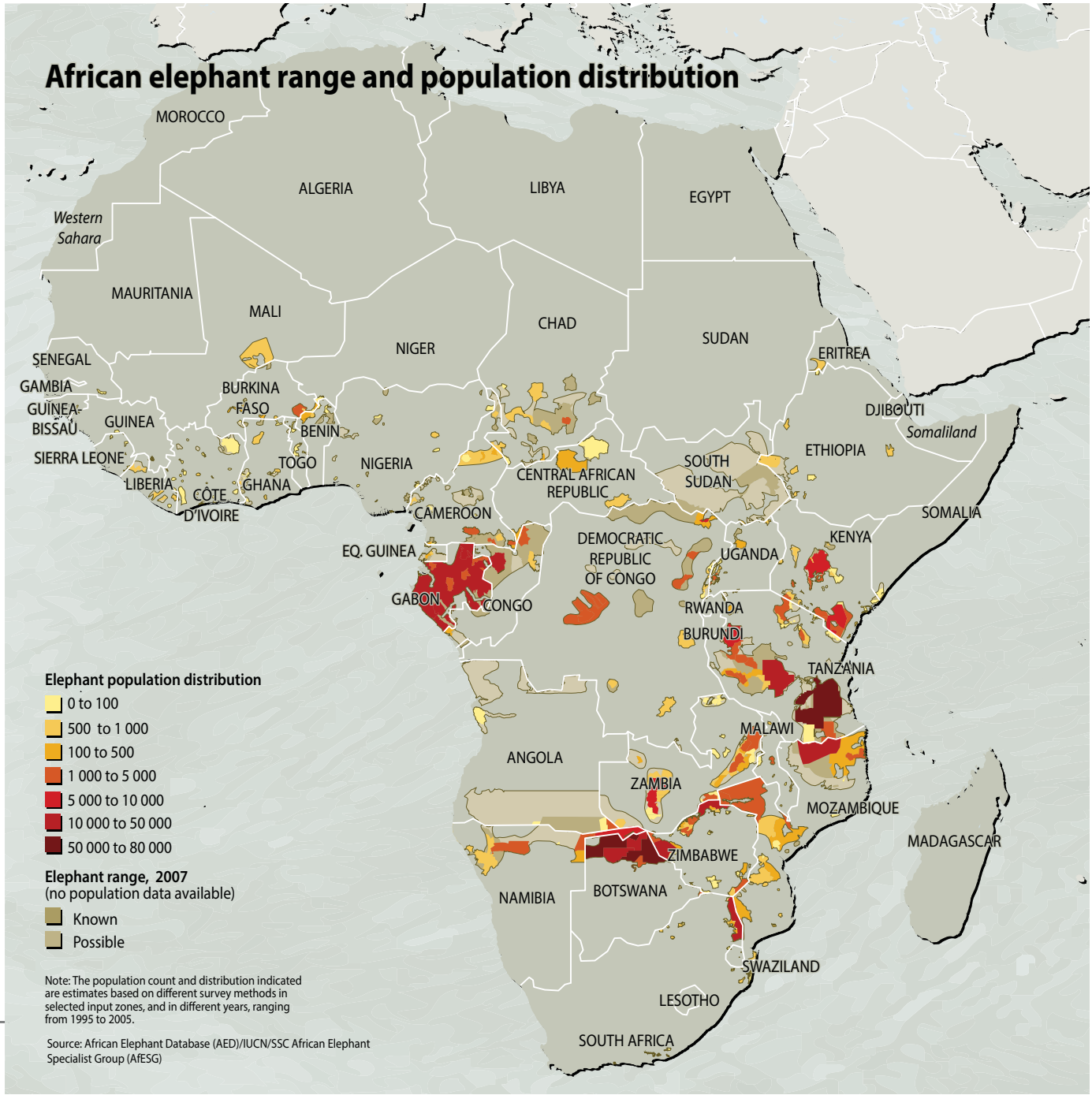
Range and habitat loss are the most significant long-term threats to the African elephant's survival.

Figure 1: African elephant range and population density.

For calculations of impacted range, actual estimates of the elephant range were based on the distribution of the ranges classed as "known" and "possible" (Fig. 1) (Blanc *et al*. 2007). To better illustrate regional pressures, a wider area beyond the ranges shown in Fig. 1 and 2 is given. From an ecological perspective, the consequences of the projected habitat loss would be dire, with serious economic implications for the countries concerned.

Currently, an estimated 29 per cent of the area defined as current "known" and "possible" elephant range (see Blanc *et al*. 2007 for definition of range) is classified as heavily impacted by human development. This may rise to 63 per cent in the next 40 years, leaving the ranges in Southern Africa mostly intact. If this is combined with poaching, elephant ranges will likely be greatly reduced in parts of Eastern Africa and the elephant may be eradicated locally across parts of Central and West Africa.

Figure 2: Elephant population distribution and approximate core ranges of elephants in Africa. Individuals and minor groups of elephants can be found outside these ranges.


African elephant range and population distribution
MOROCCO
ALGERIA
LIBYA
EGYPT
Western Sahara
MAURITANIA
MALI
NIGER
CHAD
SUDAN
ERITREA
SENEGAL
GAMBIA
GUINEA-BISSAU
GUINEA
BURKINA FASO
BENIN
TOGO
NIGERIA
SIERRA LEONE
LIBERIA
COTE D'IVOIRE
GHANA
CAMEROON
CENTRAL AFRICAN REPUBLIC
SOUTH SUDAN
ETHIOPIA
DJIBOUTI
Somaliland
SOMALIA
KENYA
EQ. GUINEA
GABON
CONGO
DEMOCRATIC REPUBLIC OF CONGO
UGANDA
RWANDA
BURUNDI
TANZANIA
MALAWI
ANGOLA
ZAMBIA
MOZAMBIQUE
MADAGASCAR
ZIMBABWE
NAMIBIA
BOTSWANA
SWAZILAND
LESOTHO
SOUTH AFRICA
Elephant population distribution
0 to 100
500 to 1 000
100 to 500
1 000 to 5 000
5 000 to 10 000
10 000 to 50 000
50 000 to 80 000
Elephant range, 2007
(no population data available)
Known
Possible
Note: The population count and distribution indicated are estimates based on different survey methods in selected input zones, and in different years, ranging from 1995 to 2005.
Source: African Elephant Database (AED)/IUCN/SSC African Elephant Specialist Group (AfESG)

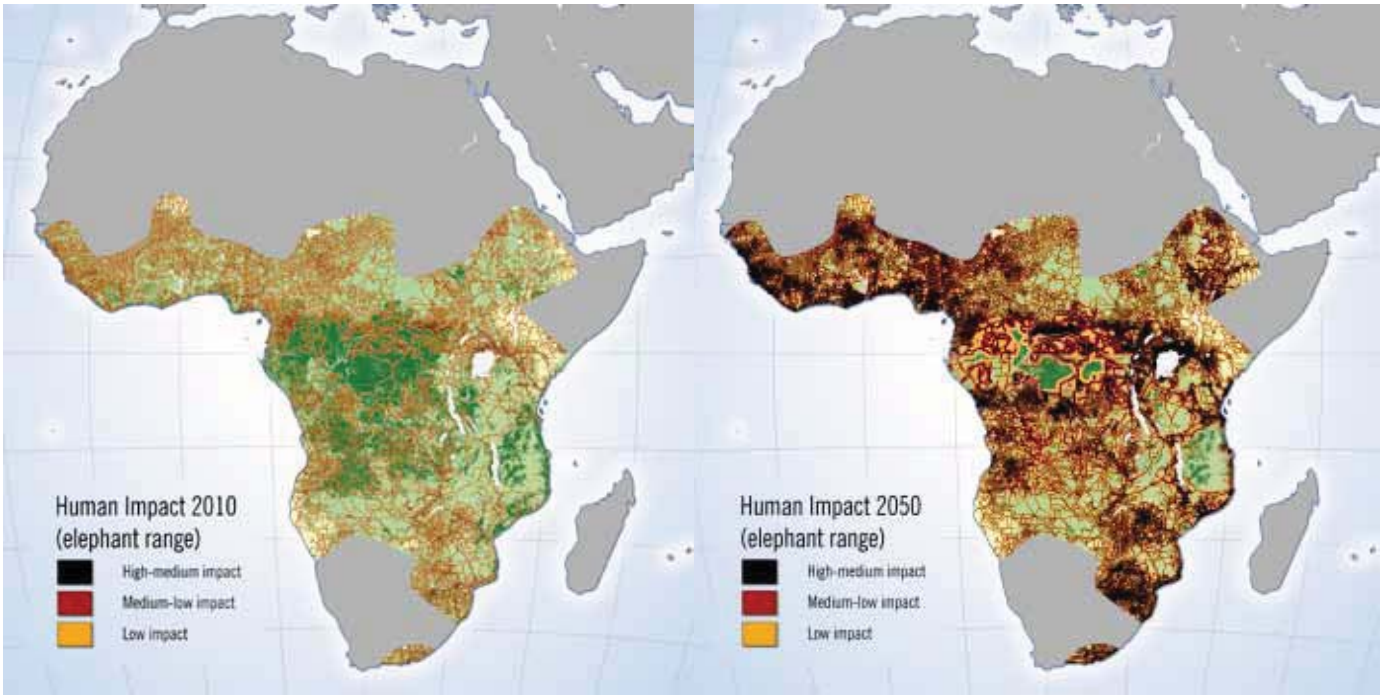


Figure 3: Scenarios of human development pressures and pressure (GLOBIO 2.0) on biodiversity in a larger area surrounding the African elephant ranges using the scenarions provided by the IPCC's Special Report on Emissions Scenarios (SRES) scenarios for 2010 and 2050. This is a component of the widely used GLOBIO 3.0 model. Notice that the maps here illustrate areas affected beyond the known and possible elephant ranges given in Fig. 1. The numbers in the text refer to impact on elephant range only – not the wider region. The maps serve only to provide a general indication of where human agricultural and population pressures are likely to increase over the next decades, as these are the factors believed to be of particular significance to loss of elephant range range. The green colour indicate habitat area. (Source: www.globio.info).

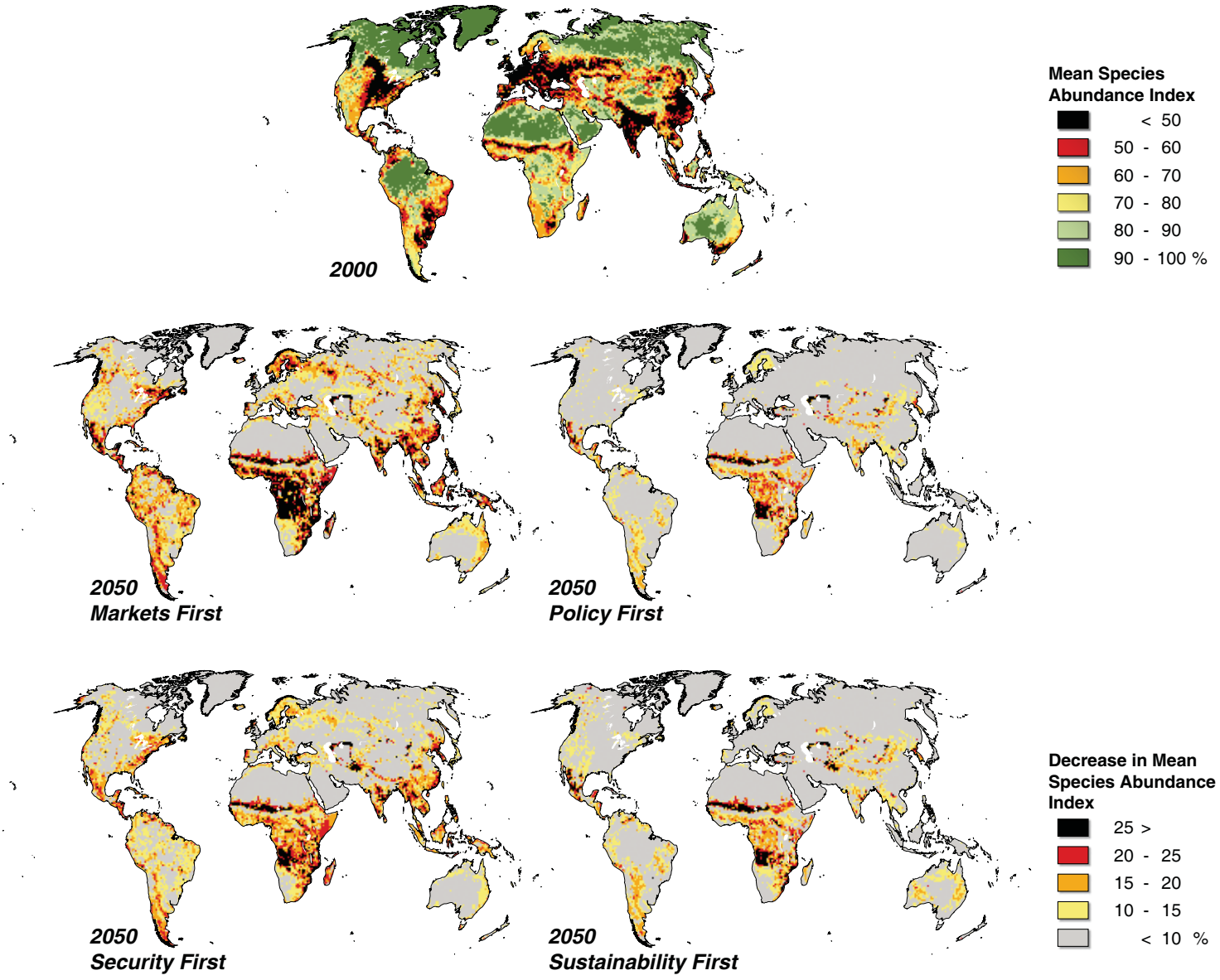


Figure 4: Changes in pressures on biodiversity, including infrastructure development and population pressures, land use change, pollution and climate change, under 4 different scenarios from the Global Environment Outlook series using the GLOBIO 3.0 model. Notice the similar pattern in Africa under all scenarios with varying degrees. This will have major impacts on the habitats and ranges of the African elephants. The threat is particularly high in areas with large population growth and significant agricultural expansion (Source: UNEP; www.globio.info).

POPULATION TRENDS

Between 1970 and 1990, many thousands of elephants were killed for their ivory, leaving the African elephant populations at an estimated number of 300,000–600,000 (Said *et al.* 1995). The main declines in elephant numbers were in Central and Eastern Africa. Following the drop in numbers during the elephant killings of the 1980s and the events surrounding and including the CITES ban, populations have picked up in some range States, and in 2007, the total African elephant population was estimated to be between 470,000 and 690,000 (Blanc *et al.* 2007).

Since then however, the tide seems to have turned. Poaching levels have been increasing steadily across much of the continent since 2006. Current estimates suggest major declines in elephant populations in Central Africa, as well as in some populations in West Africa where the numbers have been fragmented and small for decades. Populations remain stable and high in much of Southern Africa, while the threat to eastern populations is increasing as poaching is rising and spreading east and southwards in Africa. The latest estimates of the total number of African elephants range between 419,000 and 650,000 elephants, however, these are predominantly found in Southern and Eastern Africa (IUCN/AfESG 2013).

DISTRIBUTION ACROSS SUB-REGIONS

The overall sub-regional distribution of the African elephant indicates that approximately half of the total elephant population is found in Southern Africa, while less than 30 per cent are found in Eastern Africa. West Africa is home to the smallest number of elephants, only two per cent of the total number of elephants on the continent. The remaining 20 per cent of African elephants are found in Central Africa, although elephant numbers from this region are particularly fraught with uncertainty (estimates based on Blanc *et al.* 2007). As with the

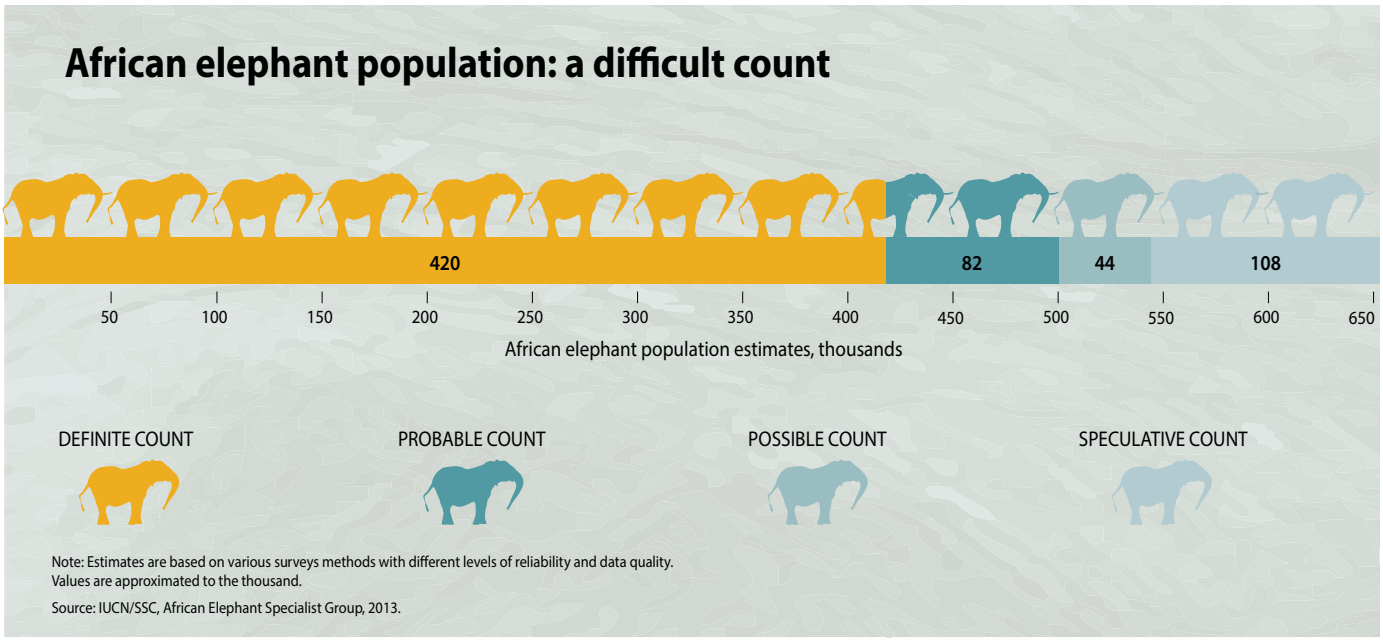


Figure 5: The latest estimates of the total number of African elephants range between 419,000 and 650,000. Overall data reliability at the continental level has declined as many important populations have not been surveyed for over ten years.

population numbers, estimates on the sub-regional distribution of elephants are based on conjecture and assumptions. However, these estimates give an overview of the general distribution of elephants across the continent.

ELEPHANT POPULATION TRENDS IN THE 20TH AND 21ST CENTURY

African elephant population data was patchy and of varying accuracy before the 1990s. It is widely recognized however, that poaching reduced elephant numbers drastically, particularly in Central and Eastern Africa, in the period between 1970 and 1990. At this point, numerous photos and reports of tusk-less elephant carcasses being found by the thousands inside and outside national parks across Africa made international headlines. Increasing global awareness of poaching, fuelled by campaigns and media coverage, resulted in the 1989 CITES ban on international trade in ivory.

Prior to 1989, the African elephant was listed in Appendix II of CITES and international trade in ivory and other elephant specimens was regulated, but legal. The high level of poaching in the 1970s and 1980s was driven by a growing market for ivory primarily in Europe, the United States of America and Japan. The business was conducted by legitimate enterprises, often involving government officials. Conservation interventions, combined with the restrictions on ivory sales, which went into effect following the CITES ban, put a stop to much of the poaching, particularly in Eastern Africa. Through the next two decades, the elephant population had a chance to recover in some range States, particularly in Eastern Africa (Blanc *et al.* 2007). However current estimates suggest major declines in elephant populations in Central Africa, to the point that some local populations are at risk of extinction. The populations of Eastern Africa are also being threatened by increased poaching.

SUB-REGIONAL OVERVIEW

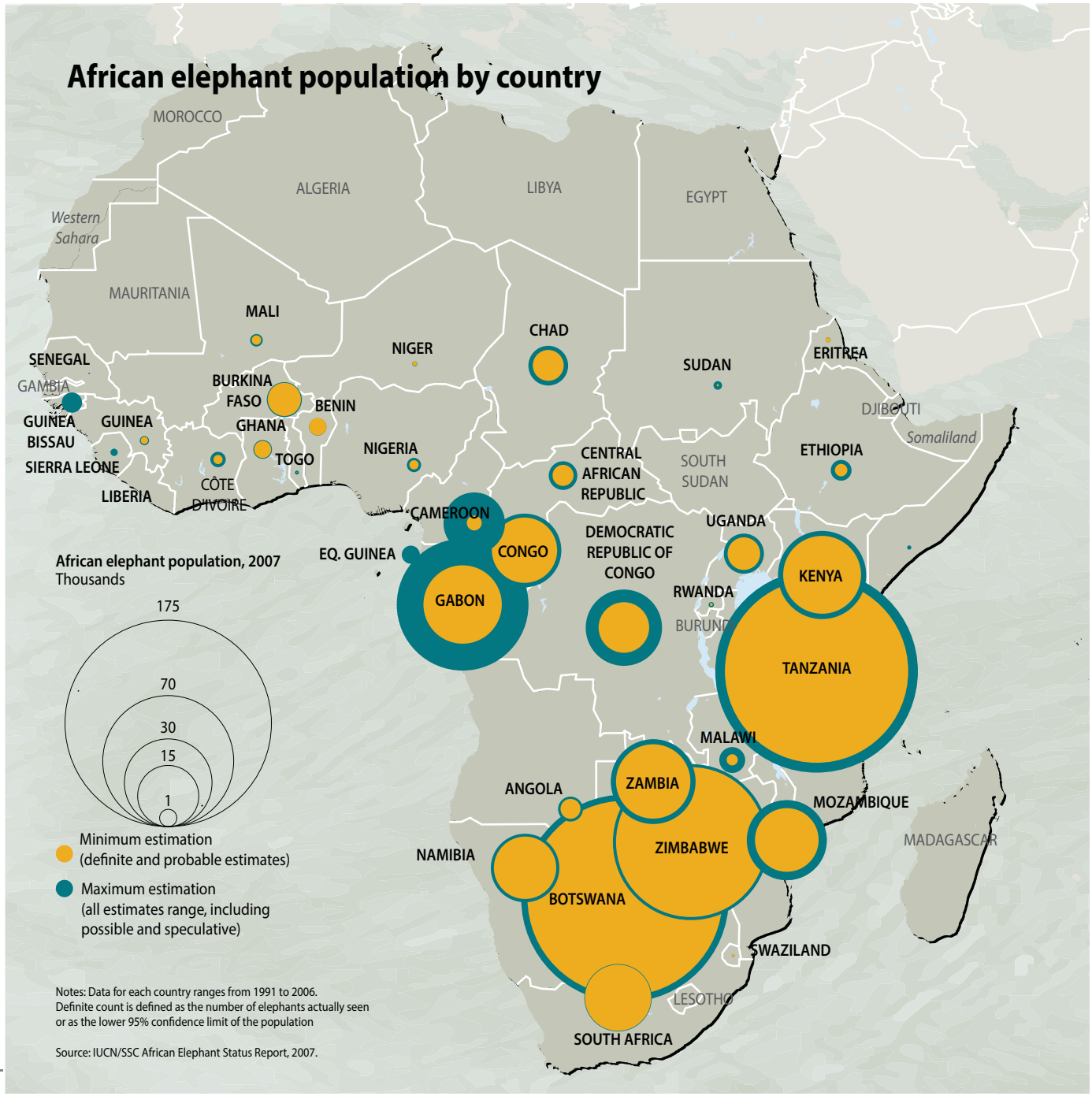
Much of the elephant population of West Africa had been decimated before the turn of the 20th century, and while some populations were further reduced as a result of poaching in the 1980s, the region's small elephant population of around 4,000 (including definite and probable numbers) remained more or less stable throughout the 20th century and up until the 1990s (Said *et al.* 1995). In 2007, the definite numbers of elephants in the sub-region was 7,500, while the most recent estimates suggests an estimate of about 7,100 definite numbers of elephants (IUCN/AfESG 2013).

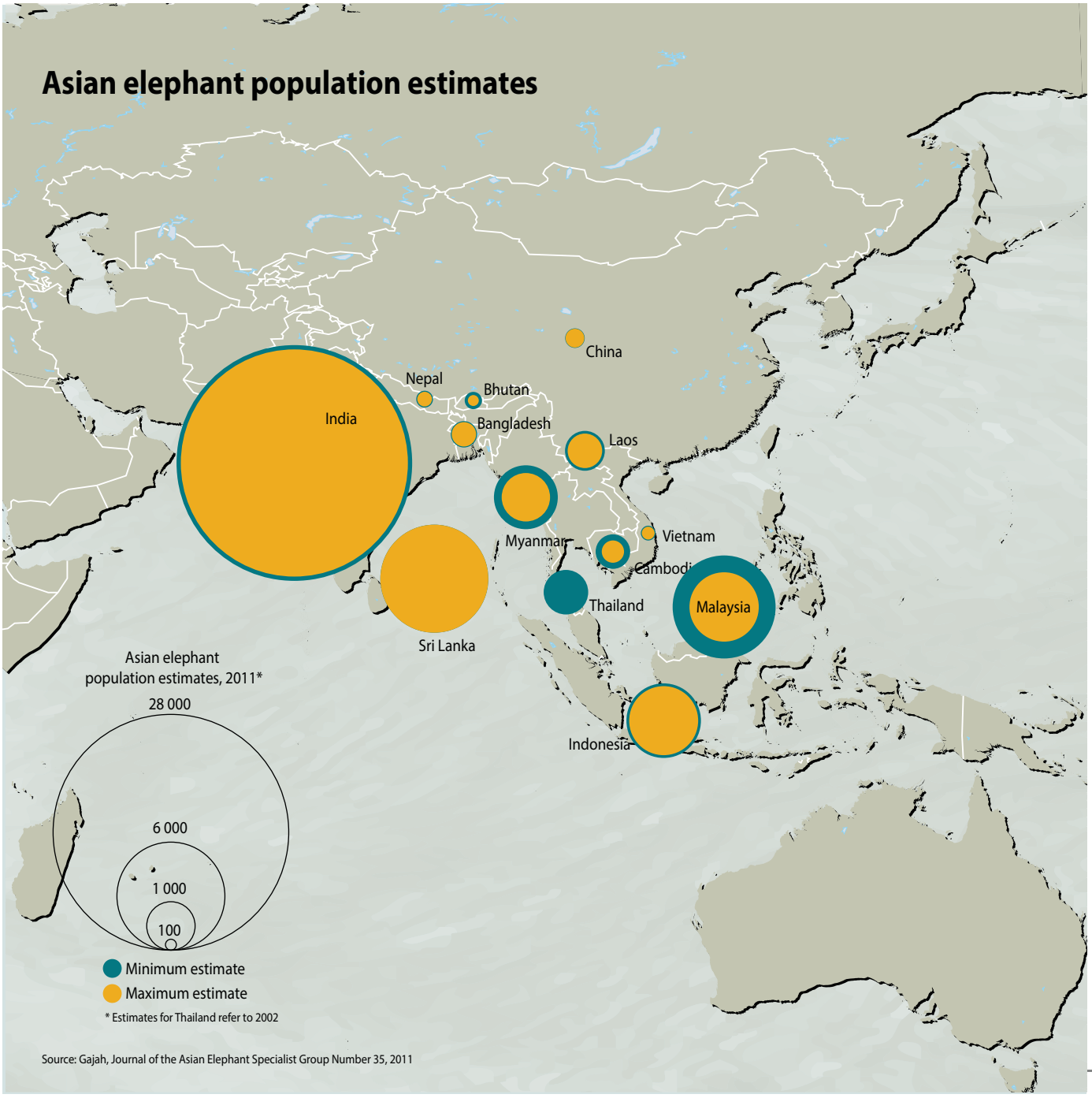
Most of the data on elephant populations in Central Africa is unreliable and no real data on elephant numbers existed prior to the 1990s. However, it is widely agreed that the forest elephant populations in Central Africa, particularly in the Democratic Republic of Congo, were greatly reduced in the 1970s and 1980s. Population data from this region is uncertain and unreliable for two reasons. Firstly, population surveys in forested areas are difficult and expensive, as censuses by air are not possible. Secondly, decades of conflict in the region has made population surveys impossible in many locations. These difficulties are reflected in the 1995 African Elephant Status Report where only 7,000 known elephants were registered while more than 200,000 elephants were considered probable or possible (Said *et al.* 1995). Most recent estimates suggests definite numbers of about 20,000 and probable numbers of about 65,000 (IUCN/AfESG 2013).

Eastern Africa, home to the highest number of elephants prior to 1970, was hit hard by the poaching of the 1970s and 1980s (Blanc 2008). Accounts from that time described parks littered with elephant carcasses. The substantial losses in places like the Tsavo National Park in Kenya, and the Selous Game Reserve in southern Tanzania provided fuel for the loud international outcry and the many campaigns that led to the CITES ban on the sale of ivory. Strict conservation efforts were introduced in many parks in Eastern Africa and poaching levels went down. In 1995, the African elephant population in the region was estimated at around 105,000 elephants including definite and probable numbers (Said *et al.* 1995). Ten years later, 160,000 definite and probable elephants were found, probably due to better information, but likely also reflecting real growth in elephant populations (Blanc *et al.* 2007). Recent estimates suggests definite numbers of about 130,000 elephants (IUCN/AfESG 2013).

Southern Africa stands out from the other regions. Elephant populations have been steadily increasing since the early 20th century when the numbers were at an all-time low due to uncontrolled sport hunting in the 19th century. Although poaching also occurred in Southern Africa in the 1970s and 1980s, the numbers were not even close to those of Central and Eastern Africa. In fact, the elephant populations of Southern Africa have, to a much greater extent, been protected through targeted conservation efforts. It is the only region that has shown a definite and clear population increase over recent decades. Latest estimates show definite population numbers to be about 250,000 elephants (IUCN/AfESG 2013).

Figure 6: African elephant population size by country.


African elephant population by country
MOROCCO
ALGERIA
LIBYA
EGYPT
Western Sahara
MAURITANIA
MALI
NIGER
CHAD
SUDAN
ERITREA
SENEGAL
GAMBIA
BURKINA FASO
BENIN
GHANA
GUINEA BISSAU
GUINEA
SIERRA LEONE
LIBERIA
CÔTE D'IVOIRE
TOGO
NIGERIA
CENTRAL AFRICAN REPUBLIC
SOUTH SUDAN
DJIBOUTI
Somaliland
ETHIOPIA
CAMEROON
EQ. GUINEA
CONGO
GABON
DEMOCRATIC REPUBLIC OF CONGO
UGANDA
KENYA
RWANDA
BURUNDI
TANZANIA
MALAWI
ANGOLA
ZAMBIA
MOZAMBIQUE
NAMIBIA
ZIMBABWE
BOTSWANA
MADAGASCAR
SWAZILAND
LESOTHO
SOUTH AFRICA
African elephant population, 2007
Thousands
175
70
30
15
1
Minimum estimation
(definite and probable estimates)
Maximum estimation
(all estimates range, including
possible and speculative)
Notes: Data for each country ranges from 1991 to 2006.
Definite count is defined as the number of elephants actually seen
or as the lower 95% confidence limit of the population
Source: IUCN/SSC African Elephant Status Report, 2007.


Asian elephant population estimates
China
Nepal
Bhutan
India
Bangladesh
Laos
Myanmar
Vietnam
Cambodia
Thailand
Malaysia
Sri Lanka
Indonesia
Asian elephant population estimates, 2011*
28 000
6 000
1 000
100
Minimum estimate
Maximum estimate
* Estimates for Thailand refer to 2002
Source: Gajah, Journal of the Asian Elephant Specialist Group Number 35, 2011

The Asian Elephant: Conservation Status, Population and Threats

As with the African elephant, the Asian elephant (*Elephas maximus*) is listed in Appendix I of the CITES. While the African elephant is categorized as 'Vulnerable' in the IUCN Red List, the Asian elephant is listed as 'Endangered.' Three Asian elephant sub-species are sometimes recognized: the mainland Asian, the Sri Lankan and the Sumatran elephant. The latter is listed as 'Critically Endangered' by the IUCN.

Asian elephants occur in isolated populations in 13 range States, with an approximate total range area of almost 880,000 square kilometres equivalent to only one-tenth of the historical range as defined by the IUCN. Today Asian elephants occur in Bangladesh, Bhutan, India, Nepal, Sri Lanka, Cambodia, China, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Thailand, and Viet Nam. Feral populations occur on some of the Andaman Islands in India.

Recent reports from across the 13 Asian elephant range States suggest that there are between 39,500 and 43,500 wild Asian elephants. In addition, there are approximately 13,000 domesticated (working or former working) elephants in Asia. However, some experts argue that many population figures are little more than guesses and that, with very few exceptions, all we really know about the status of the Asian elephants is the location of some populations. The uncertainty around population numbers is due in part to the difficulties presented by counting elephants in dense vegetation, in difficult terrain and the use of different and sometimes inappropriate survey techniques. Nevertheless, whatever the error margins, it is quite certain that over 50 per cent of the remaining wild Asian elephants occur in India.

The primary threats to the Asian elephant are habitat loss, degradation, and fragmentation, all of which are driven by an expanding human population and lead in turn to increasing conflicts between humans and elephants. The Sumatran elephant has been particularly affected by habitat loss; an estimated 70 per cent of its habitat has disappeared over the last 25 years. Hundreds of people and elephants are killed annually across Asia as a result of such conflicts.

In addition to habitat loss, illegal killing also poses a serious threat to the Asian elephant. As with the African elephant, Asian elephants are killed for their tusks, meat and hides and other products. As opposed to the African elephant however, only male Asian elephants bear tusks, which has – so far – helped Asia's elephants avoid the catastrophic poaching rates seen currently in Africa. Poaching for ivory has, however, resulted in highly skewed sex ratios in some Asian elephant populations. Moreover, while there are no reliable estimates of the number of Asian elephants being killed illegally, there are worrying indications that such killings have increased in recent years. There is also concern about the growing illegal international trade in live Asian elephants, particularly involving Thailand and Myanmar.

The Asian Elephant Specialist Group (AsESG) warns that such trade is potentially harmful to populations of wild Asian elephants, many of which are small and isolated, and that it could provide a potential cover for illicit trade in elephant parts, including ivory. The AsESG also calls for the Asian elephant range states' authorities and others as appropriate (including NGOs) to make a concerted effort to better assess how many Asian elephants are being killed illegally and how much Asian elephant ivory is entering the illicit trade chain and to take all necessary steps to better protect Asian elephant populations.

Sources: Based on data from CITES; The Asian Elephant Specialist Group; the AsESG Journal Gajah, the IUCN Red List, the IUCN Elephant Database, Elephant Family, TRAFFIC, the WWF, and the Wildlife Conservation Society (WCS).

Figure 7: Estimated Asian elephant population and distribution.

CHALLENGES AND UNCERTAINTIES IN POPULATION AND RANGE ESTIMATES

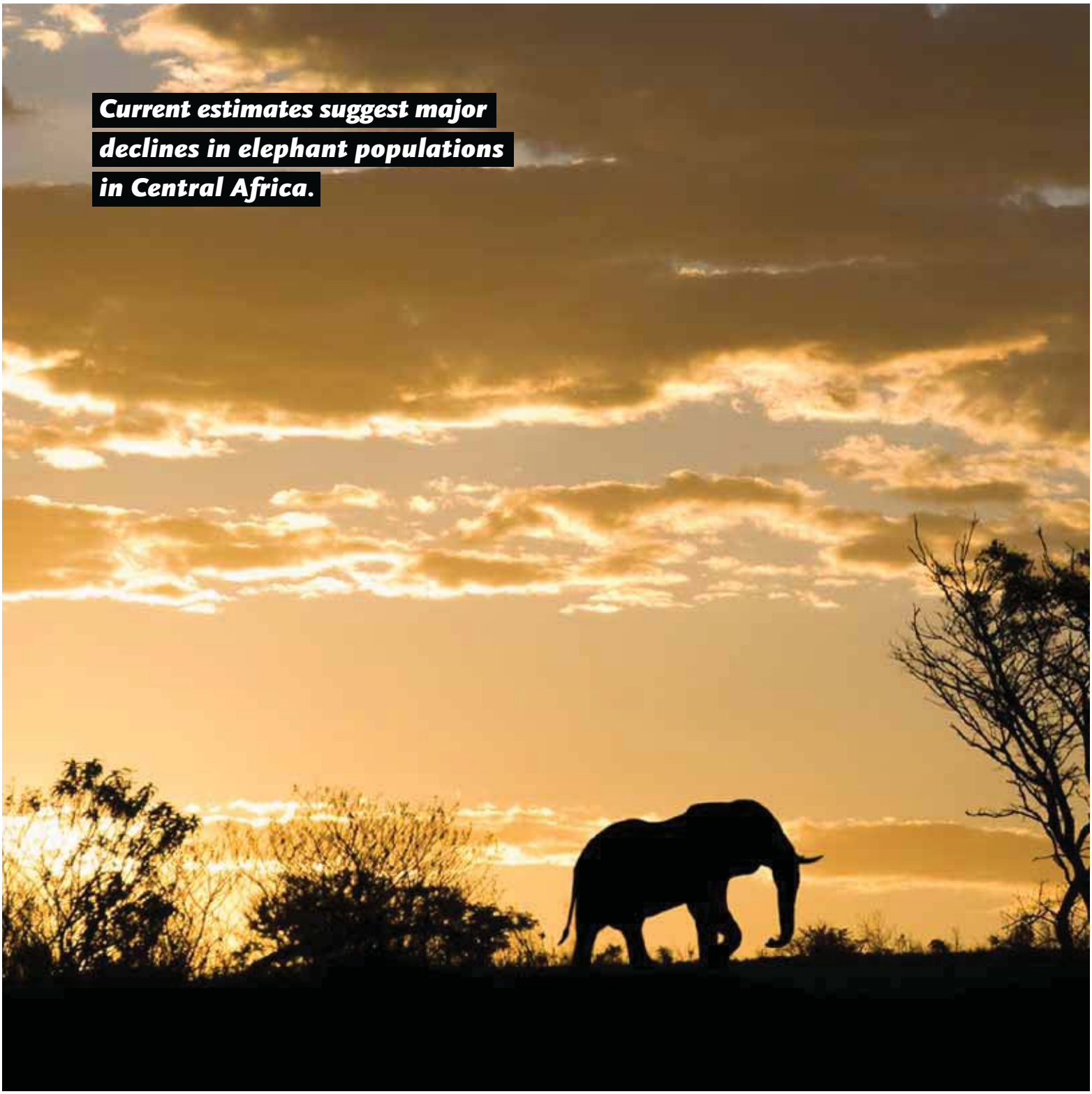
The estimates of elephant population and range are based on a combination of expert judgements, and aerial and ground surveys of varying quality and age. As much as possible, the estimates are based on scientific studies and surveys. However a number of factors affect their accuracy. These include the survey technique, the surveyor's level of skill, the equipment used, financial constraints, vegetation cover, and most importantly, surveys have been infrequent and scattered in their coverage. Changes in survey boundaries and in the methodology used make it difficult to compare changes in population over time. Additionally, many elephants live outside or move between the boundaries of protected areas where few surveys are undertaken. Elephant numbers in these unprotected areas may be based on pure guesswork. The seasonal and cross-border movements of elephants make surveys difficult and may result in either double-counting or undercounting the elephant population (Blanc *et al.* 2007). Furthermore, it is important to note that population surveys are conducted in only about half of the elephant range area.

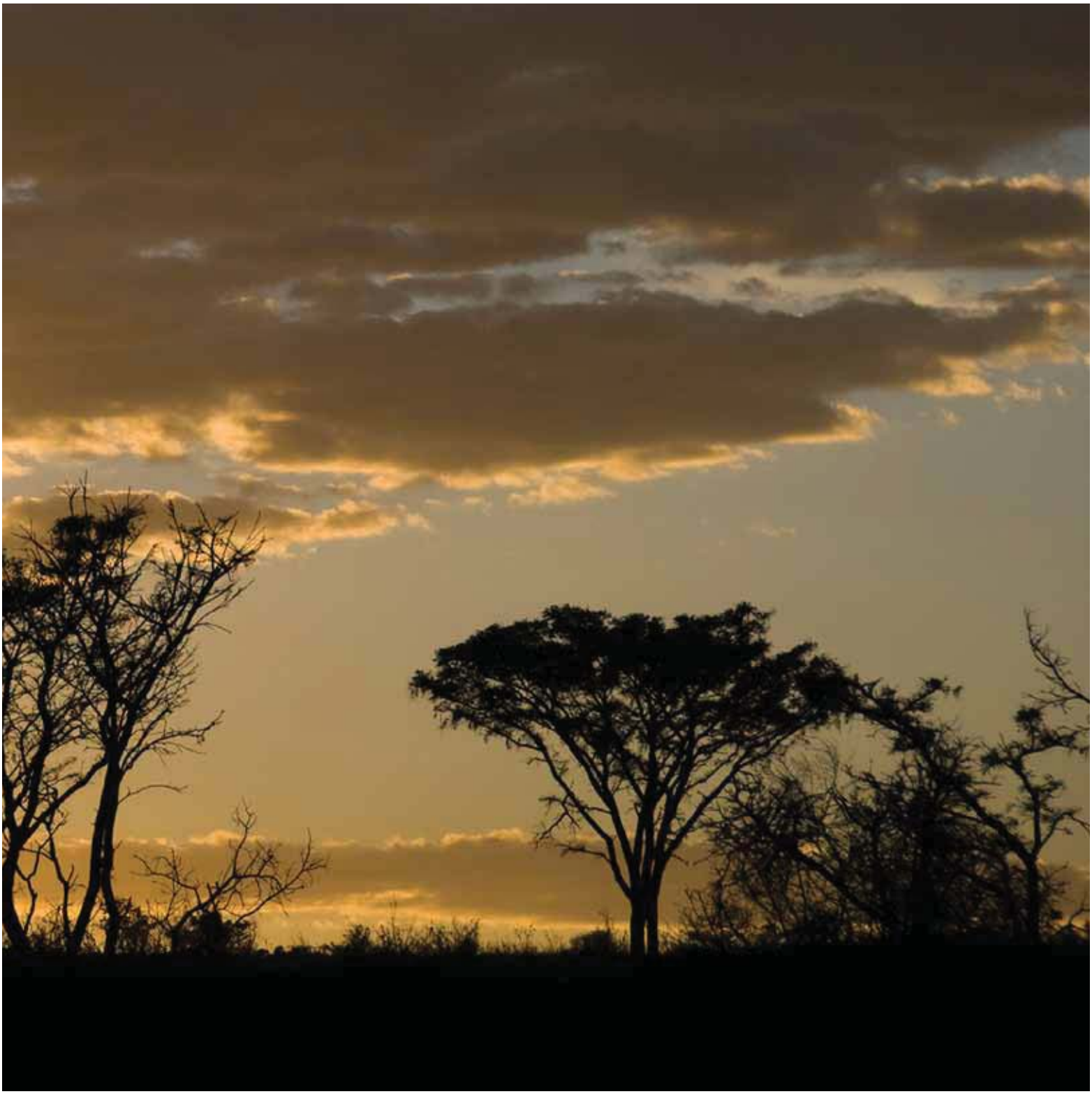
Definite and probable elephant numbers are collected in a number of ways: aerial counts conducted from low flying aircrafts, direct ground counts, dung counts, DNA-based mark and recapture, and individual registration on the ground. While these survey methods may give accurate data, the results are influenced by a number of factors, including survey intensity, aircraft speed and habitat visibility (Norton-Griffiths 1978). Aerial surveys may have a range of errors, but are the technique of choice when tens of thousands of square kilometres are to be surveyed. Aerial surveys can only be done in open savannah landscape however, and therefore exclude any populations living in forested habitats such as in much of Central Africa. In some cases, each elephant is registered individually but this is a time consuming and expensive exercise and is generally not used for population estimates, except for small, fenced populations. More commonly, particularly in forest habitats, elephant populations are estimated through dung counts along transects. Dung counts are both expensive and hard to conduct; requiring estimates of defecation rate and of the decomposition rate of the dung. However well-conducted dung surveys can be more precise than aerial surveys. Finally, some of the population data is based on educated guesses made by individuals that know the area and its elephant populations.

More information and more accurate surveys are urgently needed.

Ideally, data on elephant range and population would be collected at frequent intervals by an authorized national wildlife authority, which would employ well-trained staff and standardized methods for collecting the data. In reality, however, data collection is often done by several different agencies using a variety of different methods determined by available funds and current opinion.

Given the challenges facing the collection of elephant data, the estimates of population numbers are subject to uncertainty. More information and more accurate surveys are urgently needed, in areas such as Central Africa, where elephant numbers are in rapid decline. Estimating the range area and the elephant population numbers presents major challenges and even the most up to date information contains inaccuracies and uncertainties. This is the reason why the population and range estimates show great variations at national and regional levels. A more detailed explanation of population estimations can be found in the IUCN African Elephant Status Reports (see Blanc *et al.* 2007).


Current estimates suggest major
declines in elephant populations
in Central Africa.



ILLEGAL KILLING OF AFRICAN ELEPHANTS – TRENDS AND DRIVERS

The last seven years have seen a clear increase in the level of elephant poaching across all African sub-regions. The year 2011, and probably also 2012 saw an all-time high in poaching since systematic monitoring began more than a decade ago. It is estimated that in 2011, approximately 7.4 per cent of the total elephant populations in elephant sites across Africa were killed illegally. These sites represent 40 per cent of the total African elephant population, which means that 17,000 elephants were killed in these sites alone.

TRENDS IN POACHING

The data compiled by the CITES – MIKE Programme (see box for more information) is used to measure trends in levels of illegal killing of elephants and is currently the best quantitative data available on the illegal killing of elephants in Africa.

The MIKE Programme bases its analyses on data collected by conservation area rangers on the ground in 60 sites spread across 31 African elephant range States in all four sub-regions. The rangers collect detailed data on all elephant carcasses they come across, including the cause of death, age and sex of the animal, and the location and state of the carcass. The information reported to MIKE is used to calculate the Proportion of Illegally Killed Elephants (PIKE) from that site, which is defined as the total number of illegally killed elephants found divided by the total number of carcasses encountered per year for each site. The PIKE value ranges from 0.0 (all carcasses identified as natural deaths) to 1.0 (all carcasses identified as illegally killed). A PIKE value of 0.5, for example, would mean that half the carcasses encountered on patrol were identified as illegally killed.

Although the projected trends based on these estimates are only representative of poaching in MIKE sites, the total number of elephants currently estimated to occur at these sites is more than 230,000, which represents 40 per cent of the total

The Monitoring the Illegal Killing of Elephants Programme

The Monitoring the Illegal Killing of Elephants (MIKE) Programme, which was established in 1997 following the CITES COP 10 in Harare, Zimbabwe, is tasked with collecting and disseminating information on trends in elephant poaching across African and Asian range states. The objective of MIKE is to establish a standardized monitoring system and to measure trends in the illegal killing of the African and Asian elephants. The information collected is used to inform decision-making regarding elephants.

MIKE data comes from the information received from ground patrols in designated MIKE sites, which include protected areas and other elephant range areas. When the rangers come across an elephant carcass, they identify the cause of death as either natural or killed by humans by looking for bullet holes and missing tusks. They also take note of the site's GPS coordinates and fill in standardized carcass forms that are then submitted to the MIKE Programme. Although there is room for improvements in the quantity and quality of data submitted to MIKE, rangers have so far collected data on more than 9,000 carcasses and reported to MIKE, providing a substantial statistical input for further analysis.

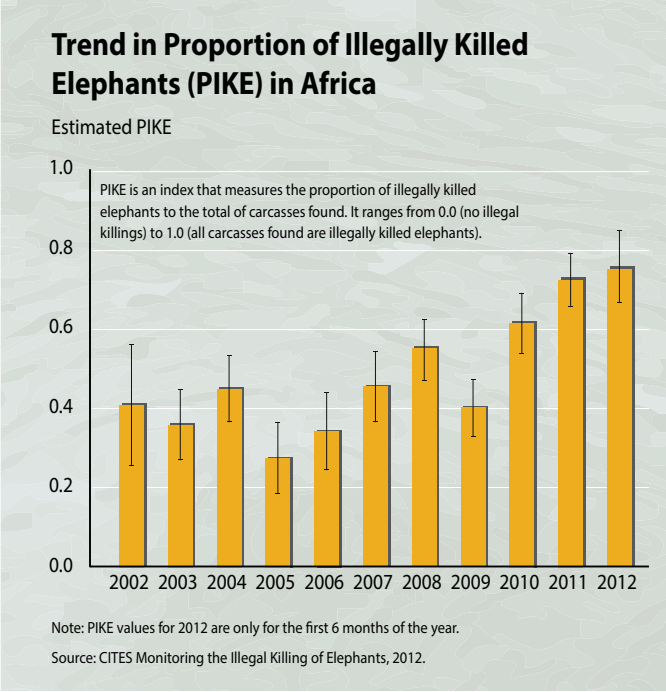


Figure 8: The PIKE trend across Africa show a clear increase in the proportion of illegally killed elephants from 2006 and up to 2012.

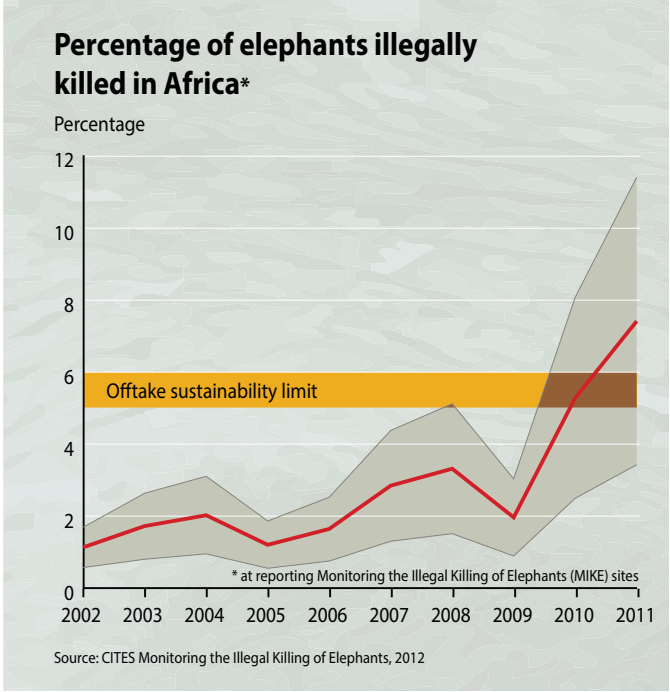


Figure 9: Since 2010, the percentage of elephants being killed illegally at MIKE sites across Africa has been higher than their natural reproduction rate.

number of definite plus probable elephant numbers in Africa (CITES 2012a; see Blanc *et al.* 2007 for further definition of population categories).

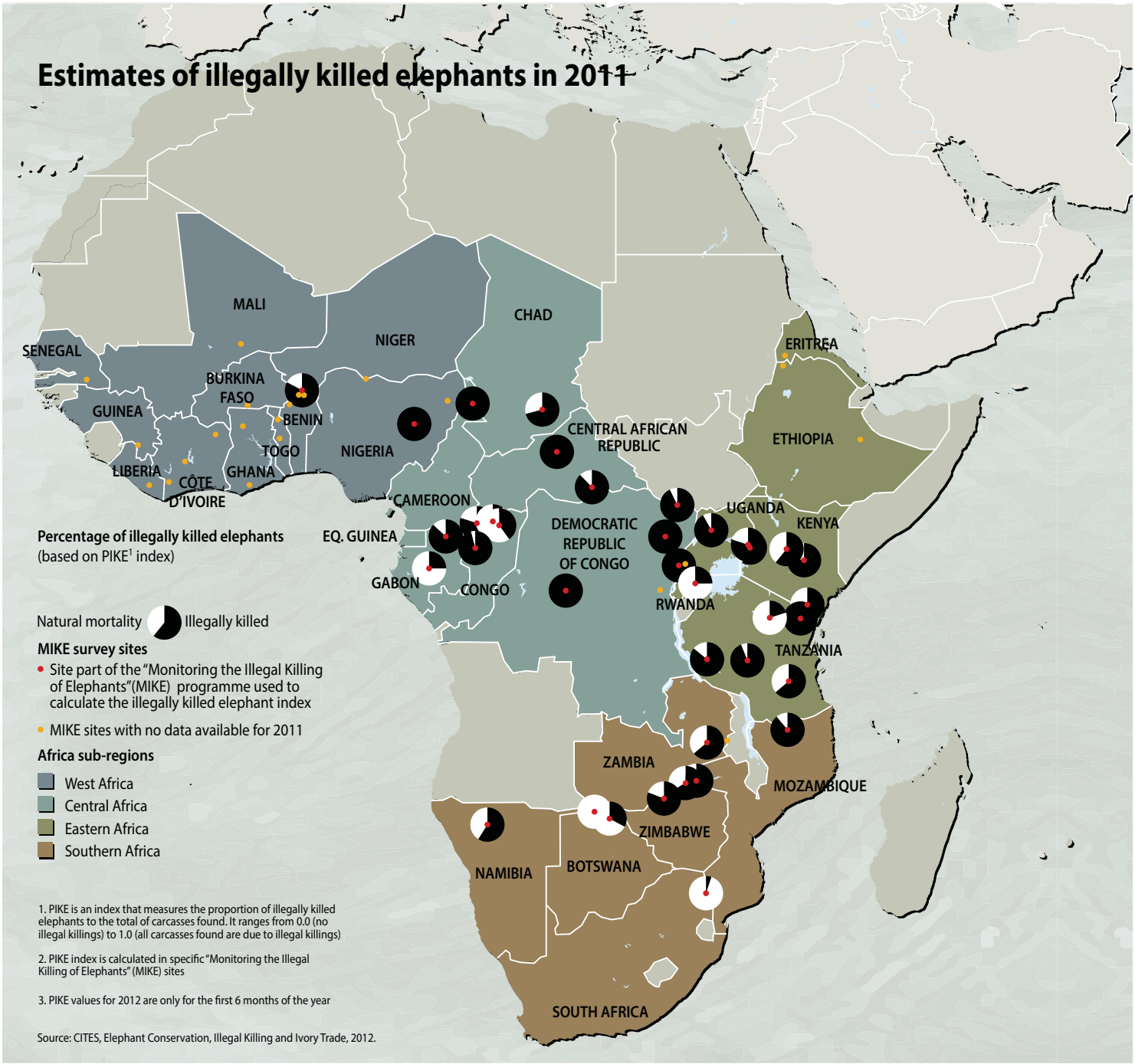
The PIKE trends across African MIKE sites suggest an ongoing increase in levels of poaching since 2006, with 2011 showing the highest levels of poaching since MIKE records began in 2002 (CITES 2012a). The continental PIKE level rose from 0.24 in 2005 to 0.7 in 2011, which was higher than that of 2010 which was at 0.6. Data from the first six months of 2012 indicate that PIKE levels will likely be similar to 2011.

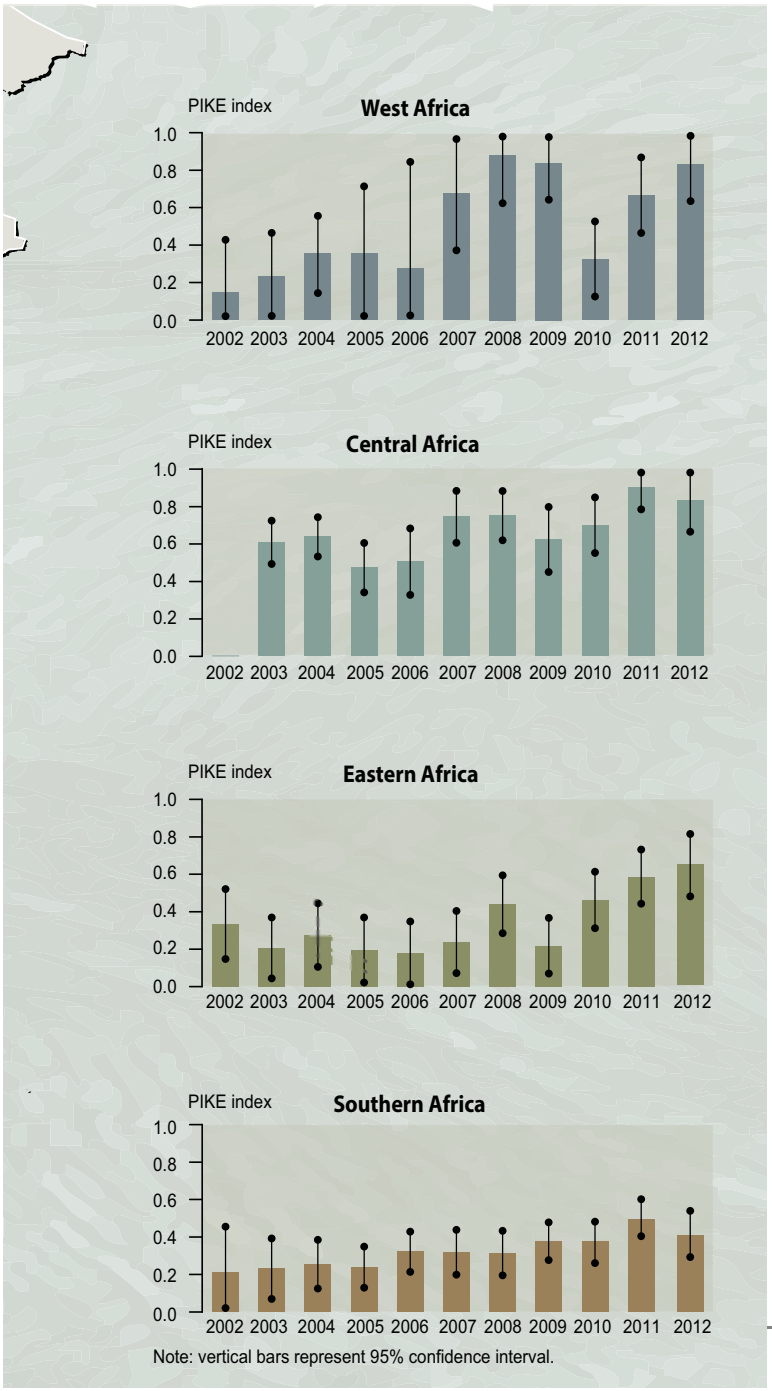
The data make it possible to estimate the percentage and actual number of elephants being killed in MIKE sites. In 2011, approximately 7.4 per cent of the total elephant populations in African MIKE sites were killed illegally. This is a significant increase from 2010, when the average number of elephants killed was estimated to be 11,500.

Healthy elephant populations have a natural annual growth rate of between 5 and 6 per cent (Dunham 2012), or a theoretical maximum of 7 per cent (Hanks 1973). Thus the 7.4 per cent estimated illegal off-take in 2011 indicates an unsustainable trend of elephants being killed faster than they can breed. If this trend continues over a number of years, current poaching levels will lead to significant population declines across much of the continent.

SUB-REGIONAL OVERVIEW

Central Africa has shown worrying poaching trends for some time, and has consistently displayed the highest levels of poaching in any sub-region since MIKE monitoring began. In 2006, PIKE levels were at 0.5, meaning that about half the elephant carcasses encountered on patrol in MIKE sites were reported as illegally killed. In 2011, however, PIKE levels had risen to 0.9. This extremely high PIKE level exceeds any of


Estimates of illegally killed elephants in 2011
MALI
NIGER
CHAD
SENEGAL
BURKINA FASO
GUINEA
BENIN
TOGO
NIGERIA
LIBERIA
CÔTE D'IVOIRE
GHANA
CAMEROON
CENTRAL AFRICAN REPUBLIC
ERITREA
ETHIOPIA
EQ. GUINEA
GABON
CONGO
DEMOCRATIC REPUBLIC OF CONGO
UGANDA
KENYA
RWANDA
TANZANIA
ZAMBIA
MOZAMBIQUE
ZIMBABWE
NAMIBIA
BOTSWANA
SOUTH AFRICA
Percentage of illegally killed elephants
(based on PIKE[1] index)
Natural mortality
Illegally killed
MIKE survey sites
Site part of the "Monitoring the Illegal Killing of Elephants"(MIKE) programme used to calculate the illegally killed elephant index
MIKE sites with no data available for 2011
Africa sub-regions
West Africa
Central Africa
Eastern Africa
Southern Africa
1. PIKE is an index that measures the proportion of illegally killed elephants to the total of carcasses found. It ranges from 0.0 (no illegal killings) to 1.0 (all carcasses found are due to illegal killings)
2. PIKE index is calculated in specific "Monitoring the Illegal Killing of Elephants" (MIKE) sites
3. PIKE values for 2012 are only for the first 6 months of the year
Source: CITES, Elephant Conservation, Illegal Killing and Ivory Trade, 2012.



the other African sub-regions. Some of the MIKE sites in Central Africa are also UNESCO World Heritage sites, such as the Okapi Wildlife Reserve, Salonga National Park and Virunga National Park in the Democratic Republic of Congo (DRC), where all the elephant carcasses found on patrols in 2011 were identified as having been illegally killed (CITES 2012a). Another World Heritage Site in the DRC is the Kahuzi-Biega National Park where the elephant population has been reduced to just 20 individuals due to armed conflicts that have persisted in the eastern part of the country (CITES 2012a).

Based on this data it is calculated that 14 per cent of the entire elephant population in MIKE sites in the Central African sub-region were killed in 2011 (CITES 2012a). Again, this percentage is much higher than any other region in Africa and is double the rate at which healthy elephant populations are able to replenish themselves. These estimates are backed by other reports from the region, which indicate similar or worse numbers (Bouché *et al.* 2010; 2011; Poilecot 2010). Notably, a recent survey of the Sudano-Sahelian zone of the Central African sub-region (including northern Cameroon and northern parts of the Central African Republic) estimates a 76 per cent decline in elephant populations over the last two decades (Bouché *et al.* 2011). In January 2012, a hundred or so raiders travelled on horseback across the border from Chad into Bouba Njdida National Park in northern Cameroon and killed between 200–300 elephants, in an episode that received much media attention (TRAFFIC 2012). Another hundred elephants were killed in the park in the months following the initial raid and it is estimated that half of the park's elephant population were killed in 2012, possibly more (WWF 2012). Minkébé National Park in Gabon is home to African forest elephants, and has been showing very high PIKE levels in recent years. In February 2013, the Gabon government released a report estimating that about two-thirds of the park's elephant population (more than 11,000 elephants) have been killed since 2004 (Parcs Gabon 2013).

In West Africa, small and fragmented elephant populations yield few carcasses, and as a result of small sample sizes, poaching trends based on PIKE values are rather less reliable than in other sub-regions. Nevertheless, an increasing trend in the

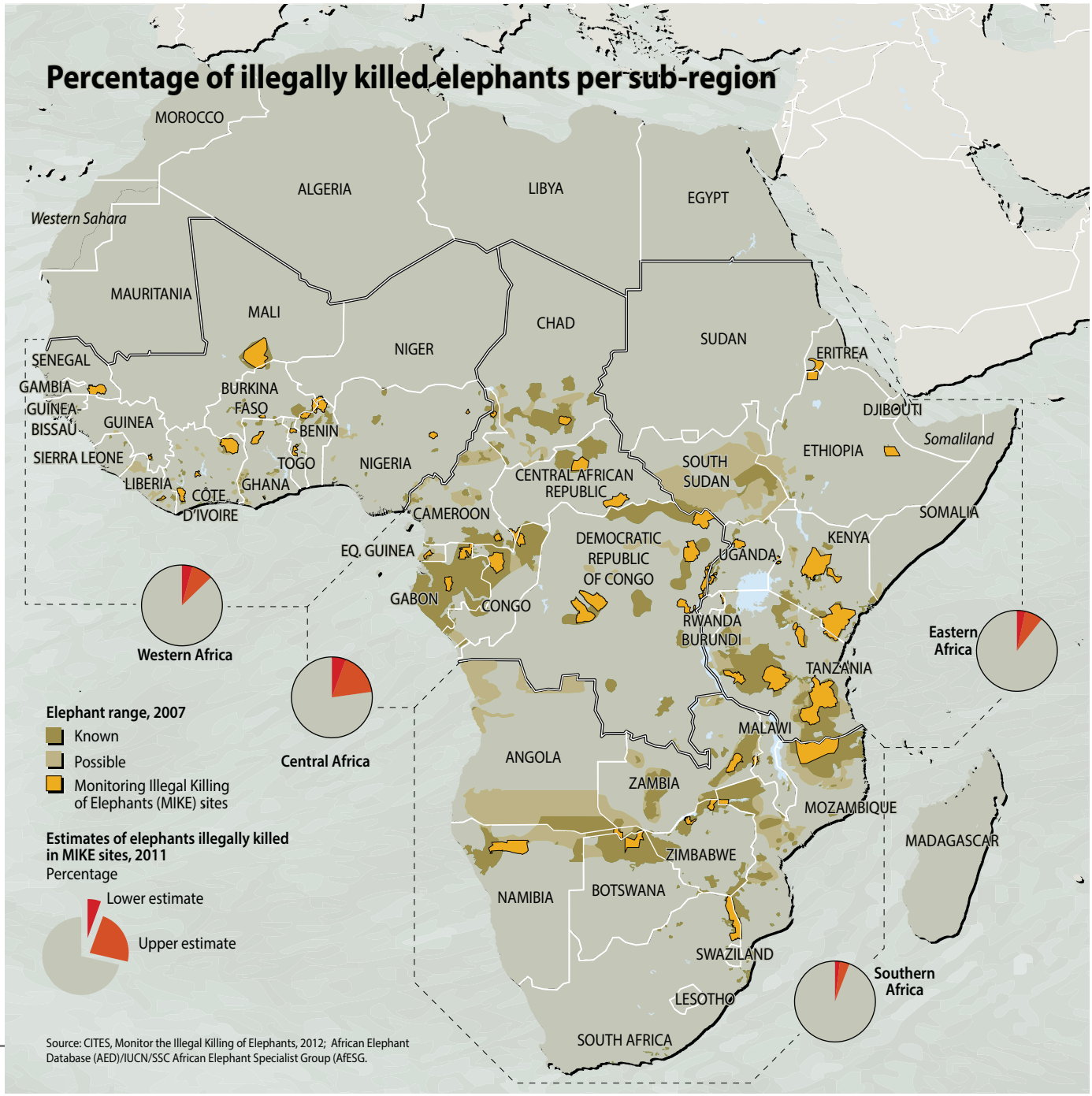
Figure 10: Proportion of illegally killed elephants at African MIKE sites in 2011.

poaching data is becoming apparent, and poaching levels are sufficiently high to warrant concern. The small and fragmented elephant populations in West Africa are particularly vulnerable to increases in poaching, which can severely distort sex ratios and lead to local extinctions. Historically, elephant populations of less than 200 are known to die out within a matter of a few decades (Bouché *et al*. 2011). This has happened in several elephant populations in West Africa, but a recent example is Comoé National Park in Côte d'Ivoire, where poaching associated with the country's recent civil war has reduced elephant populations to near extinction (Fischer 2005; CITES 2012a).

Eastern Africa has experienced a three-fold increase in reported illegally killed elephants in MIKE sites from a PIKE level of about 0.2 in 2006 to almost 0.6 in 2011. In Tanzania, PIKE levels were higher than 0.7 across the country's five MIKE sites. Many of these reports on illegal killings came from the Selous Game Reserve in southern Tanzania, which is recognized as the largest game reserve in the world and also an UNESCO World Heritage Site (Baldus 2009). In 2011, more than 65 per cent of the 224 carcasses encountered on patrols had been killed by poachers (CITES 2012a). Ruaha Rungwa National Park, where PIKE levels were higher than 0.9 in 2011, is another disturbing example of elephant poaching in Tanzania. Kenya showed similar poaching levels in 2011, with two thirds of the 464 carcasses reported in MIKE sites identified as illegally killed, particularly in the Tsavo National Park and the Samburu Laikipia ecosystem (CITES 2012a). Uganda harbours a much smaller elephant population and has not reported as many carcasses as its neighboring countries. Still, the Murchison Falls National Park and the Queen Elizabeth National Park reported PIKE levels of 0.8 and 0.9 respectively in 2011. In 2011, an estimated 7 per cent of the elephant population living in MIKE sites in Eastern Africa were killed.

Southern Africa shows the lowest PIKE levels of any sub-region, but here MIKE data also suggest an increasing trend in poaching over the last decade. In 2006, the PIKE level in all MIKE sites in Southern Africa combined was 0.3 and therefore slightly higher than that of Eastern Africa that same year. By 2011, the PIKE level had almost doubled, and for the first time was higher than 0.5 (CITES 2012a). In particular, the Niassa National Reserve in Mozambique reported a very high PIKE level. Of the 85 elephant carcasses registered at this site in 2011, 75 were identified as being illegally killed (CITES 2012a). In 2011, it is estimated that 4 per cent of the total elephant population living in MIKE sites in Southern Africa were killed illegally.

Figure 11: Percentage of total elephant populations in MIKE sites being killed illegally in 2011.


Percentage of illegally killed elephants per sub-region
MOROCCO
ALGERIA
LIBYA
EGYPT
Western Sahara
MAURITANIA
MALI
NIGER
CHAD
SUDAN
ERITREA
SENEGAL
GAMBIA
GUINEA-BISSAU
GUINEA
BURKINA FASO
BENIN
TOGO
NIGERIA
SIERRA LEONE
LIBERIA
CÔTE D'IVOIRE
GHANA
CAMEROON
CENTRAL AFRICAN REPUBLIC
SOUTH SUDAN
DJIBOUTI
Somaliland
ETHIOPIA
SOMALIA
KENYA
EQ. GUINEA
GABON
CONGO
DEMOCRATIC REPUBLIC OF CONGO
UGANDA
RWANDA
BURUNDI
TANZANIA
Western Africa
Central Africa
Eastern Africa
Elephant range, 2007
Known
Possible
Monitoring Illegal Killing of Elephants (MIKE) sites
Estimates of elephants illegally killed in MIKE sites, 2011
Percentage
Lower estimate
Upper estimate
ANGOLA
ZAMBIA
MALAWI
MOZAMBIQUE
MADAGASCAR
ZIMBABWE
NAMIBIA
BOTSWANA
SWAZILAND
LESOTHO
SOUTH AFRICA
Southern Africa
Source: CITES, Monitor the Illegal Killing of Elephants, 2012; African Elephant Database (AED)/IUCN/SSC African Elephant Specialist Group (AfESG.

An aerial view of an elephant killed in tall grass. The clearing around the elephant has been made by scavengers. Zakouma National Park, Chad.

This elephant carcass is about 1 week old. Decay rates vary greatly depending on humidity, scavenger abundance and soil type. Zakouma National Park, Chad.

These juvenile elephants were part of a herd of 64 elephants that were killed in Zakouma National Park, Chad. All the elephants were killed in a very small space (half the length of a soccer pitch), suggesting that it was the work of experienced, professional poachers, who first shot the matriarch.

Elephant carcass, about 1 month old. Zakouma National Park, Chad.

A relatively fresh carcass is being turned over using a vehicle to look for any bullet wounds on the underside. Zakouma National Park, Chad.

This elephant escaped the poachers but later succumbed to the wounds from an AK47. The guard in the picture is pointing out an entry wound in the foot. This carcass is a few days old. Zakouma National Park, Chad.

WHAT DRIVES POACHING?

Understanding the reasons behind the recent surge in elephant poaching is no simple task. A wide variety of factors are at play at every point along the illegal ivory trade chain – from the poaching incident in the protected areas or on private land, networks of national receivers, facilitators, buyers or couriers moving the illegal ivory across international borders, to overseas consumer markets – the nature of the trade makes it all the more difficult to obtain reliable information on its dynamics. It is possible to distinguish between global, national and local level drivers of poaching. Below is an attempt to cover the most important drivers at each level.

GLOBAL LEVEL DRIVERS

Ultimately, the illegal trade in ivory is driven and sustained by consumers who are willing to pay high prices for the commodity, regardless of its origin or legality. Ivory carvings have been a much revered luxury and status symbol in many parts of the world for centuries. Demand in some traditional markets, which flourished through much of the 20th century, like Europe, North America and, more recently, Japan, have dwindled in the last few decades through awareness campaigns linking ivory to the death of elephants. China's ivory market has followed a very different pattern. Demand for ivory in China lay dormant for much of the 20th century, but has in recent years made a remarkable resurgence, to the extent that China is now the world's largest destination market for illegal ivory (ETIS 2012). This resurgence can be linked to recent changes in wealth and consumer spending patterns. While the size of China's economy has been growing exponentially in the last 20 years (World Bank 2012a), much of that new wealth was being saved rather than spent, with savings rates increasing sharply between 1990 and 2006 (World Bank 2012a). That year, growth in savings stalled, while private consumption rose sharply (World Bank 2012a). Trends in consumer spending in China, as measured by private consumption expenditure (IMF 2012) are strongly correlated with the PIKE trends in Africa reported by the MIKE Programme (CITES 2011; 2012a) and explain much of the temporal variation in PIKE levels. This relationship does not hold for other traditional destination markets for ivory (Europe, USA or Japan) or for countries known to be important transit points in the ivory trade chain (Malaysia, Philippines, Thailand or Viet Nam).

While the illicit trade is ultimately driven by demand, the easy availability of illegal ivory exacerbates it. Ivory can be found openly on display in markets and shops in many African cities, such as Khartoum, Kinshasa, Lagos, and Luanda, as well as in certain Asian cities (ETIS 2012). Most of these markets operate with impunity due to lack of law enforcement action, and often in blatant disregard of national legislation prohibiting trade in illegal ivory. A series of studies of African ivory markets supports the notion that increased national control over domestic markets weakens these markets, while poor law enforcement allows them to grow (Mubalama 2005; Martin and Milliken 2005; Vigne and Martin 2008; Latour and Stiles 2011; Randolph and Stiles 2011; Stiles 2011; Martin and Vigne 2011a). In China, although a regulated and legal market for ivory exists, gaps in enforcement result in the wide availability of illegal ivory (Martin and Vigne 2011).

These markets are now reaching their target consumers more directly, given the increasing numbers of Chinese citizens living or working in Africa, whether on short term contracts for infrastructure projects and resource extraction or as long term residents who frequently travel between Africa and Asia (Milliken 2012).

Consumer demand for illegal ivory and the prevalence of unregulated or insufficiently supervised markets open up opportunities for profit by transnational criminal networks. The involvement of organized criminals in the illegal ivory trade is evidenced by the increasing trend in seizures of large-scale ivory shipments (defined by ETIS as shipments of at least 800 kg) between Africa and Asia (Milliken *et al.* 2012). Moving large quantities of illegal ivory across international borders requires substantial resources, organization and financial means for funding operations and logistics. These transnational networks keep ahead of law enforcement by adapting their tactics and routes to avoid detection, making national borders increasingly irrelevant (Scanlon 2012).

NATIONAL LEVEL DRIVERS

At the national level, poor law enforcement, weak governance structures and political and military conflicts are some of the main drivers that facilitate poaching and allow illicit trade in ivory to grow.

Weak governance in source, export and transit countries, significantly contribute to the illegal movement of ivory across national borders, as enforcement officers in such countries are often susceptible to corruption. MIKE analyses have consistently shown that poor governance in range States, as measured by national-level indices like the World Bank's Worldwide Governance Indicators (World Bank 2012b) or Transparency International's Corruption Perceptions Index (TI 2012), is more strongly correlated with poaching levels than any other national-level indicator (CITES 2012a). Weak governance is likely to play an important role at all points of the illegal ivory trade chain, from poaching on the ground to the smuggling and marketing of illegal ivory.

Armed conflict in some source countries facilitates poaching and is often also associated with illegal mineral resource extraction. This is the case in Central Africa, where elephant populations in areas such as eastern Democratic Republic of Congo and northern Central African Republic have been heavily depleted (Beyers *et al*. 2011; Bouché *et al*. 2010; 2011; 2012) in parallel with armed conflict. Rebel militia groups, including the Lords Resistance Army in Central Africa and the Janjaweed of Chad and Sudan, are alleged to be implicated in elephant killing raids. The ivory collected is believed to have been exchanged for money, weapons and ammunition to support conflicts in neighboring countries (CITES press release 2012a; 2012b).

LOCAL LEVEL DRIVERS

Locally, poaching levels are associated with a wide variety of complex socio-economic factors and cultural attitudes (Kaltenborn *et al*. 2005; Bitanyi *et al*. 2012; Stiles 2011; CITES 2012a). Poaching and hunting for bushmeat, for example, are exacerbated by poverty, and recent studies suggest that the killing of elephants for their meat will grow as other kinds of bushmeat and protein sources become scarcer (Stiles 2011). The analysis of MIKE data also shows that the level of poverty in and around MIKE sites, as measured by human infant mortality rates (Mu'ammar 2007) and food security, as measured by livestock and crop densities (Franceschini 2005a; 2005b; 2005c; 2005d and Nachtergaele 2008), correlate strongly with the levels of elephant poaching (CITES 2012a). While hunting for meat or ivory has been a traditional source of protein and income for many rural communities, poverty also facilitates the ability of profit-seeking criminal groups to recruit local hunters who know the terrain, and to corrupt poorly remunerated enforcement authorities. Evidence from a number of recent studies suggests that reducing poverty can result in reduced poaching levels (Lewis 2011; Mfunda and Røskaft 2011; Bitanyi et al 2012; Child 1996; Frost and Bond 2008; Roe et al 2011; Walpole and Wilder 2008).

The MIKE analysis demonstrates that the quality and efficiency of local law enforcement effort in elephant sites are also linked with levels of elephant poaching. Levels of illegal killing tend to be higher at sites where law enforcement capacity is poor, while protected areas with better patrolling and law enforcement tend to experience lower levels of poaching (CITES 2012a).

Human-elephant conflict, associated with the rapidly expanding human population in Africa and ongoing encroachment of elephant habitat, are another driver for the illegal killing of elephants, even if ivory is not the ultimate motivation for killing. Crop raiding or attacks on humans by elephants in rural areas may lead to retaliation killings. While the number of elephants that die in such conflicts is much lower than the numbers poached for ivory, hundreds of elephants are killed every year as a result of human-elephant conflict (Hema *et al*. 2011; Webber *et al*. 2011).

IVORY SEIZURES

The illegal trade in ivory has demonstrated a pronounced upward trend since 2007. Illicit ivory trade activity and the weight of ivory behind this trade are now roughly three times greater than it was in 1998. When these findings from the Elephant Trade Information System (ETIS) are considered together with the results of the CITES MIKE Programme, it can be argued that elephants are facing their most serious conservation crisis since the 1989 trade ban was imposed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

ELEPHANT TRADE INFORMATION SYSTEM

ETIS statistics indicate that Kenya and the United Republic of Tanzania are currently the major exit points for illicit ivory. Representing a major shift to Indian Ocean seaports, 16 (47 per cent) of the 34 large-scale ivory seizures that occurred between 2009 and 2011 were exported from these two nations. South Africa has also recently emerged as an exit point for ivory from the African continent. The two primary final destinations for this illicit trade are China and Thailand. Along the way, Hong Kong SAR, Malaysia, the Philippines and Viet Nam serve as major transit countries. These nine countries and territories are presently linked in the illicit ivory trade chains of greatest concern. An additional ten countries and territories are recognised by ETIS as areas of concern as they are also sources of ivory, transit points or domestic ivory markets. These include Cameroon, Congo, the Democratic Republic of Congo (DRC), Egypt, Ethiopia, Gabon, Mozambique, Nigeria, Uganda and Taiwan.

All along the trade chains represented by these countries and territories, organised criminal syndicates, often of Asian origin, are an active force undermining international and national regulations that prevent trade in ivory. Corruption and weak governance structures exacerbate the deteriorating situation.

The following section provides a summary of the most recent report of ETIS to the 16th meeting of the Conference of the Parties to CITES. The objectives of ETIS, which has been managed and operated by TRAFFIC since 1997, are:

1. Measuring and recording levels and trends, and changes in levels and trends, of illegal hunting and trade in ivory in elephant range States, and in trade entrepôts;
2. Assessing whether and to what extent observed trends are related to changes in the listing of elephant populations in the CITES appendices and/or the resumption of legal international trade in ivory;
3. Establishing an information base to support the making of decisions on appropriate management, protection and enforcement needs; and
4. Building capacity in range States.

Since its initiation, ETIS has pioneered the use of law enforcement data to track illegal trade in ivory. The ETIS data represents the largest collection of elephant product seizure records in the world, with over 19,000 cases as of January 2013, representing law enforcement actions in some 90 countries and territories since 1989.

The seizure data in ETIS is supported through a series of subsidiary databases that hold time-based, country-specific information on law enforcement effort and effectiveness, rates of reporting, the scale and status of domestic ivory markets and background socio-economic factors. This information base is critical for understanding and interpreting the seizure data so that reliable evidence of trends in the illegal ivory trade is produced to inform decision making for elephants. ETIS gives a clear indication of the scale of seizures and the underlying dynamics behind the trade such as key countries, emerging trade routes and the involvement of organized criminal networks in the large-scale movement of ivory.

The analytical framework for ETIS considers the seizure data according to ivory type, raw and worked (including semi-worked), and in three separate weight classes: less than 10 kg; between 10 kg and 100 kg; and equal or greater than 100 kg. This is done because ivory trade dynamics vary through the trade chain according to ivory type and weight type. For example, movements of large amounts of raw ivory are likely to represent highly organised criminal activity in comparison to confiscations of worked ivory products illegally entering a country as curio purchases of tourists returning home from foreign countries.

The ETIS data is typically submitted by government authorities but can derive from other sources, such as NGOs working in protected areas or published accounts documenting illegal ivory trade. Most seizure cases reveal other parts of the trade chain that implicate countries which almost never make any seizures themselves, are implicated in the illicit trade through seizures made by others. To understand the raw data, it is necessary to understand the ability of countries to make seizures in the first place and to assess their ability to report such seizures to ETIS. Consequently the raw data is not

representative of underlying trade trends which are only revealed following complex statistical modeling techniques using bias-adjusted data. ETIS is able to provide relative, but not absolute, total trade quantities over time. While more and more countries are providing data to ETIS, participation by some countries, including a number of elephant range States remains poor. It is worth noting that Angola, Benin, Equatorial Guinea, Liberia, Senegal, Somalia and Togo, all African elephant range States, and Cambodia, Laos and Myanmar, all Asian elephant range States, have never reported a single elephant product seizure case to ETIS over the 23-year period since 1989.

TRENDS IN IVORY SEIZURES

Overall, using weight and transaction indices derived from the ETIS data, illegal ivory trade activity remained at or slightly above 1998 levels up to 2006. Subsequently, a gradual increase in illegal ivory trade activity commences, becoming progressively greater in each successive year, with a major surge in 2011. The frequency of illegal ivory trade transactions in 2011 was roughly three times greater than the level of illegal trade activity found in 1998. This applies to all categories of trade – both for raw and for worked ivory of either less than 10 kg; between 10 kg and 100 kg; and equal to or greater than 100 kg.

The ETIS data establishes that the frequency and scale of large-scale ivory seizures continues to increase. Such seizures are indicative of the presence of organised crime in the illicit trade. From 2009 through 2011, 34 such seizure events occurred, a record number in ETIS.

ETIS statistics indicate that Kenya and the United Republic of Tanzania together accounted for 16 of the 34 large-scale ivory seizure cases recorded from 2009 through 2011. The total volume of ivory seized was 35 tonnes and accounts for 58 per cent of the total volume of ivory derived from the large-scale seizure events during this time period.

The sharp upward trend is being driven by a major increase in ivory transactions in the equal to or greater than 100 kg weight class.

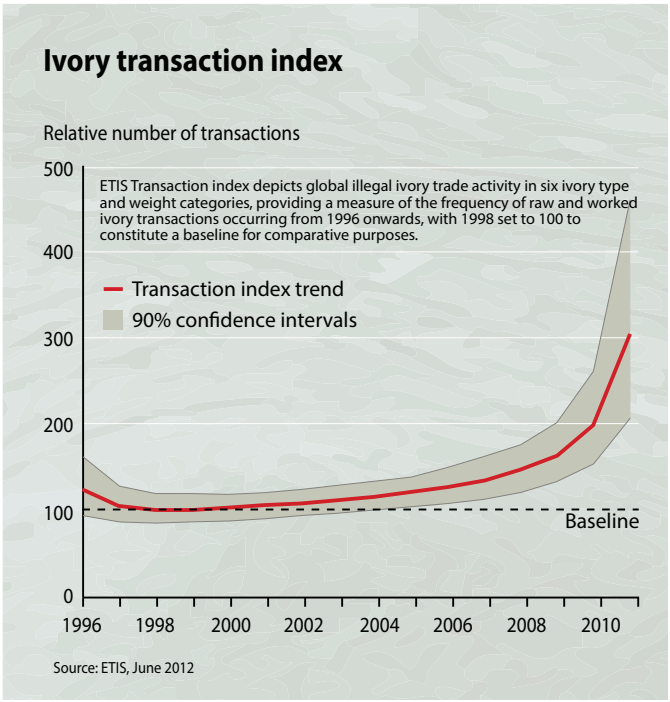


Figure 12: Ivory transaction index.

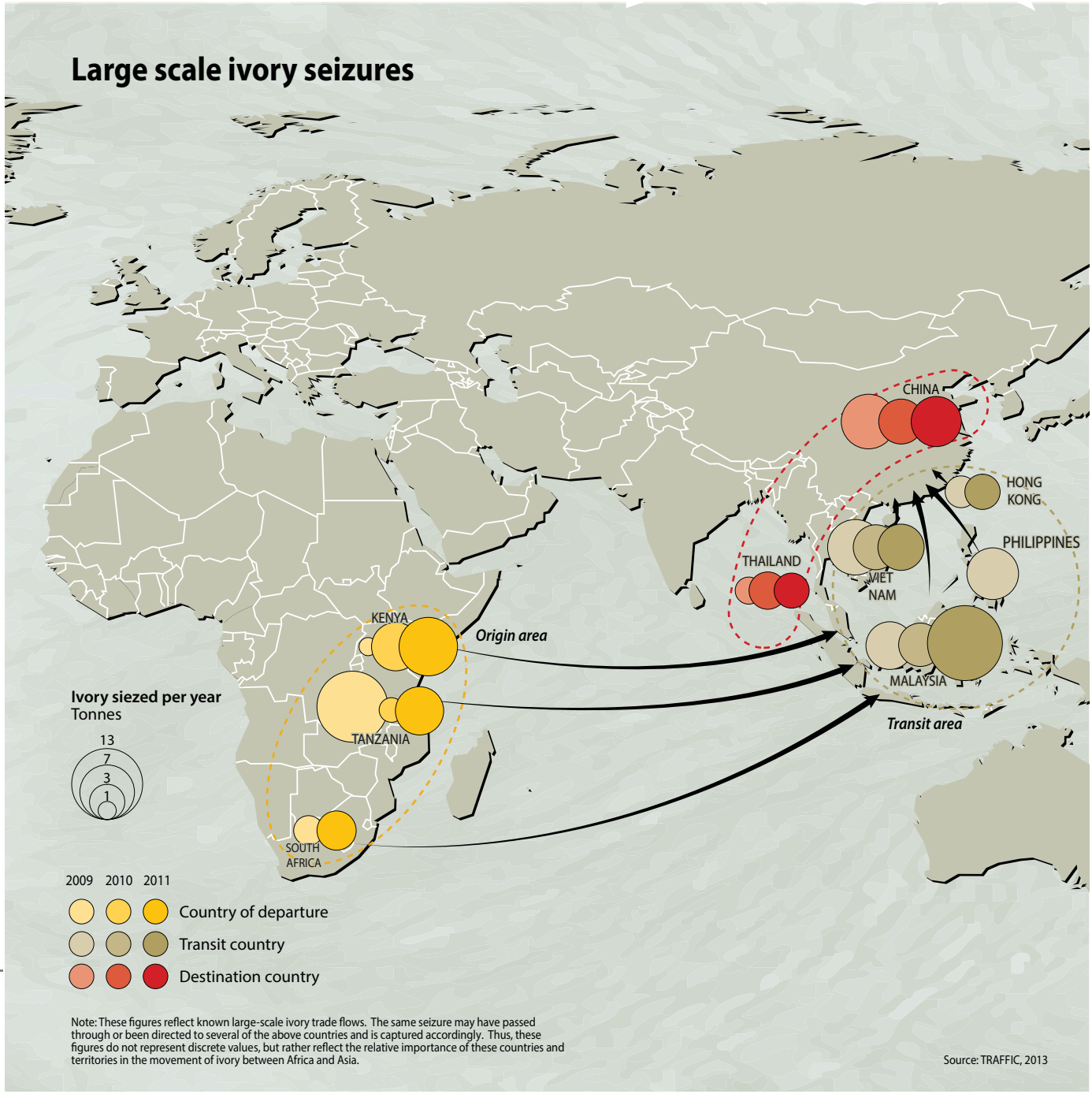
Looking at seizures of 800 kg or more that were made in 2009, 2010 and 2011, there were 8, 9 and 17 such seizures, respectively, in those years, totaling nearly 61 tonnes of ivory. The increasing pattern of large movements of ivory represents the involvement of international criminal syndicates in the trade operating through sophisticated networks that link Africa with Asia. To address this growing trend, increased law enforcement efforts and international cooperation is a prerequisite. For this reason, investigation of large-scale ivory seizures should be recognized as the single most important ivory trade crime for urgent follow-up attention.

Unfortunately, it is rare for investigations following large-scale ivory seizures to be made, and when they are, they are generally ineffective. As a result the entire crime chain is rarely addressed and arrests, prosecutions and convictions of the criminals involved rarely happen. The entire enforcement chain must work together. There is a need for better communication, collaboration and coordination on these cases at the national and international levels. Using controlled delivery techniques and wildlife forensic technology, as well as the prompt exchange of relevant information to facilitate investigations in all implicated countries is of paramount importance. This should be followed by successful prosecutions and effective deterrent penalties. The International Consortium on Combating Wildlife Crime (ICCWC) can play an important role in this regard. ICCWC brings together the intergovernmental bodies that have a mandate from their member States to engage in or support wildlife law enforcement, to ensure a well coordinated law enforcement response to combat illegal wildlife trade. Each ICWWC partner agency bring its unique skills and resources to the Consortium and deals with a different part of the system, which all need to work together to secure successful enforcement action. Unless a mechanism for broad collaboration is funded and implemented, the illegal trade in ivory will continue, resulting in the subsequent local eradications of elephants in parts of Africa.

DEPARTURE POINTS AND DESTINATIONS

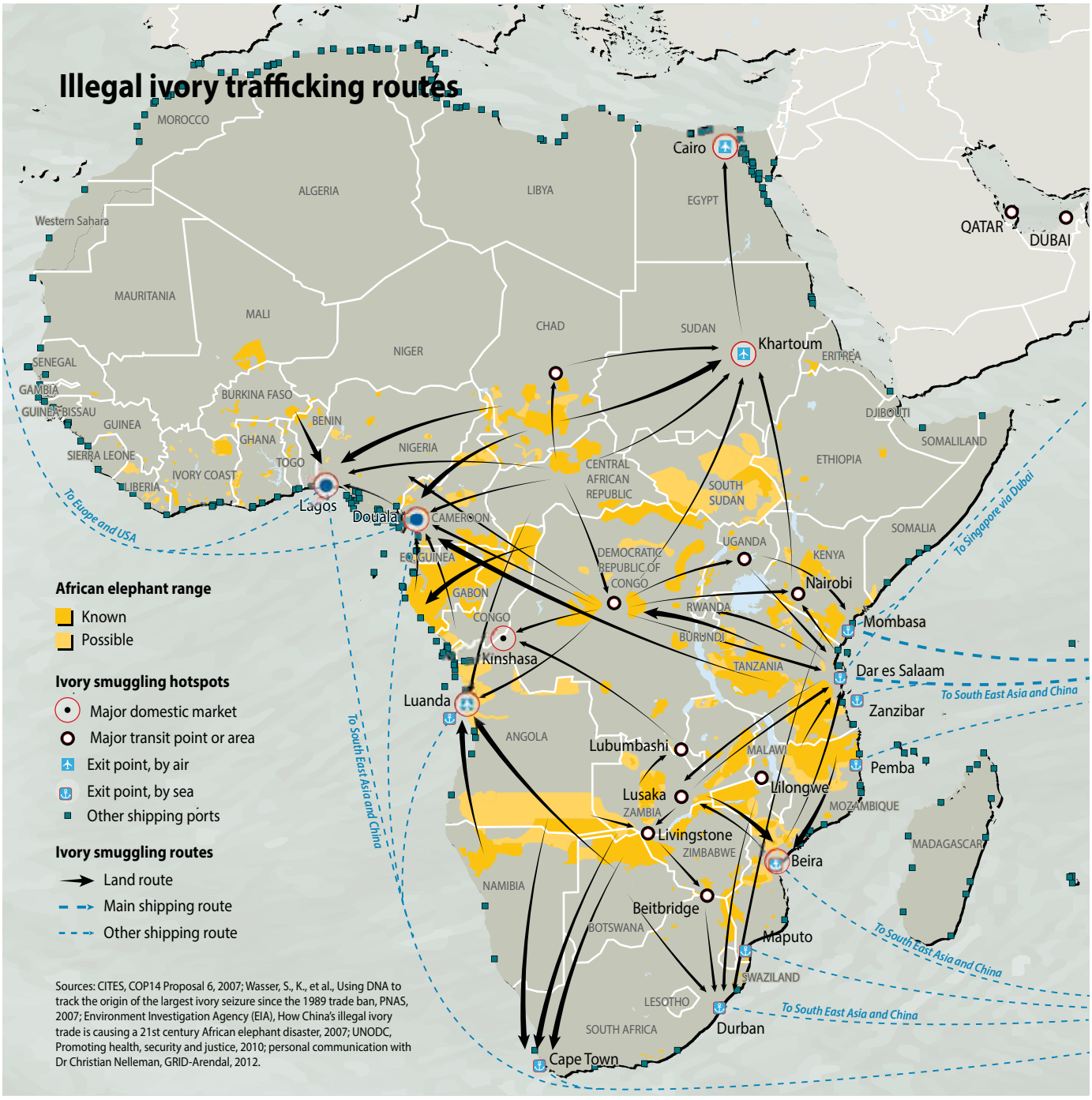
The two countries most heavily implicated as destinations for illicit trade in ivory are China and Thailand. In terms of trade routes and transit countries or territories through which large quantities of ivory are flowing from Africa to Asian consumers, Hong Kong SAR, Malaysia, the Philippines and Viet Nam are the paramount countries and territories of concern. Moving to source countries and exit points for large amounts of ivory leaving

Figure 13: Large-scale ivory shipments originating from Africa have almost exclusively been seized in containers at major ports in Asia, where there is an established customs inspection systems. Shipments have mainly originated from not only Dar es Salaam or Mombasa, but also West Africa.



Note: These figures reflect known large-scale ivory trade flows. The same seizure may have passed through or been directed to several of the above countries and is captured accordingly. Thus, these figures do not represent discrete values, but rather reflect the relative importance of these countries and territories in the movement of ivory between Africa and Asia.

Source: TRAFFIC, 2013



Sources: CITES, COP14 Proposal 6, 2007; Wasser, S., K., et al., Using DNA to track the origin of the largest ivory seizure since the 1989 trade ban, PNAS, 2007; Environment Investigation Agency (EIA), How China's illegal ivory trade is causing a 21st century African elephant disaster, 2007; UNODC, Promoting health, security and justice, 2010; personal communication with Dr Christian Nelleman, GRID-Arendal, 2012.

the African continent, Kenya, Tanzania and South Africa are presently the countries of greatest concern. More ivory is moving through and out of these countries at the present time than any other countries in Africa. All along the trade chains in these countries and territories, organised criminal syndicates are an active force undermining international and national regulations that prevent trade in ivory. In sum, these nine countries and territories are the players most heavily implicated in the illegal trade in ivory at the present time according to the ETIS data.

Figure 14: Primary and secondary ivory smuggling routes in Africa based on a wide range of sources including both ETIS seizures and criminal intelligence.

Another ten countries and territories – Cameroon, Congo, the Democratic Republic of Congo, Egypt, Ethiopia, Gabon, Mozambique, Nigeria, Taiwan and Uganda – represent a secondary level of concern as they repeatedly play important supporting roles in the illicit ivory trade. These players represent a mix of source, entrepôt/transit and exit countries for illicit consignments of ivory from Africa, while Taiwan is a potential transit point for ivory moving through Asia. Egypt, the Democratic Republic of Congo, Mozambique and Nigeria all have important unregulated domestic ivory markets in their major cities, while Nigeria, Mozambique, Uganda and Cameroon have been implicated in the large-scale movement of ivory, which indicates the involvement of organised crime syndicates.

PROTECTING ELEPHANTS: LAW ENFORCEMENT, CHALLENGES AND OPPORTUNITIES

In order to ensure effective law-enforcement on the ground, it is crucial that anti-poaching tracker units are well-trained in tactical skills and intelligence. At the height of the elephant killings of the 1970s and 1980s, park rangers were frequently killed when they came into contact with poachers. During this period, increasing attention was paid to improving law enforcement efforts in protected areas. However, it was not until rangers began to receive better training, employ better tactics, and began to work in collaboration with both military and police units throughout Eastern and Southern Africa that law enforcement efforts really improved.

In the Virunga region of Uganda, Rwanda and the Democratic Republic of Congo, rangers have managed to protect and increase the mountain gorilla population amidst one of the worst ongoing conflicts since the Second World War (UNEP-INTERPOL 2011). However this is not the case in Central and West Africa, where a lack of resources, weak governance, ongoing conflicts, and a large abundance of arms and criminal groups have prevented comparable ranger forces from developing. Elephant populations in these regions remain low and certain populations have been reduced by poaching to levels of near extinction.

Unfortunately, as poaching declined and as the cost of newer, more modern equipment increased, many of the most effective anti-poaching units slowly dissolved. To save costs, trackers were often hired on a temporary basis and were not provided adequate tactical training. Equipment such as vehicles, fixed-wing airplanes and radios are important tools for rangers. In remote areas however, vehicles are confined to roads or tracks and easily seen from afar, making them easy for poachers to avoid. Vehicles and, in some areas fixed-wing airplanes, are useful in follow-up operations, but are most effective when used alongside well-trained long-range ground patrols and tracker units that operate on foot (Kearney 1978; Diaz 2005; Scott-Donelan 2010; Nellemann *et al*. 2011). Without these tracker units, it is virtually impossible to locate, pursue and apprehend poachers in the bush.

Additionally, well-established tracker units can deter poaching, as poachers begin to realize that they may be followed day or night and that their actions, movements, intentions and background can be identified or predicted (Kearney 1978; Donelan 2010; Nellemann *et al*. 2011). As the likelihood of getting caught or even killed in an encounter with rangers rises, risk begins to outweigh profitability, and the temptation to engage in ivory poaching declines.

It is clear that in order to address elephant poaching in Africa, it is important that range States establish effective anti-poaching tracker teams. Such efforts are already underway in Tanzania, where both the Mweka College of African Wildlife Management and the Pasiansi Wildlife Training Institute have introduced training in tracking and crime scene management for future rangers and park managers. It is also important that South African expertise in tracking and intelligence gathering is shared with other range States, through instruments such as the Lusaka Task Force Agreement.

CUSTOMS AND ANTI-SMUGGLING

Given the large movements of ivory and the obvious involvement of international crime syndicates in the trade of ivory between Africa and Asia, law enforcement efforts and international cooperation must be strengthened. Large-scale ivory seizures in particular require follow-up investigations and trans-boundary criminal intelligence units must be established.

To date, many large-scale ivory seizures have not resulted in an investigation of the criminal networks involved in trade and smuggling. It is evident that a mechanism is needed to combine intelligence and the use of controlled deliveries through the International Consortium on Combating Wildlife Crime (ICCWC) or through collaboration between the World Customs Organisation (WCO), the United Nations Office on Drugs and Crime (UNODC) and INTERPOL, in order to ensure that information about seizures is communicated to national police forces so that they can respond and conduct investigations that result in arrests and convictions. Unless such a broad collaboration is funded and implemented, the poaching and illegal trade of ivory is likely to continue and may very likely result in local eradications of African elephant populations.

The African Elephant Action Plan and the African Elephant Fund

Following a decision at CITES COP 14 held in the Hague in 2007, the African Elephant Action Plan was developed by the 38 African elephant range States. The Action Plan was adopted by all range States in 2010 at COP 15 in Qatar, with the vision to *"ensure a secure future for African Elephants and their habitat to realize their full potential as a component of land use for the benefit of the human kind"* (CITES 2010b).

In adopting the Action Plan, all African range States have recognized that the threats faced by the African elephant must be addressed immediately, otherwise they may result in entire populations being lost (CITES 2010b). The Action Plan seeks to address "the situation on the ground" and has identified eight priority objectives:

1. Reduce the illegal killing of elephants and the illegal trade in elephant products;
2. Maintain elephant habitats and restore their connectivity;
3. Reduce human-elephant conflict;
4. Increase awareness among key stakeholders about elephant conservation and management;
5. Strengthen range States' knowledge about African elephant management;
6. Strengthen cooperation and understanding among range States;
7. Improve local communities' cooperation and collaboration on elephant conservation; and
8. Effectively implement the African Elephant Action Plan.

In order to achieve these eight objectives, a list of necessary activities has been laid out. Among some of the listed activities proposed by the Action Plan, range States have identified the need to strengthen the capacity of law enforcement authorities and agencies to combat poaching and illegal trade, and to harmonize and strengthen national policies and laws relevant to conservation and management of elephants. Connectivity between elephant ranges within and across range States must also be ensured, and multilateral support for the management of elephant sites and cross-border corridors must be established and improved. Additionally, sustainable incentive schemes that benefit local communities must be implemented and the status of elephant populations within and among range States must be monitored (CITES 2010b). To implement all activities in the African elephant action plan for a period of three years, an estimated USD 100 million will be required.

The activities of the Action Plan are supported by the multi donor African Elephant Fund which was established in 2011 (CITES 2012c). To date, the African Elephant Fund has received some USD 600,000 in contributions from China, France, Germany, the Netherlands, Great Britain and Northern Ireland, and South Africa.

The International Consortium on Combating Wildlife Crime

The International Consortium on Combating Wildlife Crime (ICCWC) is a collaborative effort by five intergovernmental organizations: the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Secretariat, INTERPOL, the United Nations Office on Drugs and Crime (UNODC), the World Bank and the World Customs Organization (WCO). The CITES Secretariat chairs the alliance, which works to bring coordinated support to national wildlife law enforcement agencies and to the sub-regional and regional networks that, on a daily basis, work to protect wildlife.

'Wildlife', as defined by the consortium is not restricted to animals alone, but also incorporates endangered plants, illegally logged timber and non-timber forest products, some of which are illegally traded at very significant levels.

The mission of the ICCWC is to usher in a new era where perpetrators of serious wildlife crimes will face a formidable and coordinated response from national and international law-enforcement agencies. In this context, the ICCWC mainly works for, and with, the wildlife law enforcement community, since it is the frontline officers who will eventually bring criminals engaged in wildlife crime to justice. The ICCWC seeks to support the development of law enforcement efforts that build on socially and environmentally sustainable natural resource policies, taking into consideration the need to provide livelihood support to poor and marginalized rural communities.

CITES is an international agreement between governments that aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The CITES Secretariat has been working since 1975 to help countries combat illegal cross-border trade in animals and plants.

INTERPOL is the world's largest international police organization, with 188 member countries. Created in 1923, it facilitates cross-border police cooperation, and supports and assists all organizations, authorities and services whose mission is to prevent or combat international crime. INTERPOL's General Secretariat has a programme devoted to combating environmental crime.

The United Nations Office on Drugs and Crime (UNODC) is a global leader in the fight against illicit drugs and international crime. Established in 1997 through a merger between the United Nations Drug Control Programme and the Centre for International Crime Prevention, UNODC operates in all regions around the world through an extensive network of field offices.

The World Bank is a vital source of financial and technical assistance to developing countries around the world. Its mission is to fight poverty and to help people help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors. The Bank supports a global programme of technical assistance on anti-money laundering and has played a leading role in international efforts to strengthen forest law enforcement and governance.

The World Customs Organization (WCO) is the only intergovernmental organization exclusively focused on Customs matters. With its worldwide membership, the WCO is now recognized as the voice of the global Customs community. It is particularly noted for its work in areas covering the development of global standards, the simplification and harmonization of customs procedure, the facilitation of international trade, trade supply chain security, the enhancement of Customs enforcement and compliance activities, anti-counterfeiting and piracy initiatives, public-private partnerships, integrity promotion, and sustainable global Customs capacity building programmes.

United under the banner of ICCWC, these organizations form a unique pool of thematically relevant technical and programming expertise, presenting the opportunity for a novel approach to the multi-faceted challenges posed by wildlife crime.

While some major ivory seizures have been made, much of the ivory smuggling in Africa goes unchallenged. Improved capacity and intelligence, along with increased awareness among customs authorities and more regular and efficient customs controls of containers, dry bulk vessels, fishing vessels, river boats, as well as air crafts are crucial to the successful interception and seizure of elephant ivory. The UNODC-WCO Container Control Programme is one highly important initiative working towards achieving this. To effectively combat smuggling however, vessels should be tracked by satellite and a broader coalition that gathers and shares intelligence through the ICCWC and INTERPOL is needed. Such efforts may, in turn, lead to improved intelligence on the criminal networks involved.

ORGANIZED CRIME AND INVESTIGATION

The routes and *modus operandi* of marine and land smugglers must be investigated by agencies such as the UNODC, CITES, INTERPOL and the WCO in order to effectively combat ivory smuggling. This would also support the fight against other forms of contraband including drugs, small arms and light weapons. Currently, due to the transnational nature of organized ivory trafficking, only the ICCWC is set up to address the entire enforcement chain. However, the establishment of trans-boundary criminal intelligence units in range States is important because they rely on the experience and expertise available locally, especially if ICCWC intelligence, information and logistical support on trans-boundary issues not easily available in those regions.

There is already a system in place to deal with transnational organized crime, and expertise exists, both within the UNODC and in range States, that has not yet been applied to addressing the illegal trade in wildlife or ivory. Unless such efforts are funded and action is taken, the demand for illegal ivory and the poaching will continue unchallenged, increasing the risk to rangers on the ground trying to enforce the law, and threatening to eradicate local elephant populations across parts of Africa.

It is also important that adequate evidence is secured to convict not only the low-level poachers, but also the high-level criminals who oversee the illegal ivory trade. This will require improved training of the rangers on the ground so that they are able to better unravel the trade chain from the crime scene and should be combined with systematic mapping of smuggling networks through active intelligence. This can only be done if customs authorities collaborate with other law enforcement agencies and use seizure opportunities to trace the ivory's origins and determine the methods of transportation used, rather than simply seizing contraband.

The UNODC-WCO Container Control Programme

The sheer volume of international maritime container traffic in the trade supply chain (about 420 million containers are shipped each year), the sophisticated and often ingenious concealment methods, along with the diverse routings adopted by illicit drug traffickers and other smugglers, invariably makes successful interdiction difficult. Seaports are notoriously difficult and at times dangerous places to work and law enforcement structures are often hampered by a lack of resources, a lack of trust between agencies, complex port processes and systems, and other factors which are purposefully exploited by criminal organizations. The situation poses a very real and serious threat to the security of the international trade supply chain so important to sustainable development.

The Container Control Programme (CCP), initiated in 2003 by the Executive Director of the United Nations Office on Drugs and Crime (UNODC) and the Secretary General of the World Customs Organization (WCO), attempts to address this issue. The CCP is intended to assist governments to create sustainable enforcement structures in selected sea ports so as to minimize the risk of maritime containers being exploited and used for illicit drug trafficking, transnational organized crime and other forms of black market activity.

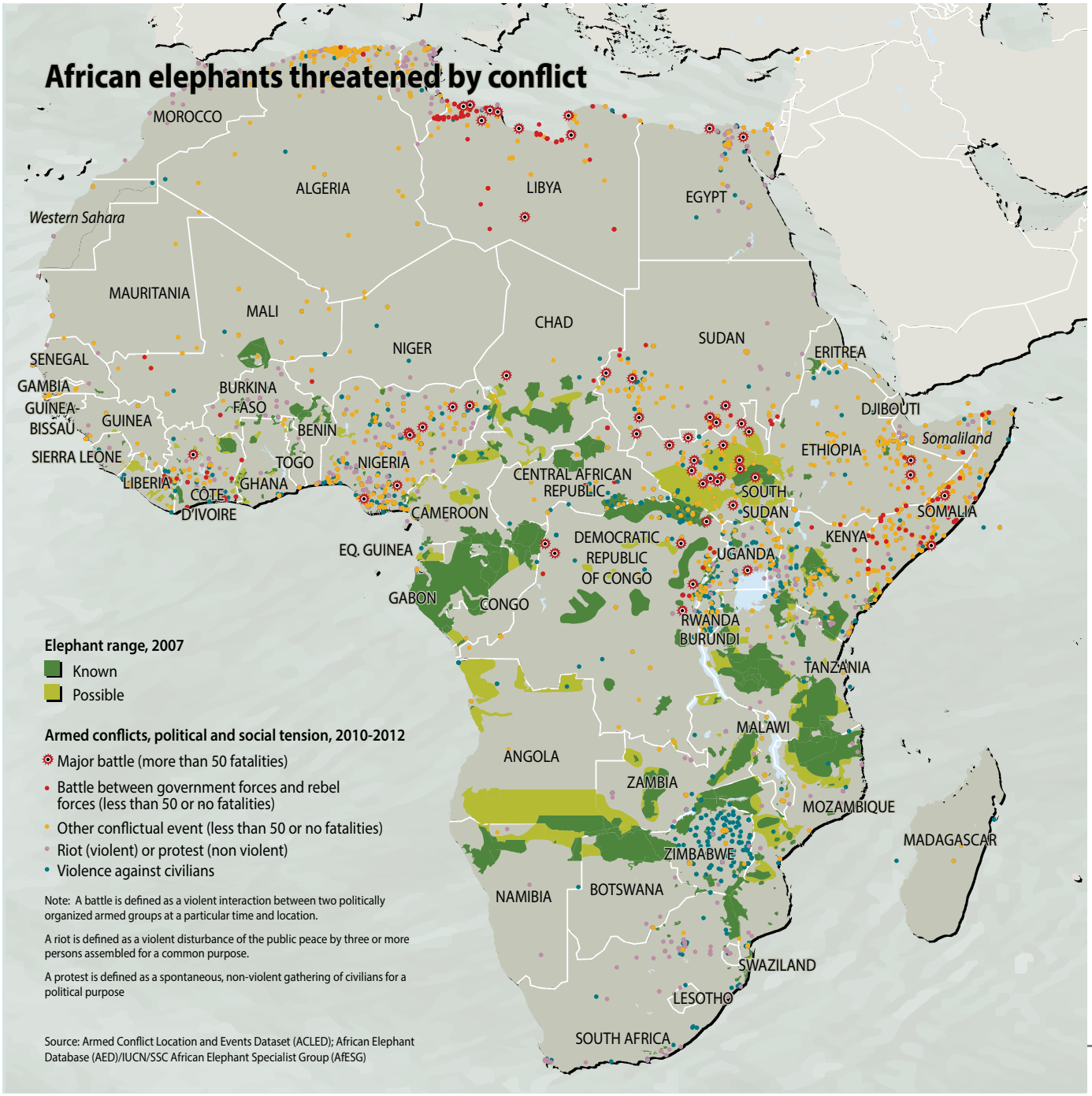
At the heart of the CCP are the inter-agency port control units. The units are made up of analysts and search teams from different law enforcement agencies including customs officials and the police officers that are trained and equipped to work together to systematically target high-risk containers for scrutiny using risk analysis and other proactive techniques with minimum disruption to the free flow of legitimate trade. It is important to note that the CCP does not seek to change the statutory roles and responsibilities of any of the participating enforcement agencies, but rather to promote the interaction and teamwork necessary for effective interdiction.

Text adapted from: WCO/UNODC (2009). Container Control Programme Progress Report June 2009. United Nations Office on Drugs and Crime – World Customs Organization.

Although it is often overlooked, kill sites must be treated as crime scenes and secured in order to protect evidence. Even without forensic equipment, it is possible to effectively secure a crime scene and park rangers and managers must be trained accordingly. The Mweka College of African Wildlife Management, the Pasiansi Wildlife Training Institute in Tanzania as well as the Kenya Wildlife Service are already training their officers in crime scene management. Such efforts should be carried out in all range States. Cross-border collaboration in training and tactics through the sharing of best-practices and success stories will help to improve investigations and provide better evidence, as only evidence which has been properly secured at the crime scene, or in poacher camps can be presented in court. In most cases, well-trained rangers can, with only a pen or pencil, paper, a knife and a mobile phone equipped with camera, establish a range of evidence to ensure that if poachers are caught, they can be prosecuted and convicted.

It is essential that rangers are trained in both crime scene management and the formation of tactical tracking teams, which, to date, is the single most effective way of pursuing small groups of people across large distances in the bush and to gather intelligence on poacher movement inside protected areas. Secondly it is vital to build small separate anti-poaching units. Small units reduce the probability of corruption and facilitate the collection of intelligence and the establishment of anti-poaching networks in the villages outside protected areas. Both must be addressed in order to increase the likelihood of apprehending poachers and gather evidence for use in court.

Currently, a variety of initiatives and courses are offered to park rangers and managers, ranging from purely paramilitary training to training in intelligence gathering. The quality and quantity of the training offered is variable however, and stakeholders and students would benefit from the improved coordination of training in tracking skills and the sharing of best-practices. Additionally, more stable funding for this type of training would allow for it to be incorporated into curriculums at ranger schools and could also be used to arrange joint workshops and meetings so that instructors and schools could benefit from intelligence-sharing and strengthened personal relationships between rangers both domestically and regionally.


African elephants threatened by conflict
MOROCCO
ALGERIA
LIBYA
EGYPT
Western Sahara
MAURITANIA
MALI
NIGER
CHAD
SUDAN
ERITREA
SENEGAL
GAMBIA
GUINEA-BISSAU
GUINEA
BURKINA FASO
BENIN
TOGO
NIGERIA
SIERRA LEONE
LIBERIA
COTE D'IVOIRE
GHANA
CAMEROON
CENTRAL AFRICAN REPUBLIC
SOUTH SUDAN
ETHIOPIA
DJIBOUTI
Somaliland
SOMALIA
KENYA
EQ. GUINEA
GABON
CONGO
DEMOCRATIC REPUBLIC OF CONGO
UGANDA
RWANDA
BURUNDI
TANZANIA
MALAWI
ANGOLA
ZAMBIA
MOZAMBIQUE
MADAGASCAR
ZIMBABWE
NAMIBIA
BOTSWANA
SWAZILAND
LESOTHO
SOUTH AFRICA
Elephant range, 2007
Known
Possible
Armed conflicts, political and social tension, 2010-2012
Major battle (more than 50 fatalities)
Battle between government forces and rebel forces (less than 50 or no fatalities)
Other conflictual event (less than 50 or no fatalities)
Riot (violent) or protest (non violent)
Violence against civilians
Note: A battle is defined as a violent interaction between two politically organized armed groups at a particular time and location.
A riot is defined as a violent disturbance of the public peace by three or more persons assembled for a common purpose.
A protest is defined as a spontaneous, non-violent gathering of civilians for a political purpose
Source: Armed Conflict Location and Events Dataset (ACLED); African Elephant Database (AED)/IUCN/SSC African Elephant Specialist Group (AfESG)

THE ROLE OF IVORY IN CONFLICT AND ORGANIZED CRIME

The African continent has struggled with political instability and conflict in recent history. Such instability encourages criminal activity including wildlife trafficking, poaching and other environmental crimes (Bouché *et al*. 2012; Chase and Beyers *et al*. 2011; Griffin 2011). While there are few big conflicts in Southern Africa today, civil unrest and sporadic fighting continues in the Congo Basin, including in the Democratic Republic of Congo (DRC), the Central African Republic (CAR), as well as in Sudan, Somalia, Ethiopia and across many countries in Central and West Africa. These conflicts have an impact on elephant populations because of the potential profit to be made on ivory sales to domestic and foreign buyers.

In the past decade, INTERPOL, the United Nations Office for Drugs and Crime, and the United Nations Environment Programme have all warned against the rise in organized transnational environmental crime. More sophisticated ways of illegally extracting resources as well as more advanced methods of laundering both illegally extracted resources and the proceeds from the illegal trade have been observed. Furthermore, the violence, murder and corruption associated with criminal cartels undermine both human and state security. Environmental crime is particularly attractive to these groups when compared with other forms of criminal activity because of its high profit margin coupled with a low probability of being caught and convicted due to the fact that transnational law-enforcement in this sector is virtually non-existent (UNODC 2011; UNEP-INTERPOL 2012).

Transnational organized environmental crime involves primarily five key areas:

1. Illegal logging and deforestation;
2. Illegal fisheries;
3. Illegal mining and trade in minerals, including conflict diamonds;
4. Illegal dumping and trade in hazardous and toxic waste; and
5. Illegal trade and poaching of wildlife and plants.

Figure 15: Political conflicts, civil unrest and African elephant range area.

The illegal trade and poaching of wildlife and plants alone is estimated to be worth USD 5–20 billion annually, and this money is often used to help finance conflicts (Wyler and Sheik 2008; GFI 2011; OECD 2012). During the Nepalese civil war (1996–2006), more than half of the rhinoceros population living in Bardia National Park was killed by Maoists to finance the conflict (Martin *et al*. 2009). During the independence conflicts that took place between 1960 and 1990 in the former Rhodesia (now Zimbabwe), Mozambique, Namibia, South Africa and Angola both elephants and rhinos were killed. In the 1970s and especially 1980s, the military groups UNITA in Angola and RENAMO in Mozambique also faced accusations of killing elephants for their ivory.

The illegal trade and poaching of wildlife and plants alone is worth USD 5–20 billion annually, and this money is often used to help finance conflicts.

Today, elephants are being killed in conflict zones across Central and West Africa. Reports of killed elephants come from many of the West African range States, as well as from Cameroon, South Sudan, the DRC, and the CAR. Many reports suggest declines of 50 to 90 per cent of some local elephant populations in CAR and the DRC alone (Beyers *et al*. 2011; Bouché *et al*. 2010; 2011; 2012).

Environmental crimes flourish in conflict zones for several reasons. During a period of conflict, the normal rule of law is not enforced and environmental crime such as illegal logging, poaching and mining becomes rampant. Indeed, the conflict in the eastern DRC, which has caused the loss of over possibly 6 million people in two decades, has been driven primarily by the greed and extraction of natural resources (UNEP-INTERPOL 2012). Organized criminals and buyers actively request and pursue

items such as ivory and rhino horn, where it is cheap, readily available, and where law enforcement is weak. Unlike timber and minerals however, the value of ivory is not enough alone to fund a war. However, buyers can actively pursue the trade in conflict areas. Indeed, the Janjaweed militia operating in Darfur, Sudan and in eastern Chad are thought to have travelled from Darfur through Chad to kill between 300 and 600 elephants in Cameroon in 2012 (CITES press release 2012b; Scanlon 2012). The Lord's Resistance Army in Uganda have allegedly killed elephants for ivory in both Uganda, CAR, and in the DRC (CITES press release 2012b), and Congolese, Burundian and Rwandan poachers armed with AK-47s and sometimes large amounts of ammunition have been responsible for elephant killings in Tanzania.

In the north, militias but sometimes also the regular armies, kill elephants. The ivory is then smuggled through Darfur to Khartoum, Sudan, or from Kampala, Uganda to Mombasa, Kenya, or from CAR and Cameroon to the coast through Nigeria, Equatorial Guinea and Gabon onto merchant ships, dry bulk ships or fishing vessels. There is no doubt that militias are involved in elephant poaching, however they are not solely responsible. There have also been claims of military involvement and even of the use of helicopters in poaching. Police, customs and wildlife authorities in some countries have also been implicated in the poaching of elephants and illegal ivory trade.

Tracking operations in Tanzania and the investigations of poachers' camps, along with direct confrontations, arrests and seizures, have revealed the involvement of not only Tanzanian citizens, but also Somalis and Rwandans in the killing of elephants.

The involvement of organized crime, influx of arms and the likelihood of encountering combat-hardened members of the military or militias pose a great risk to park rangers. Indeed, the training of rangers in bush warfare, good police tactical skills, particular in tracking and intelligence gathering is absolutely vital to the success of anti-poaching operations and law enforcement.

IVORY MARKETS

There are two types of ivory markets: raw ivory markets, which sell full tusks, cut tusks, and worked ivory markets, which sell finished items such as jewellery, figurines, trinkets, signature seal blanks, etc. Worked ivory is traditionally sold in retail crafts or antiques markets, in outlets ranging from expensive antique stores, through knick-knack shops to hotel boutiques, and on the Internet. Raw ivory markets tend to be less open. It is rare to see tusks displayed in a retail outlet, and they are more often sold by middlemen traders, operating behind closed doors or on the Internet, to end-user craftsmen or factories.

Kinshasa, DRC, has an active illegal ivory industry, with raw and worked ivory commonly smuggled out to other African and intercontinental markets.

AFRICA

Until relatively recently, most African countries allowed open worked ivory markets although they were illegal without proper documentation. A notable exception is Kenya, which had banned all ivory working and trading before the 1989 CITES ivory ban. Early surveys of selected ivory markets were carried out in 1989 by the Ivory Trade Review Group to establish baseline data for the CITES ban (Cobb 1989). A continent-wide survey was carried out in 1999 in 15 key African ivory countries to assess the effects of the ban (Martin and Stiles 2000). In that year, each of the surveyed countries except Nigeria, showed a drop in demand for ivory and a reduction in the scale of ivory markets as measured by prices and numbers of carvers, outlets and quantities for sale. This finding supported the assertion that the CITES ivory trade ban was helping to reduce ivory consumption. Côte d'Ivoire had the largest market, followed by Egypt and Zimbabwe. Gabon, where some degree of market suppression occurred, had the smallest market, suggesting that closing domestic markets can reduce ivory sales, thus lowering ivory consumption. It has been noted however, that there were worrying signs that ivory activity had picked up beginning in the mid 1990s (Martin and Stiles 2000).

Other than Cobb (1989) and Martin and Stiles (2000), only piecemeal ivory market monitoring surveys have been carried out in selected countries (Dublin *et al.* 1995; Madzou 1999; Courable *et al.* 2004; Mubalama 2005; Martin and Milliken 2005; Vigne and Martin 2008; Latour and Stiles 2011; Randolph and Stiles 2011; Stiles 2011). Four conclusions can be drawn from these reports:

1. In countries where internal government controls on ivory markets are weak, such as Angola, the DRC, Egypt, Mozambique, Nigeria, and Sudan, illegal ivory market activity remains high or is even growing.
2. Where the government has conducted raids confiscating ivory and arresting illegal traders, as in Cameroon, Congo, and Ethiopia, open ivory selling has greatly decreased.
3. Ivory market activity has grown the most in places where the Chinese are important buyers, such as in Nigeria, and Sudan, though diplomats, UN personnel, and foreign tourists and businessmen are also important buyers.
4. Tusks used in local African workshops have declined in size and quality and the average size of worked pieces has become smaller. This is likely the result of the larger, superior tusks being exported, where they can fetch much higher prices abroad.

In 1999, Lagos, Nigeria, had the only ivory market in Africa that showed growth from 1989. By 2011 it had grown even more, but local carving had decreased and most pieces were imported from elsewhere in Africa.

In 1999, Gabon was the only African country that had made ivory illegal, and very little was sold openly. More often it was brought out of hiding to show prospective customers.

All worked ivory sold in CAR is illegal and the laws are ignored.

In 1999, Abidjan, Côte d'Ivoire, had the most ivory seen for sale of any city in Africa. At the time the quantity was only 56 per cent of that seen in 1989, and in 2004 the amount had almost halved again.

Bangkok, Thailand, has one of the largest illegal ivory markets in the world.

ASIA

Today, most ivory is obtained illegally from Africa and manufactured and sold in Asia. Ivory is legal to work and sell in this region, with certain restrictions. Commercial ivory is illegal in India, Sri Lanka and Nepal, and these countries have small ivory markets, though illegal activity exists (Menon *et al.* 1998; Martin and Stiles 2002).

From the 1970s to the mid 1990s, the majority of the world's worked ivory was aimed at export, except in Japan, where local buyers predominated. The largest local markets at the time of the 1989 CITES trade ban were found in Hong Kong, Japan, Thailand and Taiwan. Ivory manufacturing had decreased significantly in China and Hong Kong. In 1985 there were a combined total of 2,000 to 2,500 ivory craftsmen in China and Hong Kong, while in 2002 the number was probably less than 200, not counting those who worked mammoth ivory. China's ivory factories and workshops went from at least 20 large ones to about 10 smaller ones in the same time period. These indicators suggest a clear decline in market demand for ivory manufactured in China immediately following the CITES trade ban, which was caused mainly by the drop in demand from Western export markets and buyers.

Some evidence points to a rise in domestic ivory market activity in China beginning around 1996. This view is supported by the rise in ivory seizures that have occurred there since 1997, the significant increase in the number of ivory retail outlets and items displayed for sale between 2002 and 2011 in Guangzhou, and the increase in the number of registered ivory factories from 20 in 2002 to 36 by the end of 2011 (Milliken *et al.* 2002, 2007, 2012; Martin and Stiles 2003; Martin and Vigne 2011b; Gabriel *et al.* 2012). Additionally, information from Hong Kong indicates that ivory market scale has remained stable since 1990, supporting the view that elephant ivory activity there has dropped, except for the rapid growth in mammoth ivory use (Martin and Stiles 2003; Martin and Martin 2011). Ivory carving in Taiwan has also dwindled, where new ivory is now being imported from mainland China (Martin and Stiles 2003).

While ivory market activity appears to be on the rise in China, it has been more variable in other parts of Asia, such as in Japan, Thailand, Viet Nam and Myanmar (Vigne and Martin 2010; Stiles 2009; Stiles 2008; Shepherd and Nijman 2008),

China has a thriving counterfeit antique ivory market, which facilitates exporting to Western countries.

Although there are many gaps in knowledge about recent ivory activity in South and South East Asia since the year 2001 (Martin and Stiles 2002), data from the Elephant Trade Information System (ETIS) shows a significant increase in the number of large-scale shipments to Asia. Low-level illegal ivory market activity carries on in countries in South and South East Asia (Martin and Stiles 2002; Nijman and Shepherd 2012; Martin *et al.* 2011). China, Thailand and Viet Nam have been identified as significant problem countries in illegal ivory activities and the trade of other wildlife products (Milliken *et al.* 2012; Martin and Vigne 2011b; Stiles 2008, 2009).

Worked ivory markets in Asia were historically aimed mainly at exports and foreign visitors. However, due to regional economic development, Asians have themselves have become significant consumers of worked ivory.

EUROPE

In 1997, the European Union passed legislation that made the domestic working and sale of ivory legal in all member countries, if EU regulations were satisfied (Martin and Stiles 2005). Up until the 1980s, Europe was one of the largest importers and manufacturers of ivory in the world. Following the CITES ivory trade ban however, demand for new ivory fell significantly as a result of greater consumer awareness about the harm that the ivory industry caused to elephants. The ivory antiques market is still strong, however, particularly in the UK, which predominates in both the import and export of ivory (Martin and Stiles 2005).

Ivory market surveys in the past ten years have shown that Germany and the UK have relatively large markets, while France, Portugal, Spain, Italy and Belgium have small markets (Martin and Stiles 2005; Knapp and Affre 2007; Martin and Martin 2009). Most of the ivory sold in these markets was pre-ban and thus legal, although some illegal ivory was found, imported after 1990 mainly from East Asia and Africa. The ETIS reports show that small to modest amounts of illegal raw and worked ivory are seized in European countries (Milliken *et al.* 2012). The International Fund for Animal Welfare (IFAW) has signalled that illegal ivory activity is worrisome both in the UK and on the Internet, and that further monitoring is warranted (IFAW 2004; 2007).

A century ago this shop in Paris claimed to be the largest ivory outlet in the world, symbolizing Europe's importance as an importer, manufacturer and consumer of ivory.

San Francisco, USA, had a large number of outlets that imported illegal ivory from China, mixing it with mammoth ivory.

NORTH AMERICA

Along with Europe, the United States of America was one of the largest ivory markets in the world in the late 19th and early 20th centuries, with factories processing hundreds of tonnes of ivory a year to make piano keys, billiard balls and other utilitarian items (Martin and Stiles 2008). In the 1950s, plastic began to replace ivory and cheaper Japanese ivory became more competitive than American ivory manufacturing. By the 1970s, little raw ivory was being imported and most worked pieces came from Hong Kong, although there were still about 1,400 ivory craftsmen in the United States in the mid 1980s (Cobb 1989). The ivory market collapsed in 1989 when the United States banned the import and export of ivory less than one hundred years old in conformance with the CITES trade ban. It is still legal, however, to work and sell African elephant ivory that entered the United States prior to 1989 and currently there are about 200 carvers who use elephant ivory (Martin and Stiles 2008). Because of its large population and its economic power, even with greatly reduced scale the American ivory market is ranked second in the world, behind China.

Ivory market surveys between 2004 and 2007 showed that there was a moderately high degree of illegal ivory imports into in the United States, partly fuelled by Internet sales (Williamson 2004; Martin and Stiles 2008). An ETIS analysis revealed that there had been a large number of ivory seizures, but that they were small in size, indicating that organized crime was not involved (Milliken *et al.* 2012).

ROLE OF IVORY IN CULTURE AND HERITAGE

Ivory has been in use from prehistoric times in ancient Egypt, China, India and Japan through to the empires of Greece and Rome, followed by medieval Europe, early African kingdoms and the Muslim world, to 19th century America, France's Napoleonic empire and Victorian Britain. The sensuous, smooth material has been used in religion, art, decoration and utility, from 30,000-year old Venus figurines to 21st century pistol grips.

Ivory holds significant cultural importance in Hindu and Buddhist Asia, where elephants serve as the pillars of the world and the lightning-bolt flinging Indra rides on the back of Airevata, a powerful elephant. Ganesha, the elephant-headed god, is worshipped from India to Singapore, and the celestial white elephant held the lotus flower that led to the reincarnation of the Lord Buddha. The long white tusks of the elephant have inherited some of the animal's divinity, and ivory Ganesha and other religious figurines are common even today throughout South and South East Asia.

From Myanmar to Japan, Buddhist and Taoist figurines have long been important subjects of ivory carvings, as they are considered to bring luck when displayed in the home. The oldest ivory Buddha figurines are known from the 13th century and the first ivory figurines of the Eight Immortals date from the 14th century. Other common figures from Ming Dynasty times are *Guan Yin* (the goddess of Mercy); *Li Tiekuai* (a sage depicted as a beggar holding a crutch and pilgrim's gourd); *Fu*, *Lu* and *So* (three Immortals who are the gods of luck, money and long life respectively); and *Zhongli Guan* (an Immortal who carries a fan to revive the souls of the dead). These subjects are still popular today among carvers and consumers and sell for thousands of dollars in Chinese outlets.

Ivory has also been important for the Christian faith, with figurines of crucifixions, the Madonna and Child, and various saints and plaques of biblical stories dating back as early as the 9th century in France. These same subjects are carved today in Europe, Africa and the Philippines. Islamic countries also have a very long history of using ivory, mainly as containers, inlay in furniture and ornamentation on weapons.

SCALE, TREND AND DEGREE OF ILLEGALITY OF TOP TEN DOMESTIC IVORY MARKETS

	Country	Trend	Degree of Illegality
1.	China-Hong Kong	Up	High
2.	USA	Stable	Moderate
3.	Thailand	Down	High
4.	Egypt	Down	High
5.	Germany	Stable	Low
6.	Nigeria	Up	High
7.	Zimbabwe	Down (?)	Low
8.	Sudan	Up	High
9.	Ethiopia	Stable	High
10.	Japan	Down	Low

CONCLUSIONS

This UNEP Rapid Response Assessment brings together critical up-to-date information from the CITES-recognized systems that monitor the status of elephants, the illegal killing of elephants, and the legal and illegal trade in ivory. Collectively, these systems deliver consistent, evidence-based information to improve our understanding of the dynamics of the illegal ivory supply chain.

Elephant poaching and the illicit trade in ivory is currently a very serious threat to elephant populations in many range States across Africa, particularly in Central Africa. Data from the CITES MIKE programme indicates a continuing increase in number of African elephants illegally killed since 2006, with 2011 displaying the highest poaching levels since MIKE records began, and early information from 2012 showing similar numbers. 36 MIKE sites in Africa contain some 230,000 elephants (40 per cent of all African elephants). In 2006, an estimated 5,000 elephants were illegally killed in these sites. In 2011, this figure has more than tripled – some 17,000 elephants were illegally killed, or 7.4 per cent of the population. Growth rates (about 5 per cent) can no longer compensate for this level of illegal killing, and populations in many MIKE sites are thus declining. Similarly, data from the Elephant Trade Information System (ETIS) indicate that illicit ivory trade has more than doubled since 2007 and is over three times greater than it was in 1998, with 2011 emerging as the worst year ever for large ivory seizures.

While levels of poaching are increasing across much of the African continent, the situation facing elephants in Central Africa has been especially grave for many years, and shows no signs of improving. Endemic problems such as civil unrest, weak law enforcement and inadequate wildlife management are compounded by habitat loss, fragmentation and disturbances from infrastructure development and extractive industries (particularly timber and mining). This situation is further exacerbated by weak governance, corruption at all levels, and widespread poverty in the sub-region. Experts throughout Central Africa confirm that elephants are facing a serious crisis in that sub-region.

In Eastern Africa, elephant populations which had been recovering from the poaching of the 1970s and 1980s are again facing an increasing threat from illegal killing. In addition, the sub-region is playing a central role in the illegal ivory supply chain. ETIS data on large-scale ivory seizures indicate that more large shipments of ivory are currently being directed to Asian destinations through Indian Ocean seaports in Kenya and Tanzania than any other trade route from Africa. As long as regional airline hubs continue to pioneer flight routes between Africa and Asia, and Kenyan and Tanzanian Indian Ocean seaports remain an essential link between vast interior expanses of Africa to external markets, Eastern Africa offers the essential connectivity that illicit ivory trade requires. Whilst large amounts of Central African ivory are moving through these channels, ivory from Southern and Eastern Africa is now found as well in these shipments.

In Southern Africa, many large and well-managed elephant populations, and particularly those in Botswana, Namibia and South Africa and Zimbabwe, remain comparatively unaffected by this poaching surge. However, increased vigilance will be required, as previously secure populations in Mozambique, the Caprivi Strip, and Zambia are already experiencing measurable increases in poaching levels.

Poaching in the small and highly fragmented elephant populations of West Africa is high, and increasing throughout the sub-region. From an ivory trafficking perspective, Nigeria remains the main country involved in large flows of illicit ivory. Recently, other countries, such as Togo, have become involved in large-scale smuggling of ivory. Again, most of this ivory seems to originate in Central Africa, but Nigeria was also identified as the destination of major shipments of ivory from Kenya,

suggesting that ivory from as far away as Eastern Africa may now be moving through the country.

The problems of elephant poaching and the illegal ivory trade are multi-faceted and their mitigation will require action on multiple fronts and at different time scales. To protect the elephants against current poaching threats will require substantial investment and capacity development to improve the quality of protection afforded to elephant populations across their African range. This includes investment in skilled personnel at all levels, equipment and supplies to enable enhanced patrolling. In the long term, improved management of elephant range areas, and effective land use planning is critical to maintaining healthy elephant populations, protecting habitats and increasing the tolerance of local communities to elephants.

Current demand for ivory exceeds what can be supplied sustainably, and demand for illegal ivory must be reduced to mitigate the threat to elephant populations.

Up-to-date knowledge of the status of elephants remains valuable for a good understanding of the ivory trade chain, its impact on African elephant populations in the wild, and the relative success of conservation management and enforcement efforts. It is therefore important that elephant range States conduct regular, reliable surveys, preferably using the CITES MIKE survey standards.

Better information on the age and origin of confiscated ivory, particularly in large-scale ivory seizures, is essential to improving investigations, determining sources of ivory and smuggling routes, and strengthening international enforcement. While DNA and isotope-based forensic techniques could become crucial in this regard, such techniques need to be subjected to a thorough, independent and objective assessment to establish their reliability and validity. The size of ivory stockpiles in many countries in and outside Africa, and their possible contribution to the illegal ivory supply chain, remains another important gap in the current understanding of the dynamics of the illegal ivory trade. This gap could be substantially narrowed through mandatory, regular inventorying and declaration to the CITES Secretariat of all important ivory stockpiles. Forensic techniques may help to establish the extent to which ivory in illegal trade is derived from poaching or was leaked from official stockpiles.

Enhanced capacity of law enforcement agencies in source, transit and consumer countries, and their collaboration to undertake joint investigations along the supply chain, is critical. This includes improved enforcement tactics, such as through specialized tactical tracking teams on the ground, the investigation of corruption and organized crime, and successful prosecution.

The Chinese market remains the paramount destination for illicit ivory. In spite of the fact that restrictive government policy and increasing levels of law enforcement are evident in China, the country's involvement in illicit trade has been growing steadily since 1996. Efforts to police the domestic trade in China, including strict implementation of internal control procedures, should be maintained or expanded. At the same time, Chinese nationals continue to be involved in illicit ivory trade throughout the African continent, and greater collaboration is required between Chinese and African law enforcement agencies.

Elsewhere in Asia, improved law enforcement action at Thailand's ports of entry demonstrates important progress, but loopholes in Thai legislation remain a serious impediment to effective control of its ivory retail market. Malaysia, the Philippines and Viet Nam, together with Hong Kong SAR, serve as the principal transit gateways for re-export on to China and Thailand. Further, new trade routes through Cambodia and the Lao People's Democratic Republic appear to be developing. These countries need to strengthen their abilities and strategies for detecting illegal shipments of ivory, and to conduct joint investigations linking all players along the trade chain. They should also be a focus for support from relevant international enforcement agencies and the donor community.

Current demand for ivory exceeds what can be supplied sustainably, and demand for illegal ivory must be reduced to mitigate the threat to elephant populations. Demand reduction must be accomplished through well-conducted and targeted awareness campaigns in end-use markets.

RECOMMENDATIONS FOR ACTION

The recommendations below are drawn from those adopted by the Standing Committee at its 62nd meeting (Geneva, July 2012), which were based on document SC62 Doc. 46.1 (Rev. 1); and those proposed by the Secretariat to the Conference of the Parties to CITES at its 16th meeting (Bangkok, March 2013), as contained in documents COP16 Doc. 53.1, 53.2.1 and 53.2.2. They also complement activities proposed in the African Elephant Action Plan, agreed by the African elephant range States in the sidelines of the 15th meeting of the Conference of the Parties (Doha, 2010) (see document COP15 Inf. 68).

1) Support and enhance anti-poaching tracking and intelligence operations, through the development, training and education of tactical tracker and intelligence units in all protected areas.

2) Facilitate appropriate mandates to allow park rangers to pursue poachers and conduct patrols outside park boundaries, and develop international agreements to facilitate cross border cooperation to pursue, arrest and extradite poachers and illegal traders.

3) Strengthen anti-smuggling operations, customs controls and container search programmes (including the controls of small airstrips, and boats in ports and estuaries). Enhance and improve the use of controlled deliveries and forensic analysis to identify the source of ivory and support the investigations of the criminal networks operating along the entire illegal ivory supply chain.

4) Enhance national and international interagency collaboration to fight organized wildlife crime by supporting programmes that target enforcement along the entire illegal ivory supply chain, such as through the ICCWC and regional criminal intelligence units and networks, as well through judiciary training and the practical application of 'best practice' techniques and methodologies for conducting investigations and joint enforcement activities.

5) Address weak governance and corruption at all levels, including in customs, the military, the police, the wildlife departments and other governmental agencies, using transboundary criminal intelligence units and further improving training and organization of specialized, well-paid and strongly-mandated anti-poaching units working inside and outside protected areas to undertake both intelligence and enforcement operations.

6) Reduce market demand for illegal ivory by conducting targeted and effective awareness-raising campaigns about the devastating impacts of the illegal trade in ivory, and aimed at potential or current buyers in East and South East Asia.

7) Strengthen national legislation as necessary, and strictly enforce relevant provisions to eradicate illegal or unregulated domestic ivory markets, especially in Africa and Asia.

8) Maintain and improve the connectivity of elephant landscapes in Africa by increasing the extent of conservation areas and the investment in their effective management and protection to help reduce habitat loss and consequent range loss. This requires prioritized land use planning in non-protected elephant habitat, and is particularly critical for regions with growing human population densities and agricultural pressures. This, in turn, will help mitigate human-elephant conflict.

9) Urgently assist and financially support the African Elephant Fund to enable elephant range States to improve their capacity to manage and conserve their elephant populations through improved law enforcement and anti-poaching activities, habitat restoration and conservation, dealing with human-elephant conflicts, and monitoring and research, as laid out in the African Elephant Action Plan. Provide access to the Global Environment Facility to support the implementation of the African Elephant Action Plan.

10) Establish sustainable funding mechanisms for the continued implementation of MIKE, ETIS and the African and Asian Elephant Database, to ensure continuous monitoring of the overall status of African and Asian elephant populations and their habitats, levels of illegal killing of elephants and the international trade in illegal ivory.

ACRONYMS

AfESG	IUCN/SSC African Elephant Specialist Group
AsESG	IUCN/SSC Asian Elephant Specialist Group
CAR	Central African Republic
CCP	Container Control Programme
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COP	Conference of the Parties to CITES
DRC	the Democratic Republic of Congo
DWT	Dead Weight Tonnage
ETIS	Elephant Trade Information System
FAO	Food and Agriculture Organization of the United Nations
ICCWC	International Consortium on Combating Wildlife Crime
IFAW	International Fund for Animal Welfare
IMAGE	Integrated Model to Assess the Global Environment
IMF	International Monetary Fund
INTERPOL	International Criminal Police Organisation
IUCN	International Union for Conservation of Nature
IUCN/SSC	International Union for Conservation of Nature Species Survival Commission
MIKE	Monitoring the Illegal Killing of Elephants
NGO	Non Governmental Organization
PIKE	Proportion of Illegally Killed Elephants
RPG	Rocket-Propelled Grenade
SRES	Special Report on Emissions Scenarios
TRAFFIC	Wildlife Trade Monitoring Network
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNODC	United Nations Office on Drugs and Crime
WCO	World Customs Organization
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature

CONTRIBUTORS AND REVIEWERS

EDITORIAL TEAM
Christian Nellemann (Editor in Chief)
Rannveig Knutsdatter Formo
Julian Blanc
Diane Skinner
Tom Milliken
Tom De Meulenaer

CARTOGRAPHY
Riccardo Pravettoni

LAYOUT
GRID-Arendal

COPY EDITING
Margaret Crump

CONTRIBUTORS, ADVISORS AND REVIEWERS
Daniel Stiles, Consultant
Hugo Ahlenius, Nordpil
Margaret Crump, GRID-Arendal
William Clark, INTERPOL
Ian Redmond, Consultant
Clever Mafuta, GRID-Arendal
Maxwell Gomera, UNEP-WCMC
Simon Hedges, Asian Elephant Specialist Group
Ajay Desai, Asian Elephant Specialist Group
George Wittemyer, Colorado State University Department of Fish, Wildlife and Conservation Biology
Fiona Maisels, Wildlife Conservation Society
Barend Janse van Rensburg, CITES Secretariat
Tomo Nishihara, Wildlife Conservation Society
Pia Jonsson, CITES Secretariat
Edward van Asch, CITES Secretariat (ICCWC)
Sara Koch, UNODC
Jorge Rios, UNODC
Janet Fernandez Skaalvik, GRID-Arendal
Iain Douglas-Hamilton, Save the Elephants
Peter Mwangi, IUCN/SSC, African Elephant Specialist Group
Holly Dublin, IUCN/SSC African Elephant Specialist Group
Lamine Sebogo, WWF International

PHOTO CREDITS
1 iStockphoto/Will Davies **1** Darren Potgieter **7** Peter Prokosch **9** iStockphoto/mskowronek **10** iStockphoto/Dirk Freder **13** Daniel Stiles **14** iStockphoto/Bruce Block **17** Bernardas Padegimas **18** iStockphoto/Eneri LLC **24** iStockphoto/Dave Block **28** iStockphoto/Tobias Helbig **29** Bernardas Padegimas **30-31** iStockphoto/Frank van den Bergh **36** Darren Potgieter **38** Darren Potgieter **39** Darren Potgieter **41** Julian Blanc **42** Lupyana Mahenge **43** INTERPOL **44** Tomo Nishihara **45** Darren Potgieter **46** iStockphoto/Claude Biron **49** Darren Potgieter **50** Peter Prokosch **54** Darren Potgieter **58** Christian Nellemann **59** Daniel Stiles **60** Daniel Stiles **61** Daniel Stiles **62** Daniel Stiles **63** Daniel Stiles **65** Daniel Stiles **66** Daniel Stiles **67** Daniel Stiles **68** Riccardo Pravettoni **78** iStockphoto/Steffen Foerster **80** iStockphoto/Hansjoerg Richter

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www.unep.org
United Nations Environment Programme
P.O. Box 30552 - 00100 Nairobi, Kenya
Tel.: +254 20 762 1234
Fax: +254 20 762 3927
e-mail: uneppub@unep.org
www.unep.org

UNEP

GRID ARENDAL
A Centre Collaborating with UNEP

GRID-Arendal
Teaterplassen 3
N-4836 Arendal
Norway
grid@grida.no
www.grida.no

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