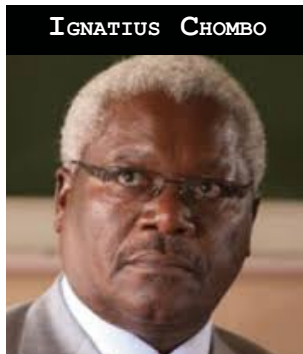
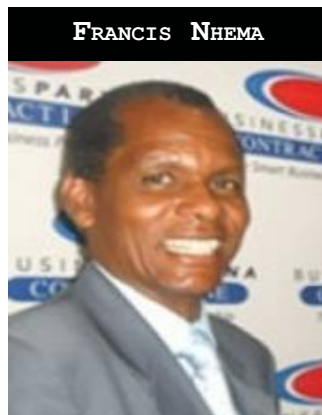


(*SDN Designated*), owns Kazungula Safaris, a hunting and safari lodge, and according to investigative reporting, controls multiple concessions in Victoria Falls, as well as at least one concession in Matetsi. The now-divorced wife of Commander of the Zimbabwean Defense Forces **Constantine Chiwenga** (*SDN Designated*), Jocelyn has been linked to prominent South African poaching outfit “Out of Africa Safaris,” whose owner was caught transporting ivory in 2010. Her ex-husband owns Buffalo Range Safaris.²⁵



(*SDN Designated*), Minister of Local Government, Public Works and Urban Development owns hunting concessions and safari lodges in Hwange, Chiredzi, Magunje and Chirundu, as revealed during his divorce with wife Marian, when various Zimbabwean newspapers acquired the list of assets she filed with the High Court.²⁶

Major General, Chief of Staff of Zimbabwe National Army has been linked to land seizures in the Save Valley Conservancy, and along with local MP Ailess Baloyi, now has a stake in the Humani Ranch.²⁷ Rugeje has also been linked to the Wanezi Block Ranch as late as November 2013, and in the same month was alleged to have been involved in the eviction of 350 villagers at Matutu conservancy in Chiredzi.²⁸



(*SDN Designated*), was responsible for the distribution of hunting concessions as former Minister of Environment, in which capacity he also managed Zimbabwe’s Parks and Wildlife Management Authority,²⁹ which is responsible for concession distribution.³⁰ He himself is linked to several wildlife areas through his family: former sister-in-law Thandiwe Nkomo received the Tuli concessions for allegedly as little as \$750, while Nhema’s nephew, Emmanuel Fundira, was awarded the prized Makuti concession.³¹ Fundira is currently the Chairman of the Safari Operators of Zimbabwe (SOAZ). In the mid-2000s, Nkomo was also listed as a partner of Zim Africa Safaris.³² In at-least one incident, Nhema personally intervened to release a group of foreign hunters arrested by park wardens for illegally poaching elephants.³³

(*SDN Designated*), former Mines and Mineral Development Minister, owns Khanando Safaris, which operates in the Victoria Falls area.³⁴ Mpfu is one of Zimbabwe’s richest men and has a very wide array of business interests, including in the banking and media sector. Mpfu was Minister of Mines and the gatekeeper of concession allocations during the era when mining concessions were awarded in the Marange diamond fields. As much as \$2 billion may have already been siphoned off of these concessions by ZANU-PF elites.³⁵



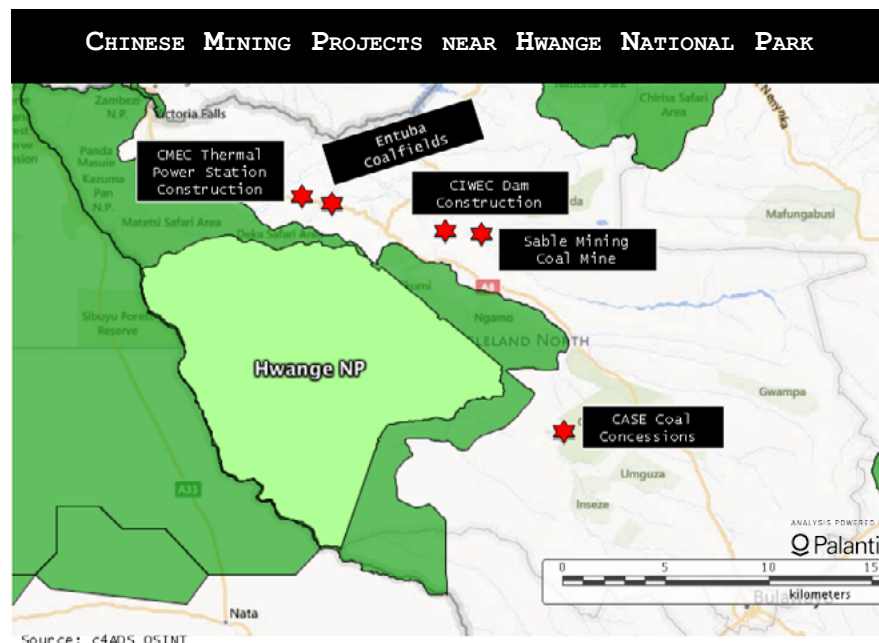
The Chinese Factor

Zimbabwe is a major Chinese success story in Africa, and there are extremely close business ties between Chinese natural resource companies and Zimbabwe's political, military, and intelligence officials. China is today Mugabe's external ally of choice; it is the largest exporter of arms to Zimbabwe, accounting for 39% of conventional weapons transfers between 2000 and 2009.³⁶ The cash-strapped Mugabe government is extremely dependent on Chinese aid and investment, and has allowed large Chinese investment in natural resource projects, from the Marange diamond mines to coal mining projects to the construction of facilities for Zimbabwe's army.³⁷ In 2014, Zimbabwe began accepting the Chinese yuan, as well as other Asian currencies, as legal tender,³⁸ and informal bartering may be widespread. According to Finance Minister Tendai Biti, in the first quarter of 2013, \$200 million worth of diamonds had been sold, but the treasury received nothing.³⁹ There are allegations that ivory has also flown to China through the Chinese Embassy in Harare and the Harare International Airport,⁴⁰ although there is no public evidence of these transactions.

Chinese-Zimbabwean economic dealings are extremely opaque. In 2012, Global Witness detailed the business dealings of the 'Queensway Syndicate,' a conglomerate of powerful Chinese interests working with senior Zimbabwean military and intelligence officials, including from the notorious Central Intelligence Organization (CIO).⁴¹ CIO officials served on boards of diamond mining joint ventures; Anjin, one such company, is composed nearly entirely of current and retired Zimbabwean defense and intelligence figures.⁴² Certainly Anjin has received various other lucrative contracts, including the construction of Zimbabwe's defense and military intelligence colleges.⁴³

Natural resources, however, are the cornerstone of the China-Zimbabwe relationship. Chinese natural resource investments are rapidly expanding, and with them the number of Chinese workers present in the country. Chinese companies are prominent in various new projects, and many are expanding into environmentally sensitive elephant range areas. While there is no evidence showing heightened poaching as a result of Chinese economic projects, the combination of proximity, scale, and political access is increasing the probability of Zimbabwe emerging as a poaching hotspot within the next few years.

While Chinese investments in Zimbabwe are difficult to catalogue, their presence is readily apparent; several Chinese companies have secured lucrative mining and construction con-



Mining Projects of Chinese and other Nationality near Hwange National Park

tracts in proximity to protected areas, particularly around Hwange National Park. These include but are not limited to:

1) China Africa Sunlight Energy (CASE), a partnership between Zimbabwe's Oldstone Investments (Pvt.) Ltd and Shandong Taishan Sunlight Group Co., was established during a meeting with Shandong officials and Oldstone, represented by Major General Trust Mugoba,⁴⁴ Chief of Staff Administration of the Zimbabwe National Army.⁴⁵ Later, CASE secured coal concessions around the Gwayi conservancy area. Charles Mugari, a retired army colonel, manages CASE⁴⁶ while Oldstone is likely an investment vehicle for the Zimbabwean army.⁴⁷ The concessions around Gwayi allegedly were parceled out to several very senior Zimbabwean officials in 2007 including Webster Shamu and Constantine Chiwenga, both SDN-designated individuals.⁴⁸ Other companies being granted licenses in the area include Liberation Energy, Makomo Resources, and Sable Mining. CASE has conducted an environmental assessment, but local stakeholders claim they were excluded from the process.⁴⁹ Interviewed local villagers and headmen in February 2014 claimed that CASE's coal projects had already begun to have significant impacts on local wildlife and ecology.⁵⁰



Francis Nhema with Chinese Ambassador Li Lin at Chinese Embassy for CASE Opening Ceremony, 2012



Then-Minister of Defense Emerson Mgangagwa at CASE Opening Ceremony, 2012

2) Near Hwange National Park, at the confluence of the Shangani and Gwayi rivers, China International Water and Electric Corporation is developing a dam. Work began in April 2012, and the Chinese company moved on site in January 2013.⁵¹

3) In Hwange town, China Machinery Engineering Company (CMEC) won a tender to refurbish the Hwange Thermal Power Station, one of Zimbabwe's largest. The project is stalled as of early 2014.⁵²



*Major General Trust Mugoba representing Oldstone in Negotiations with Shandong Taishan
Source: Shandong Taishan Website*

Aggregate trends in Zimbabwe point to a worrying future for its elephants. Poverty, hunger, the entrance of connected political elites into wildlife areas, and the expansion of Chinese interests along the periphery of elephant ranges, all suggest that Zimbabwe could quite soon become a poaching hotspot.

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Kenya: Small Arms & Pastoral Conflict

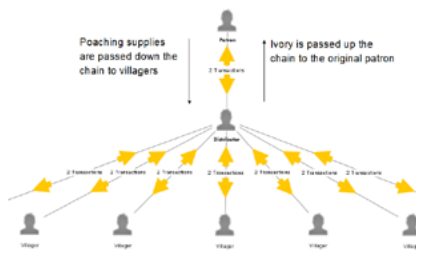
Kenya is emerging as a poaching hotspot. Threats come from multiple directions; the widespread availability of firearms, persistent low intensity tribal conflicts, competition for scarce grazing areas, and organized crime from Kenya and Somalia.

Relative to catastrophic casualty levels for elephants in neighboring Tanzania and Central Africa, Kenya claims much lower levels of poaching. Three hundred four elephants were killed in 2013 according to Kenya Wildlife Service (KWS), relative to an estimated population of about 28,000.¹ The safari tourism industry is among Kenya's largest foreign exchange earners, accounting for 12.5% of the Kenyan government's revenue and almost 11% of total employment.² Kenya's rangers are among the best-trained and equipped on the continent, and the Kenyan conservationist movement is well-established and well-connected to international public and donor audiences. At a high level Kenya's government has signaled a tough stance against elephant poaching through ivory seizures, tusk burnings, and by toughening anti-poaching and anti-trafficking laws. In January 2014, signaling a beginning of a new era, it meted out a tough sentence to a small-scale Chinese trafficker, sentencing him to a fine of approximately \$230,000 or seven years in jail.³

Yet Kenya's elephant are still highly insecure. Kenya's Mombasa port is currently the continent's primary ivory trafficking hub, while human populations living near elephant ranges inside Kenya suffer from endemic rural poverty, high levels of corruption, violence stemming from marginalized pastoralist communities, and easily available small arms. The proportion of illegally killed elephants has risen continuously year-on-year since 2003,⁴ and by 2011, the recorded PIKE rate of 0.56 was almost triple the 0.2 average recorded in the decade between 1998-2008.⁵ 2013 offers some hope, with a modest reduction in recorded elephant poaching incidents, but killings of the supposedly better-protected, and more valuable, rhino more than doubled. Moreover, there is a possibility that Kenya's poaching numbers are being underreported; surveys between 2011 and 2014 in the Tsavo ecosystem found a loss of 1,500 elephants,⁶ not all of which were accounted for in national surveys.

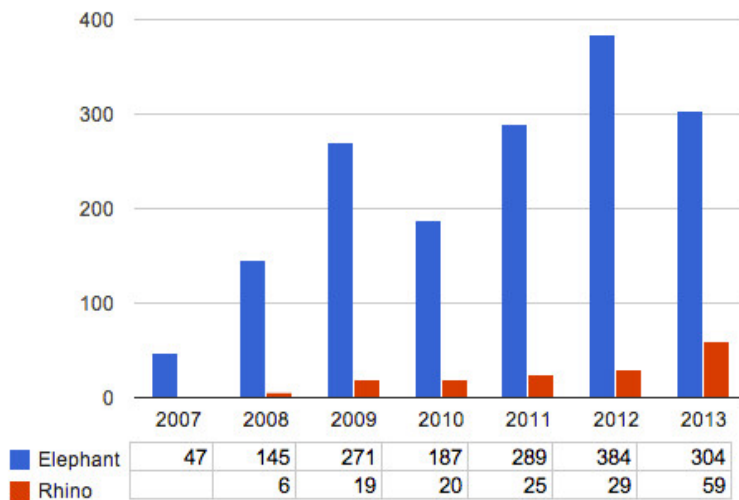
Kenya's roughly 28,000 elephants are concentrated in two core ecosystems; Samburu-Laikipia in the center of the country and Tsavo in the south, with large herds also present in Amboseli, Aberdare, Masai Mara, and Mount Kenya. Kenya's elephant population has in large measure recovered from the poaching epidemic in the late 1980s, but today's numbers are still a small fraction of the 167,000 elephants that roamed Kenya in 1979.⁷ National parks, wildlife reserves and community conservancies make up less than 20% of Kenya's total land area, and as a result many elephants live outside protected areas where human-wildlife conflict is more common and poaching rates can be much higher.⁸ Kenya's two principal elephant populations are both vulnerable; Samburu-Laikipia has the highest proportion of elephants outside reserves, while Tsavo is very close to Mombasa port and to a particularly intense spate of civil violence and unrest in the Coast region.

DOMINANT MODEL : THE DISTRIBUTOR



Poaching in Kenya is relatively unprofessional; leakage of small arms from defense forces, widespread poverty, and ready access to transport infrastructure (including the port of Mombasa) give access to unprofessionalized and decentralized poaching organizations. The scale of trafficking through Mombasa, however, points to the involvement of some of the continent's most active and sophisticated organizations.

KENYA ELEPHANT AND RHINO POACHING CASUALTIES, 2007-2013



Source: Adapted by C4ADS from KWS Data

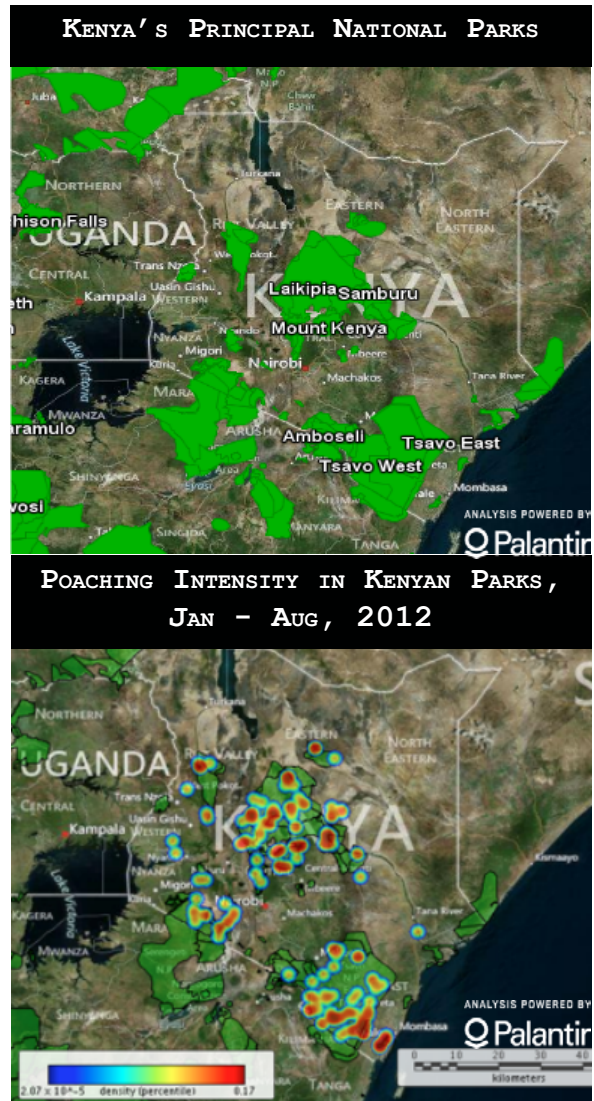
Today's poaching situation in Kenya is different from earlier waves in the 1980s. Richard Leakey, Kenya's famous conservationist who executed the shoot-to-kill orders during the 1980s, noted that during his tenure, poachers were primarily ill-equipped Somalis, whereas today local Kenyans are turning to poaching,⁹ with some increased professionalism evident in the industry. In January 2013, in Kenya's worst elephant poaching incident in recent history, 11 elephants were gunned down in a single incident by a 10-man poaching gang.¹⁰

The key enabling factors of poaching in Kenya appear to be the proliferation of small arms, inter-tribal tensions, rising unemployment in areas adjoining reserves, and inadequate distribution of development revenues to local and pastoralist communities. Exacerbating these problems is a lack of capacity on the part of anti-poaching bodies. As of 2014, KWS in Tsavo had only 300 rangers to cover 22,000 square kilometers, 100 of whom are needed to man administrative and other non-patrol functions.¹¹ Other KWS officers in-

terviewed by C4ADS claimed they were hundreds of men short of optimal staffing levels.¹² Meanwhile, even as KWS is struggling with its limited resources, it has found little support from the broader judicial system. A recent study found that only 4% of offenders convicted in wildlife crime between 2008 and June 2013 actually went to prison.¹³

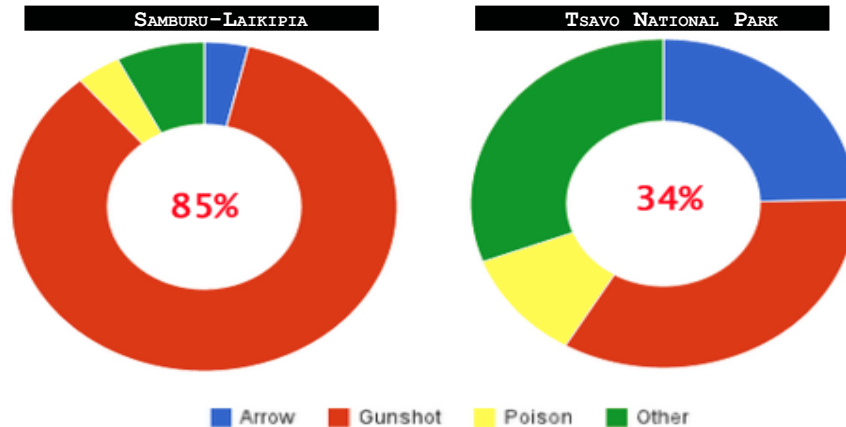
Small Arms Availability

The proliferation of small arms is one of Kenya's most pressing security challenges, contributing to inter-tribal violence, cattle rustling, large human displacements, and elephant poaching. An estimated 530,000-680,000 firearms are circulating nationally in civilian hands,¹⁴ with particularly high concentrations among northern pastoralist communities, where the rule of law is largely absent, and where tribes rely on themselves for self-defense. Crime involving firearms is widespread: in 2010, 20% of Kenyan households reported being victims of crime, 1/3rd of which involved the use of a firearm.¹⁵ Similarly, the majority of elephants today are killed by gunshot, with at least some bullets leaking from police and security force stocks.



Source: C4ADS Analysis of KWS Mortality Database

BREAKDOWN OF ELEPHANT POACHING BY MEANS



Source: C4ADS Analysis of KWS Data

An analysis of KWS elephant mortality incidents by C4ADS shows that the share of elephants felled by firearms is rising. Between 2000-2010, at the national level 53% of poached elephants were killed by gunshot. Examining the first six-months of 2012, the Samburu-Laikipia area was particularly hard-hit, with a full 85% of recorded poaching incidents attributed to gunfire, up from 74% between 2000-2010. In Tsavo, the proportion stands at 34%, which is comparatively lower but nonetheless a twofold increase over 2000-2010 when firearms accounted for only 17% of poaching incidents. These data provide interesting insights into the level of firearms availability but also the sociopolitical environment. Samburu-Laikipia is more prone to tribal and pastoralist violence, and closely connected to instability and small arms flows across neighboring borders. Tsavo by contrast appears to have multiple poaching actor types. In correspondence with C4ADS, KWS Assistant Director in Tsavo, Captain Richard O'Brien, blamed Somali poaching gangs for much of the firearm-related poaching, and local gangs for the arrows and snares.

There is an abundance of light weaponry in Kenya. The German G-3 is the standard issue rifle of the Kenyan police and army, but the AK-47 and its associated variants, the M-16 rifle and other American carbines, the Israeli Uzi, and many other weapons are widely available. Small arms and ammunition move across Kenya's porous and unstable borders with Somalia, South Sudan, and Uganda, but there is also evidence of significant leakage from security and police forces that is contributing to the poaching of elephants. In Turkana North, the province bordering Samburu, the Small Arms Survey matched as much as 50% of circulating ammunition to types and numbers associated with the Kenyan Police,¹⁶ while the G-3 is frequently seen in anti-state incidents, from the killing of policemen to the poaching of elephants. There are several domestic arms markets around Kenya; in Samburu in 2012, an AK-47 cost 30,000-40,000 Shillings (US\$350-460), roughly half that of a G3, with similar pricing in the Tana River area around East Tsavo.¹⁷

KENYAN GOVT WEAPONS AND AMMO ARE LEAKING TO POACHERS



G3 Rifles and Ivory Seized in Tsavo

Source: KWS

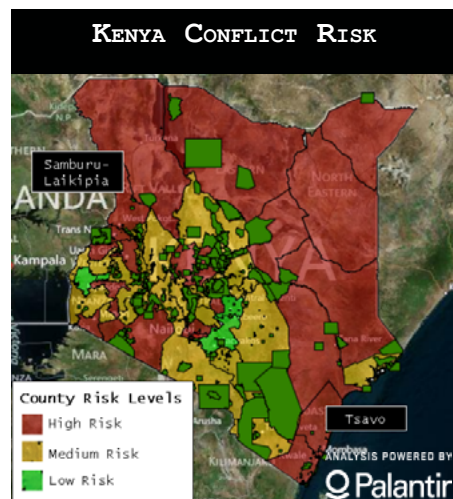


Kenyan Ordnance Factory Round Recovered in Laikipia Poaching Incident

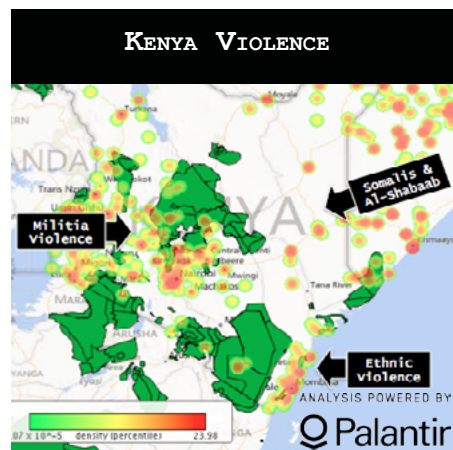
Source: Kibiwott Koross

Violence on Elephant Peripheries

Kenya's elephants are insecure because Kenya's rural populations are insecure. There appears to be a close nexus between wildlife poaching, cattle rustling, banditry, and communal conflict, with weapons and individuals likely cycling between all four. Since British colonial times, central state control has been weak over periphery areas, especially towards the north. Even today the government in Nairobi simply does not have adequate capacity to effectively police rural areas. Fundamental grievances are economic and tied to unequal access to natural resources, but law and order is often outsourced or left to political strongmen tied to ethnic constituencies and militias. In 2013, 488 people were killed in inter-communal resource-based conflicts with over 55,000 displaced, following 110,000 displaced in 2012.¹⁸ Crime in rural areas is militarized and often extremely violent; in November 2012, cattle rustlers massacred over 40 policemen in Samburu in a single ambush.¹⁹ Disarmament drives to date have been ineffective, being characterized by excessive use of force and human rights abuses, while also serving essentially as forcible weapons upgrades, as communities left vulnerable rearm with newer stockpiles.²⁰



Source: Adapted by C4ADS from CRECO Kenya



Ethno-political, and militia violence on periphery of Kenyan protected areas

Source: C4ADS Analysis of ACLED Data

in the tribe and *kraal* (village) are breaking down too. Samburu elders now refer to their youth as the “wild generation” who no longer request elder approval before raiding other tribes or hunting local wildlife.²³

Several rounds of inter-communal conflict in recent years have centered around important elephant areas – near Samburu in 2012, and around Tana River County near East Tsavo in 2013. In these insecure environments, wildlife forces come under severe threat while small arms proliferate even further. In July 2013 in Tana River, poachers killed two KWS officers on the same day, with the modalities of the attack highlighting the scale of insecurity: the poaching group that ran into a ranger patrol killed an officer and forced the rangers to retreat, but instead of then fleeing, they set up a prepared ambush to kill the second officer when rangers returned to recover the body.²¹ In addition to such brazen attacks, wildlife authorities and their attempts to restrict land use inherently put them in conflict with nomadic pastoralists who graze inside national parks. Rangers today shoot to kill, and it is likely that at least some civilians are being caught in the crossfire.²²

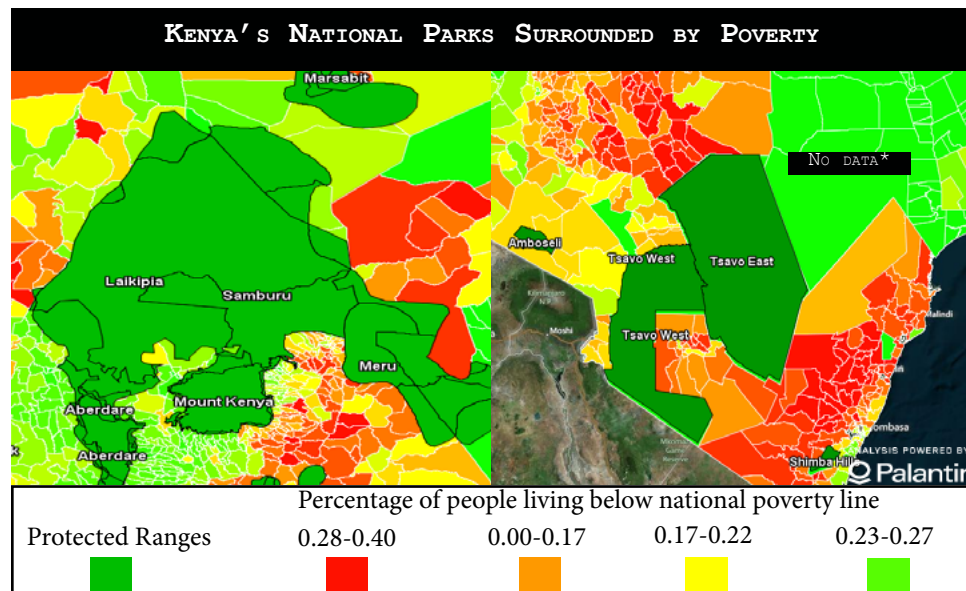
The converging forces of conflict, poverty, small arms proliferation, and marginalization are distorting local cultures and increasing poaching risk. Traditional Samburu culture for example reveres elephants but the *moran* (warrior) culture has changed dramatically under the stresses of the modern Kenyan economy and society. Not only have bows and arrows given way to assault rifles, but older social structures

Rural Poverty & Pastoralism

Both Samburu-Laikipia and Tsavo National Park are situated in areas characterized by arid lands, susceptibility to drought, food insecurity and malnutrition. Rural poverty is particularly high around elephant ranges – in Samburu County, 73% of the population lives below the poverty line, in Taita Taveta, around Tsavo, the number is closer to 57% and in neighboring ethnic Somali Wajir county, it is 84%.²⁴ Pastoralism or cattle herding are dominant economic activities, and there is fierce competition for scarce natural resources such as grazing lands and water, which are fundamentally in conflict with wildlife land restrictions. Against this landscape, rising ivory prices make the trade near irresistible; payments of even \$30-60/kg would be large sums by local standards, and well above an average monthly wage. Today, however, local ivory prices are as high as 10-15,000 KSh/kilo (\$115-175).²⁵

Cattle density has been identified as a major poaching risk indicator in Tsavo,²⁶ and decreasing cattle prices (i.e. an increase in hardship) have been found to correlate with an uptick in elephant poaching.²⁷ Cattle measures wealth and status in rural areas, but is primarily a small-scale business; in Samburu County, an estimated 80% of the population held livestock, with the sector providing up to 90% of all employment opportunities and more than 95% of household incomes in Samburu-Laikipia.²⁸ Nomadic pastoralist communities are fundamentally in conflict with wildlife authorities and land restrictions. Grazing lands inside national parks are huge and often more bountiful than outside, yet are closed to herders struggling to survive in tough conditions. In Taita Taveta for example, 62% of land is cordoned off for the Tsavo National Parks in an environment where only 12% of land is available for rain-fed agriculture.²⁹ As a result, it is unsurprising that herders often illegally graze inside protected areas, bringing with them all the incentives to poach. A June 2013 operation in Tsavo to clear the park after a spate of poaching, evicted at least 3,000 illegal herders and over 110,000 heads of cattle, most of who have likely returned.³⁰

Pastoralist communities are marginalized from broader Kenyan society and disproportionately impacted by wildlife land restrictions, but there is little redress for their often legitimate grievances. A survey conducted in Tsavo reveals ambivalent and sometimes adversarial attitudes among the populace toward elephants, who are blamed for ruining crops and livelihoods.³¹ A survey in Laikipia found similar results, and that almost 90% of interviewed locals believed the government placed a higher premium on the welfare of wildlife than humans.³² Despite these, and myriad other socioeconomic grievances, media report-



Source: Central Bureau of Statistics, Kenya

*data for eastern districts predominantly populated by ethnic Somalis was not included in the census

ing on pastoralist communities is often overwhelmingly negative. A recent study found that 93% of news reports linked pastoralists to “bad news” stories, 51% described them as the cause of conflict, and only 6% suggested that they might be victims of broader actions.³³

It is to the credit of Kenya’s conservationists that socioeconomic drivers have been recognized, and community-based conservation – the concept of sharing the economic benefits of wildlife preservation with locals – embraced as central to sustainable anti-poaching strategies. Ian Saunders of the Tsavo Trust has framed the anti-poaching effort within counter-insurgency theory,³⁴ urging efforts to win ‘hearts and minds’ of locals with development and collaboration, thereby denying operating space to poachers. Current execution of this strategy by authorities is subject to significant challenges, however. Emptying parks of herders with heavy-handed operations is at best analogous to the “clear” element of counter-insurgency and creates resentment. Transitioning to the “hold” and “build” elements will require real trust-based relationships and significant investment in community welfare that allows herders alternative forms of income and insurance. These efforts, are currently led by civil society.

The Northern Rangelands Trust (NRT) is an umbrella group of 20+ conservancies over 25,000 kms² of land in the Samburu-Laikipia area. NRT is an established leader in community conservancy, and its operating procedures, which emphasize local buy-in and leadership, offer a good template of best practices. Conservancies are established only after extensive and moderated negotiations between feuding tribes establish rules for herding practices designed to limit conflict over grazing lands and water. Community ownership is a leading philosophy – community elders sit on conservancy boards, rangers are hired from representative cross-sections of local tribes, communities maintain control of finances, and even have options to build and negotiate their own tourism projects. Available metrics appear to show these strategies succeeding, even as the broader poaching environment has worsened. NRT-run conservancy land is roughly 45% more valuable than comparable non-conservancy land³⁵ while analyses of carcass data found that only about a third of elephants killed inside conservancies were illegally poached as compared to 87% outside in 2010.³⁶

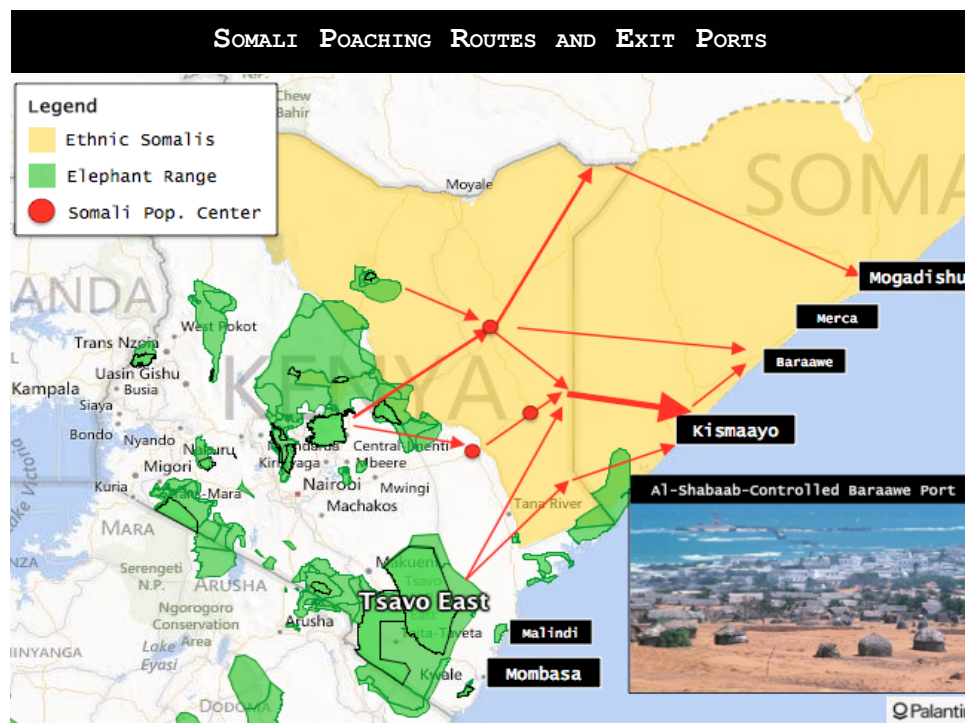
The Somalis & al-Shabaab

Ivory is one of a few conflict resources, alongside charcoal, that is closely linked to conflict in Somalia. Somali presidents, warlords, militaries, and today insurgents such as al-Shabaab have all been tied to cross-border poaching into Kenya, using ivory to finance their various objectives. In the 1980s, ivory was particularly important in propping up the Siad Barre regime, resulting in Somalia’s estimated 40,000 elephants in 1980³⁷ vanishing by the end of the decade. Poaching then displaced across the border into Kenya, led by Somali gangs and the *shifita* (Somali bandits), many of them veterans of the Ogaden war against Ethiopia. Poaching in the late 1980s literally decimated the elephant population of Tsavo, dropping herd numbers by as much as 80%. Even today, Somali herders are blamed for a good portion of poaching, but their environment is also the harshest – ethnic Somali-majority Wajir county has Kenya’s highest (84%) rate of rural poverty. Somalis appear to be important players in Kenya’s ivory trade, although Kenyan authorities may overstate the level to downplay the role of local organized crime.

Northeast Kenya overlaps closely with Somalia, with clans and families stretching from Nairobi to Mogadishu. The 1989 census estimated 2.3% ethnic Somalis, while the 2009 provisional census counted an increase of 140%, a politically charged statistic that was quickly recalled.³⁸ Somalis have long herded cattle along the harsh semi-arid landscape between the Juba and Tana rivers, with little regard for the border. Somali pastoralist grazing areas today extend through the Coast region into East Tsavo National Park, as well as into central Kenya and the Isiolo region. Broad poaching routes are thus the same as they have always been; on the Tsavo axis, down along the Somali border, across the Tana river into Tsavo East, with the ivory flowing back to southern Somali ports across the porous and unregulated border.

Al-Shabaab's role in the ivory trade is widely reported but little understood. Estimates have ranged from 0-40% of the group's revenue being derived from ivory.³⁹ Today, the numbers are likely low, as al-Shabaab's position inside Somalia has evolved. Shabaab no longer controls the port of Kismayo through which it once moved ivory, although it still controls the smaller dhow port of Baraawe, which is known to be a charcoal smuggling point to the Gulf,⁴⁰ and thus could easily serve as a hub for ivory as well. Al-Shabaab's web of financiers are linked to the Gulf region, and more than capable of complicated logistics, such as organizing container shipments to East Asia.

More research is needed to precisely measure al-Shabaab's role in the trade today. The group likely cannot afford to divert arms and men to poach elephants itself. Instead, its financiers most likely procure ivory within a diversified portfolio of illicit activity using a network of brokers in Nairobi and elsewhere in Kenya to arrange orders. Ivory is then brought back to the border, handed off to a courier and brought for packaging to the ports. Today, al-Shabaab has largely returned to the bush, waging a guerilla war against the African Union and government troops, but it still has a role in many criminal enterprises. Most notably, the group is known to "tax" all goods moving through its territory, with specific attention paid to commodities like charcoal or sugar. As a result, even if Shabaab is not directly controlling ivory operations anymore, it is still well-positioned to profit off the trade. Further, al-Shabaab is widely reported, including by the UN Somalia and Eritrea Monitoring Group (2012-2013), to have facilitators and recruiters in Mombasa and coastal Kenya, suggesting that illicit consignments related to the group could easily be shipped directly from Kenyan ports.



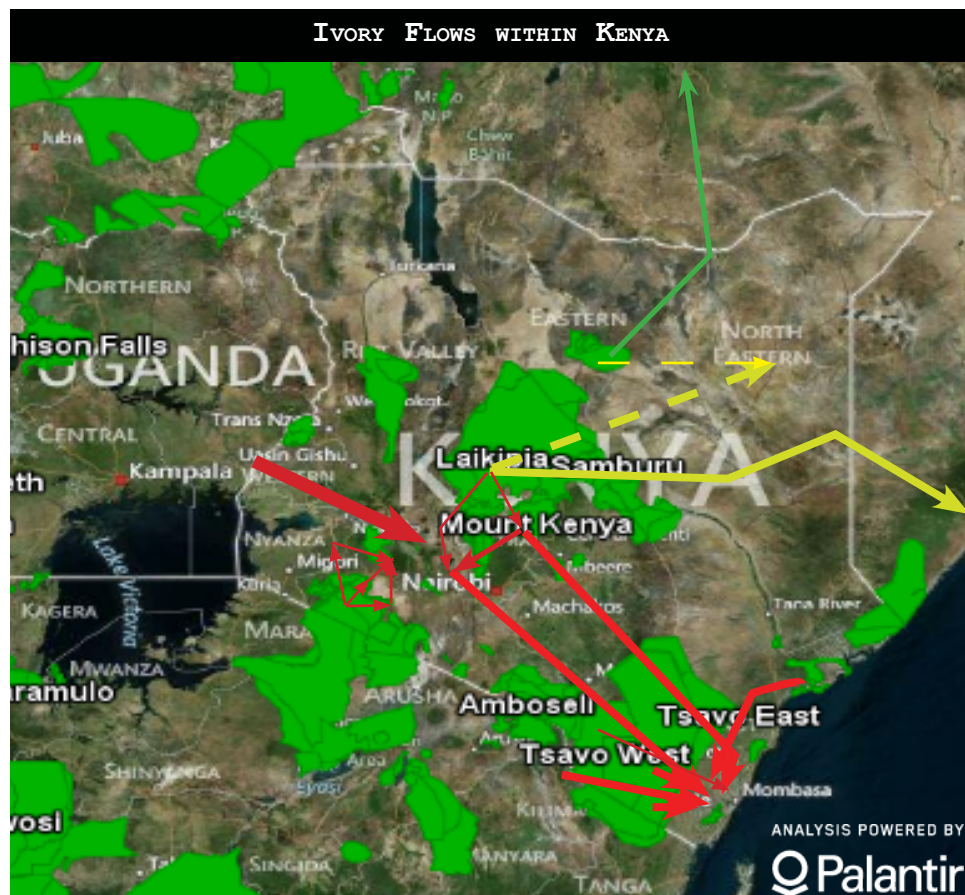
Source: C4ADS Analysis

A Professionalized Trade

Impoverished locals may pull the triggers on a poaching mission, but most evidence in Kenya points to sophisticated trafficking operations that quickly move ivory out of the savannah and to local and regional consolidation points to be packaged for international transit. Kenya is a regional trafficking hub, and several reports have detailed how officials systemically work outside their official capacity across Kenya's law enforcement and trans-

port institutions.⁴¹ There are indisputably major transnational ivory trafficking syndicates operating inside Kenya but it is unclear how domestic Kenyan poaching operations overlap. If there truly are only about 300 elephants being killed in Kenya annually, it amounts to roughly a single container load for the entire country, tiny in comparison to other ivory flows transiting through Kenya. In 2013, C4ADS's ivory seizure database recorded at least 6 major seizures at Mombasa port alone, totaling over 10 tons of ivory. This is in addition to the many smaller seizures at Jomo Kenyatta International Airport, and at roads leading to Nairobi, Mombasa, and towards the borders.

Organized crime is able to penetrate Kenyan institutions. KWS itself has had several officers implicated in the ivory trade, and has had periods of major shakeups, including once when 30 senior personnel were simultaneously suspended for involvement in poaching.⁴² KWS, however, appears to be making efforts at improvement, while other institutions have lagged; the Kenyan police is regularly rated by the public as the most corrupt institution in the country,⁴³ with the judiciary not far behind. A 2013 assessment of wildlife crime prosecutions in Kenya found that 70% of case files were reported missing when requested, and that criminals were consistently given lenient sentences, with the total value of fines for ivory seizures at 2.7% of its street value.⁴⁴ These conditions extend well beyond low-level officers to the highest echelons of governance and business; in 2010, Harun Mwau, a former transport minister and long-serving member of Parliament was designated by the United States as a Foreign Narcotics Kingpin.⁴⁵ There are undoubtedly more like him, although locals do not frequently receive any form of punishment. Foreign traffickers, however, many of them East Asian nationals, now regularly receive firm sentencing.



Source: C4ADS Analysis

Kenyan Domestic Flows → Somali Flows → Ethiopia Flows →

Evidence in Kenya suggests sizable ivory consolidation quite low on the value chain. In January 2011, a car traveling down the Isiolo-Meru leg of the cross-country highway (i.e. still far from Nairobi or Mombasa compared to poaching grounds), was intercepted with 81 tusks weighing 249kg as well as 2 rhino horns.⁴⁶ A seizure this size is not particularly large by containerized standards, but would account for almost a quarter of the supposed 187 elephants poached across all of Kenya in 2010. The seizure also confirmed that at least some poaching gangs are extremely well-equipped for their specialized needs; the car contained night-vision binoculars, ranger uniforms, poisoned arrows (for silent kills), and a digital weighing machine. However, others appear to hand off their small batches of ivory to middlemen along transport arteries, such as the Nairobi-Mombasa roadway. It is unlikely that Kenyan ivory mixes with Central African ivory despite sharing transit routes; Central African containers appear to be packaged and sealed in places like Uganda. Re-opening them in transit may present logistical difficulties, as well as an unnecessary risk of interception.

There are likely three broad ivory flows inside Kenya – to domestic ports, particularly Mombasa, and across the border to Somalia and Ethiopia. The domestic route is likely to be the most significant given Mombasa's central role in ivory trafficking and its proximity to major elephant ranges. The edge of Tsavo National Park is less than 50km from Mombasa port, while the primary roadways running to Mombasa from Nairobi or further north pass through the park. Further north by Samburu and Laikipia ivory is likely to move in multiple different directions, but elephant periphery towns such as Archers Post are reported as consolidation points.⁴⁷ The nearby city of Isiolo is a major northeast transport hub and the leg of roadway between Isiolo and Meru leading south towards Nairobi is likely a major trafficking chokepoint, given the convergence of local transport networks. It is likely that Kenyan ivory is containerized close to the ports or in Nairobi itself, but the focus on Mombasa may obscure smaller flows. The smaller port of Malindi, for example, is also close to Tsavo, and is capable of transportation to Middle Eastern ports, known to be ivory transshipment hubs.

There is little visibility on cross-border flows. Somali poaching networks, including those once linked to al-Shabaab, transport their ivory across the border towards southern Somali ports. Major ethnic Somali population centers in the northeast, such as Garissa, Wajir or the sprawling Dadaab refugee complex are likely to serve as waypoints, before ivory crosses the border at places like Liboi, and then arrives at ports such as Kismayo, which is close to the Kenyan border and well connected to the Gulf. Neighboring Ethiopia by contrast has no ports, but a very busy international airport, which is a major regional air transit hub to East Asia. Ethiopia also has a thriving domestic ivory market in Addis Ababa; the last major study was undertaken in July 2009 when 1,340 ivory products were observed for sale in 37 outlets.⁴⁸ Testimony from traders suggests that ivory from northern ranges such as Marsabit and Samburu-Laikipia crosses the border around Moyale and Mandera.

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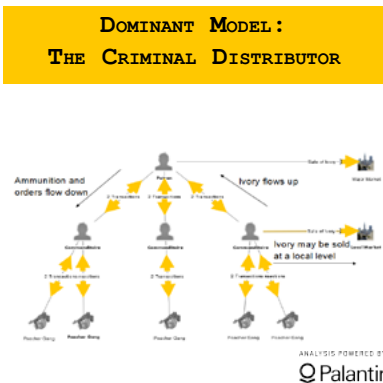
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Mozambique: The Power of Price & Porous Borders

Mozambique faces a severe poaching threat that is spilling across its borders. Organized syndicates, with support from elements in police and border guard, make for highly militarized poaching gangs willing to battle any opposition, including the South African army.

Southern Africa is one of the last remaining havens for African elephants, half of which live in either South Africa or Botswana. These countries, along with neighboring Namibia, are relatively stable and prosperous, and are relatively able to secure their elephant populations. Mozambique, however, is a glaring exception that suffers from a violent history and grinding poverty, with disastrous consequences for wildlife. The 1977-1992 Mozambican Civil War did irreparable damage; 95% of wildlife in Gorongosa National Park was killed during the war¹ and even today wildlife numbers are at 10% of what the area could support.² A 1999-2009 plan to grow the elephant population by 20% met its target,³ but since 2007 there has been a strong resurgence in poaching correlated with the rising price of ivory (and rhino horn), which has already halved Mozambique's elephant population. In the northern Niassa ecosystem, where most of the country's elephants are concentrated, it is estimated that between 2009 and 2013, 9,345 elephants were poached out of a population of 20,374.⁴

Mozambique shares large trans-bordered national parks with South Africa and Tanzania, with three distinct Mozambican poaching axes: domestic, cross-border into South Africa, and cross-border into Tanzania. Each has a unique local and poaching environment. In the Selous-Niassa reserve in the north, the trade is in elephant tusks, but in the south along the Kruger-Limpopo Transfrontier Park, the primary target is rhino horn. The two commodities have a huge price disparity; in 2013, rhino horn was worth about \$65,000/kg at market in East Asia as opposed to \$3,000/kg for elephant ivory. However, both industries appear to be professionalizing fast, with heavy involvement of police, border guard and political criminal networks. DNA analysis of three separate ivory seizures in Hong Kong, Japan, and Taiwan traced the tusks to the Selous-Niassa transborder reserve, providing clear evidence of consolidated local poaching.⁵



In Mozambique, scarcity of appropriate large-caliber weaponry and high levels of poverty in areas surrounding elephant ranges allow patrons to monopolize the provision of weapons, and thereby control poaching operations. Professionalization is high, particularly in the south bordering South Africa, where poachers hunt the more valuable rhino and confront well-equipped and effective anti-poaching forces.

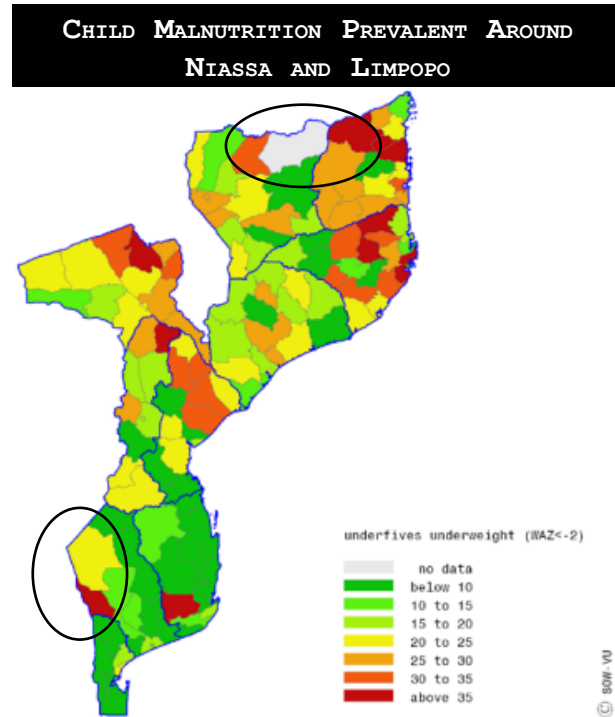
Poverty, Price & Organized Crime

Poachers in Niassa and Limpopo have similar motivations for poaching. The huge disparity in living standards and governance between Mozambique and its wealthier neighbors, combined with the lucrative price of ivory, has created a seemingly inexhaustible supply of cross-border Mozambican poachers. This labor supply has not been curtailed despite the significant and growing risk of death, injury, or lengthy jail sentences; many poachers have been killed per Mozambican figures, and 343 were arrested in 2013.⁶ On the contrary, poaching appears to be growing in attraction as a career opportunity for young, unemployed men in border towns and villages, as well as underpaid military and police forces. Organized crime and corrupt security force networks have monopolized the industry, controlling local poaching through the distribution of weapons. As a result poaching in the region has transformed from an “artisanal” small-scale activity into a militarized and highly organized industry.

	RHINO AND HUMAN CASUALTIES, 2008-2013					
	2008	2009	2010	2011	2012	2013
Rhinos Killed	83	122	333	448	668	1004
Mozambicans Killed	48	62	48	71	52	
Mozambicans Detained	10	22	35	101	132	6

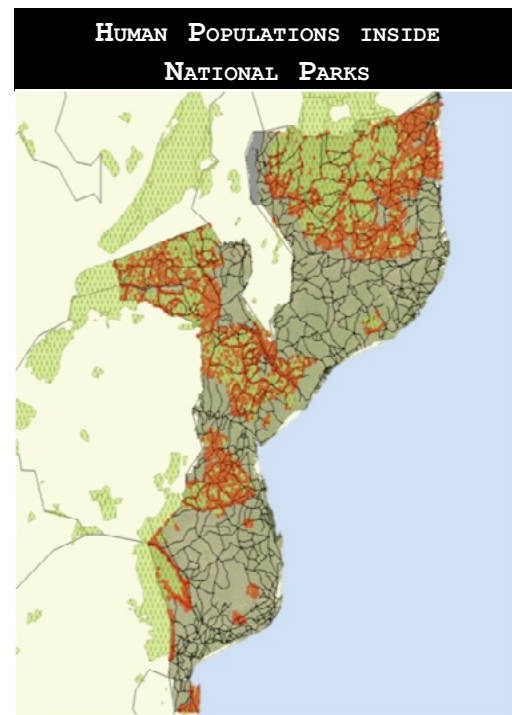
Source: O Pais, South Africa Environmental Ministry

Extreme poverty and cross-border flows of people in search of economic opportunity have created ideal recruiting ground for criminal syndicates. Mozambique ranks 185th out of 187 countries on the UNDP's 2013 Human Development Index,⁷ but the areas around trans-border national parks are depressed even by Mozambican standards. The provinces of Niassa and Cabo Delgado have the highest levels of unemployment, poverty, malnutrition, and stunted child development in the country,⁸ while Southern Mozambique has drier and poorer soils, a distinct disadvantage in a country where smallholders, most subsistence farmers, generate 99% of food production.⁹ Limpopo province,



Source: UN Data, image by Bart van den Boom

bordering South Africa, is Mozambique's poorest, with the highest unemployment and lowest access to basic services, such as piped water.¹⁰ As a result, large numbers of Mozambicans cross the border, many illegally, to find employment in South Africa – at least 454,000 by official counts,¹¹ with 80,000 of those as farm workers in Limpopo alone.¹² Cross-border economic opportunities are not perceived as lucrative on the Tanzanian side, but Niassa is better integrated with Tanzania than with the rest of Mozambique, with much of the local economy dependent on cross-border trade. Common ethnic ties also overlap across the



Human Settlements in parks buffered 5km
Source: C4ADS Analysis of USAID GIST data

northern border; Niassa's main ethnic groups, Undendeule, Ngoni and Yao are spread on both sides of the border, including inside the Niassa Reserve.¹³

Mozambicans face differing penalties along the three poaching axes, but increased levels of severity do not appear to be significant deterrents in any theater. In South Africa, rhinos and elephants are recognized as important economic assets, earning sizable tourist revenues. Poaching is a serious felony, and South African courts have handed down sentences as severe as 25 years imprisonment for Mozambican poachers, and 40 years for a transnational kingpin.¹⁴ In Tanzania by contrast, corruption has ensured that few serious traffickers are arrested, although Mozambicans are locked out of the Tanzanian patronage networks used to escape justice, and as a result are more likely to face punishment.

Inside Mozambique, however, penalties are negligible. Mozambique still regards poaching as a misdemeanor, with the maximum penalty consisting of a \$70-\$3,500 fine – small in comparison to revenues from just one dead rhino or elephant.¹⁵ Mozambique may soon criminalize poaching, but the lack of law enforcement capacity means it is unlikely to make much difference, especially when measured against the financial incentives driving local populations towards poaching. Wildlife rangers are paid just MZN 2,000-3,000 (USD\$64-96) monthly. Unsurprisingly, as of 2013, at least 30 of the Limpopo's 100 rangers were under criminal investigation for having assisted with the poaching of the park's last rhinos.¹⁶

Criminal syndicates organize and control domestic and cross-border poaching through the provision of weaponry. Mozambique is often described as “awash” in firearms, but it has been more than two decades since the civil war ended, and more detailed surveys suggest that only 2.9% of Mozambicans owned a firearm, with perhaps half of those belonging to the army or police.¹⁷ Other surveys record a higher rate of civilian gun ownership, but still less than half that of South Africa.¹⁸ This relatively scarce supply of weaponry, especially appropriate hunting weaponry such as large caliber rifles, has allowed for the monopolization of poaching by organized crime. Poachers often ‘rent’ firearms from security force or criminal networks, and specific firearms have been recorded as having recycled through multiple poaching incidents. The collateral required to rent a weapon can be very high, ranging from US\$2,000 to \$3,000, which can greatly limit poachers’ earning opportunities and indenture them to organized crime.¹⁹ One poacher was arrested with a brand new .375 rifle worth almost USD\$2,000,²⁰ approximately twice the average annual income.²¹

Mozambican poaching and pre-containerization trafficking is a highly organized system that quickly sorts, selects, and moves ivory and horn out of the danger zones towards safer consolidation points. While on expeditions, poachers carry large sums of money – as much as USD\$1,500-2,000, a fortune by local standards – to bribe any security forces they encounter.²² Horn spends virtually no time in the border villages; handovers to middleman can take place within 30 minutes of the poachers exiting the park.²³ Despite this level of organization, poaching is only “lucrative” for locals when measured by local standards. In the border towns and villages, ivory is still far from being containerized and packaged for international transit, and thus the payoff for poachers is small as a fraction of end-value. Proceeds are often shared among a relatively large number of people, further reducing each individual's expected profit. A case study provides a good example: a Mozambican border guard network recruited the best-regarded marksmen in the area to poach rhinos. Upon delivery of multiple horns, they were reportedly paid 1.1 million meticals (USD\$35,000), which was then divided among 11 people,²⁴ reducing each payout to under \$3,200.

Exact payoffs and profit distributions vary depending on syndicates and individuals, but even small absolute amounts are fortunes by local standards. The proceeds from a single hunt can be a good start towards the lifestyle of imported alcohol and cars, to which many youth in border towns have begun to aspire, while for freelancers, horn and ivory are eminently barterable commodities tradable for anything from cash to cattle. Poaching revenues have become important economic lifelines for local communities, providing demand for local services. Known poachers have invested their proceeds in cars and new houses in their villages, and patronize local businesses. Poachers’ “mansions” may be considered mere “matchboxes” in South Africa – small, flat-roofed, single-story structures – but they are still a significant step up from the reed huts that constitute home for the majority of locals.²⁵

Cross-Border Poaching into South Africa

Mozambique's rhino population has now been poached into extinction three separate times: once at the turn of the century, again during the civil war, and just recently around 2013 when the last of resettled South African rhinos were killed.²⁶ The situation is so bad that Mozambican rangers intentionally herd rhinos back into South Africa the moment they cross the border, but even across the border in Kruger National Park, possibly the best- pro-

tected reserve on the continent, a joint task force of rangers and South African military has been unable to stem the tide of cross-border poaching. Poaching incidents have registered a 300% increase between 2010 and 2013, with 2,778 rhinos (approximately 25% of the park's estimated total of 9,000-12,000) poached since 2008,²⁷ and 80-90% of this toll attributed to cross-border Mozambican poachers.²⁸ A record 1,004 rhinos were killed in 2013, a 50% increase over 2012.²⁹ Kruger, which has a 350km-long border with Mozambique, has borne the brunt and accounts for over 60% of the total incidents. South Africa's forces now regularly do battle with heavily armed gangs of poachers, and the country's authorities file more and more reports of Mozambicans killed or captured.

Kruger National Park shares a 150km border with the Limpopo National Park in Mozambique, part of a 350km border with Mozambique proper. Large tracts of the park's boundary were left unfenced following efforts to demilitarize the border and create a "peace park." Kruger has a fairly well-established infrastructure of tourist camps, roads, ranger posts and rapid reaction forces to service and secure over 1.2 million tourists annually, and the South African army has loaned resources upon request by SANParks. In March 2013, SANDF deployed 265 soldiers to Kruger, which included elements from an intelligence tactical regiment, the Special Forces, and an unidentified number of helicopters to help combat poachers.³⁰ Intelligence collection on poaching is coordinated between SANParks rangers, SANDF soldiers, and the South African Police Service (SAPS), through the National Joint Operational and Intelligence Structure (NATJOINTS).³¹

There are a large number of illicit Mozambican cross-border poaching operations active in Kruger Park. Correspondence with South African wildlife organizations³² indicates anywhere between 10-15 hunting parties operating inside Kruger on any given night. 72 separate cross-border incursions were recorded in March 2013 alone,³³ with many others likely escaping undetected. There are at least three major Mozambican hubs for poaching into Kruger – Magude in the south, Massangir in the center, and Chicualacuala to the north of the park. Each base facilitates entry into the park, and has its own well-established network of trails and roads. Poachers cross along all points along the border, when and where opportunity presents itself, but the central areas have the largest proportion of villages located inside park boundaries. The southern sector is the most populated, while the northern sector has the least tourist infrastructure and road density. This could correspond to lower patrol coverage and less monitored levels of poaching; the junction also has the distinction of being a tri-border region with Mozambique and Zimbabwe, aptly named "Crook's Corner" for the old smuggling routes that used to funnel supplies to various armed groups during the 1970s and 1980s bush wars.

Almost 25,000 people live within the boundaries of the Limpopo National Park, although the Mozambican government, under pressure from the South African authorities, recently began a process of 'voluntary resettlement.'³⁴ Since 2006, villages inside the park are being resettled to its periphery, but poachers are already able to base from villages just outside the park. Moreover, the campaign engenders hostility toward the Mozambican government; an independent study concluded that "residents had neither power of choice nor informed consent with regard to resettlement," and as of December 2013, some settlements still remained.³⁵ The study, which included interviews with local chiefs as early as 2006, found that their prima-



ry concerns of human-wildlife contact were not being addressed by unresponsive government figures, directly impacting their livelihoods.³⁶ The government has been unwilling or unable to improve the lot of the people in this area through investments in agriculture or human development. It is thus perhaps unsurprising that many of the villages inside the Limpopo National Park along the Shingwedzi river basin, such as Bingo, Veldo Massingir, and Magudze, have been associated with rhino poaching.

Terrain and military deployments affect poacher movements. In accordance with the “Peace Park” concept, the border is unfenced for about 70km along the Limpopo/Kruger border – 57km in the far north and 12km in the middle section³⁷ – though about two thirds of the original border remains fenced. There are growing public calls in South Africa to re-fence and seal the entire border,³⁸ a move resisted by the Mozambican government, which stands to lose millions in much-needed tourism revenues.³⁹ However, even the fenced portions in their current form are little deterrent to determined poachers, many of whom can get through with implements as simple as bolt cutters. Ranger deployments and patrol routes are confidential and subject to change, but rough estimates suggest their numbers still remain below adequate manning levels. Along the Zimbabwean border, ‘echo stations’ of 4-6 soldiers each are positioned at 10-mile intervals conducting daily 5km patrols on either side, but even so, many Zimbabwean illegal migrants still get through.⁴⁰

Limpopo National Park’s eastern border (inside Mozambique) is completely unfenced and is bounded by the Limpopo River and the Massingir dam, along which there are several settled areas. A road from Massingir cuts through the park to the Giryondo border crossing, as does the Shingwedzi River along which villages are being resettled. Roads and waterways are obvious routes to the border – the Massingir Dam and the Corumanada Dam in the south are two major launching points – but most routes are poorly policed. An investigation in mid-2013 found not one single roadblock on the EN1 highway between Massingir and the border fence,⁴¹ one of the primary and most obvious routes for poachers to approach the border. Other routes are inherently harder to control – for example when poachers disperse into the bush after entering the LNP, or up along the remote far north, where the Limpopo river flows all the way to the tri-junction, providing numerous entrance points.

Mozambican hunting parties are mobile and well-equipped, attributes necessary to prevail against well-trained and highly militarized South African forces. Many employ a designated shooter, equipped with a specialized large-caliber rifle, most commonly a .375 or .458, sometimes equipped with a silencer. They employ a protection detail armed with AK-47 or AKM-47 assault rifles to form a perimeter should ranger or military forces show up while the horn is being cut.⁴² Support structures include intelligence and patronage assets on both sides of the border. Villagers can be paid for calling in rhino sightings, rangers can be bribed to support expeditions or inform on



Source: Bester Scheepers



Source: Independent Newspapers

wildlife and ranger locations, and Mozambican politicians, police chiefs and businessmen may either be bribed or fully incorporated into poaching syndicates to provide top-level cover. Others may use more unorthodox helpers: some syndicates have used traditional healers or “priests” to help distribute and ‘bless’ the weapons.⁴³

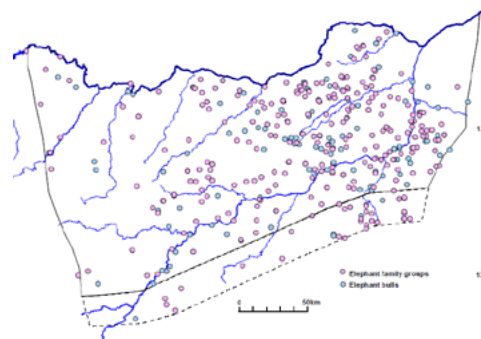
Poachers either stay in the bush for a few hours, conducting shallow hit and run operations from across the border, or spend days inside the parks trying to avoid patrolled and tourist areas. In either case, poachers generally make an immediate beeline back to the border after kills – in best-case scenarios returning as quickly as 30 minutes from the time of the shooting. A SANDF colonel deployed on anti-poaching operations described higher-end poachers as “great bushmen” and “extremely disciplined” who don’t smoke or set fires and can cover 30km by night.⁴⁴ Good environmental conditions, such as full moon nights, have been noted to correlate with increased levels of poaching.

Cross-Border Poaching & Tanzania

Elephant poaching in Mozambique’s northern Niassa ecosystem is high and rising. A World Wildlife Fund aerial survey conducted in 2012 estimated that Niassa has seen a four-fold increase of 2,667 elephant carcasses since 2009,⁴⁵ with possibly three elephants a day now being killed.⁴⁶ Much of this is due to inadequate protection. Niassa has a mere 120 rangers,⁴⁷ many of whom have been alleged to help poachers find and kill animals in Niassa and other parks.⁴⁸ This should not be surprising; rangers make between 2,000 and 3,000 meticals (\$64 to \$96) a month, but are offered 2,500 meticals (about \$80) for merely directing hunters toward an animal’s location.⁴⁹ More detailed surveys in 2009 revealed that poaching is concentrated in the north of the park, in the R6 and L6 hunting concessions, and in the northeast of the park along the Lugenda river, a section of the reserve that is among the least inhabited.⁵⁰ This suggests that poaching is higher in more remote areas, is happening with little visibility, and by location is likely linked to Tanzanian lines of influence.

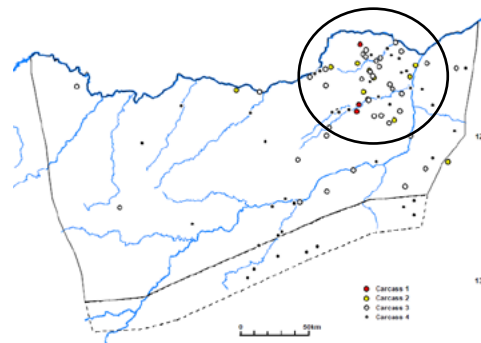
Although ivory seizures and poaching arrests in this region are few, open source research supports the Tanzanian link. Ivory from Niassa most often flows north along the length of the Ruvuma river. The best-established crossing routes are the Unity Bridge on the eastern edge of the reserve, and Unity 2 in the park’s eastern quadrant near Matchedje. Besides the bridges, certain villages are believed to be important crossing points for ivory: the towns of Msisiwe, Magazing, Matwiga, Includindo and the areas of the Lokwika Game Camp at Ruaha to name a few.⁵¹ The river is crossable at many points during the dry season, and has many islands along its course, some

2009 AERIAL ELEPHANT CENSUS RESULTS



Elephant sightings in Niassa

Source: Sociedade para a Gestão e Desenvolvimento da Reserva do Niassa



Elephant carcasses in Niassa

Source: Sociedade para a Gestão e Desenvolvimento da Reserva do Niassa

of which are inhabited. Local residents make use of fording networks, which often coincide with elephant migratory routes, and it would not be difficult for an individual to cross informally with a small number of tusks. Interviews with locally engaged conservationists, investigative journalists, and park authorities have indicated that since 2009, the situation has changed somewhat, and that poaching has also emerged in the populated areas in the center of Niassa park. These areas are more favorably located to transport networks, have greater access to weapons and patronage, and are more likely driven by the prevailing impunity.

Poaching appears to be increasing in frequency and professionalism. From 2007-2010, an uptick was observed in the amount of snares and illegal arms captured.⁵² One of the centers of poaching activity in Niassa appears to be Mecula, the district capital and the largest settlement of the populated corridor running through the middle of the reserve. Several Mecula residents have been arrested for possession of both ivory and weapons.⁵³ Arrested individuals have indicated higher-level accomplices in Mecula,⁵⁴ while local sources identify it as a significant base for poachers. Within the district, poaching likely features the close involvement of local village leaders, who can act as distributors of weapons. The chief of the Gogemo community in Mussoma was arrested with 18 .375 and .458 caliber bullets,⁵⁵ which is an appropriate caliber for big game hunting. Two other individuals, Agostinho Mungua and Raimundo Miquidade, also from Mussoma, were arrested on another occasion for the same reason.⁵⁶ One more Mussoma resident, Paulo Nhenge, was arrested with one rifle of both calibers after poaching an elephant in the interior of Luwire park;⁵⁷ he has been publicly alleged to conduct the ivory trade in company with Mungua and Carlos Ussene Maito, FRELIMO's party secretary for the Mecula region.⁵⁸

The Mozambican Border Guard & Police Networks

In Mozambique, authorities within the Police of the Republic of Mozambique (PRM) and its subunit, the Frontier Guard Force (FGF), are important enablers of poaching. Of the hundreds of Mozambican poachers arrested or killed, a sizable number have been members of the army, border guard, and police forces, both active and demobilized. This is unsurprising. Experience counts, and syndicates seek out trained shooters. Security forces have the means, motive, and the opportunity to be highly competitive in criminal enterprises. Security forces have access to weapons, are underpaid, and due to deployment near borders are well-connected to poach and traffic in wildlife products. The Mozambican public regards the police as among the country's most corrupt institutions, and there are widespread allegations that the force rents out its uniforms and guns for criminal purposes.⁵⁹

Security forces are very often implicated or suspected in poaching and trafficking operations. In December 2011, eight members of the frontier guard in Niassa were involved in the sale of 350 kg of seized ivory to Tanzanian citizens. Instead of receiving an aggravated punishment, they were transferred to a different location.⁶⁰ In June 2012, six tons of ivory was stolen from a stockpile in Maputo.⁶¹ That followed another heist of an undisclosed amount approximately one year earlier, also from a warehouse in Maputo.⁶² Nearly 1.1 tons reportedly went missing from the central ivory stockpile in Maputo in February 2012, and since then it appears that the ivory stockpile in Pemba in Cabo Delgado Province has also disappeared, for the second time now.⁶³ It seems unlikely such repeated heists did not involve high-level collusion.

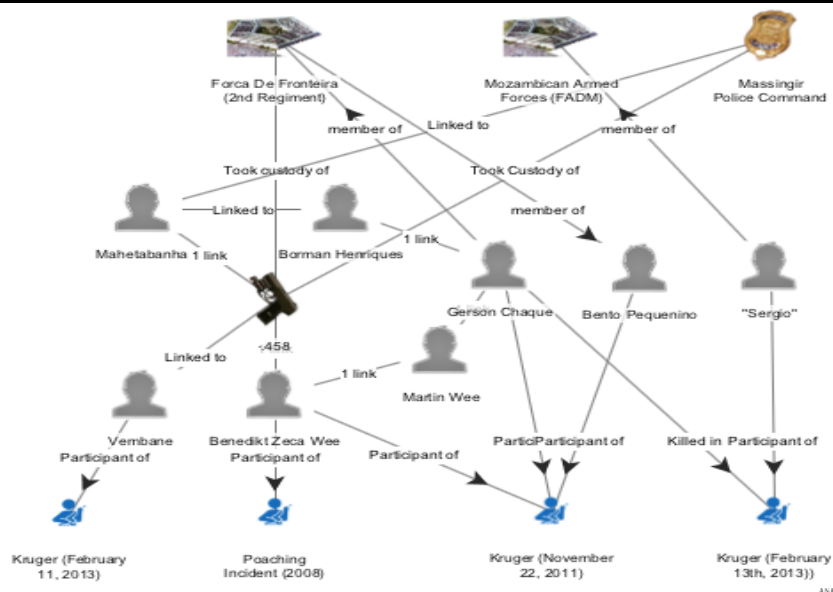
In the case of a 2010 massacre of 12 elephants near the Mbama village in Mecula district, the investigation led to police in Balama, who supplied the poachers with weapons.⁶⁴ Mozambique army uniforms have been discovered at poaching sites,⁶⁵ and in yet another report, a PRM district commander collaborated with the chief of the town of Mpamanta to provide an AK-47 to a local gang in order for them to poach game within the LUWIRE (L-7) concession.⁶⁶ Shortly after this scandal, the FRELIMO party head in Mpamanta resigned.⁶⁷

Mozambican police and government sources regularly explain away such incidents by

claiming the men are deserters and little enforcement action occurs once poachers return safely across the border. On the contrary, Fernando Manjate, the Commander of the 2nd Regiment of the Forca de Guarda Fronteira (FGF), was reportedly summarily dismissed along with his entire investigative team after he sought to investigate allegations of poaching inside his force.⁶⁸ Moreover, Mozambican investigative journalists have rebutted government claims, explaining away two poachers/border guardsmen, Borman Henriques and Ildio Mahunguele, as deserters. Instead they claim, the two are connected by family to senior police officials and are still stationed at FGF regional headquarters at Chokwe.⁶⁹ Others arrested for poaching include the police commander in Massingir and the head of the District Traffic Police Brigade.⁷⁰

Weapons regularly leak from police, border guard, and military armories, either at a low-level, with soldiers and policemen individually profiting from local relationships, or at a much more organized level involving senior officials working with poaching syndicates. Weapons also regularly cycle through multiple poaching incidents, even after being seized by police and border guard forces. In one notorious incident in 2008, a Mauser .458 was recovered from Benedict Zeca Wee, a poacher captured by the Frontier Guard. The gun was then transferred to Massingir Police Command, from where it found its way into the hands of a poacher by the name of Vembane who was killed in Kruger on January 8, 2013, with the rifle in hand. Vembane worked in a bakery a few meters down the street from the police station.⁷¹ The same Mauser may have also been linked to another shootout where seven members of an eight-man poaching expedition were shot dead, with the lone survivor, Sergio, identified as a member of the Mozambican Army.⁷² A separate weapon, a .375 rifle, was also seized in Pumbe in 2008 by the Frontier Guard. The gun then resurfaced in 2010 with a three-man poaching party and was again reportedly seized by the Frontier Guard, from where it leaked once more to be recovered from Luis Mongue, another poacher, captured in

SAME GUNS LINKED TO MULTIPLE POACHING INCIDENTS



Map of poaching social networks involving PRM members in Kruger
 Source: Open Source Reporting
 ANALYSIS POWERED BY Palantir

January 2012.⁷³ However, the Frontier Guard is far from the only security force involved in poaching. On August 26, 2013, a poacher by the name of “Santos” was shot, and later traced back as having been attached to Brigade Radio Engineering in Massingir.⁷⁴

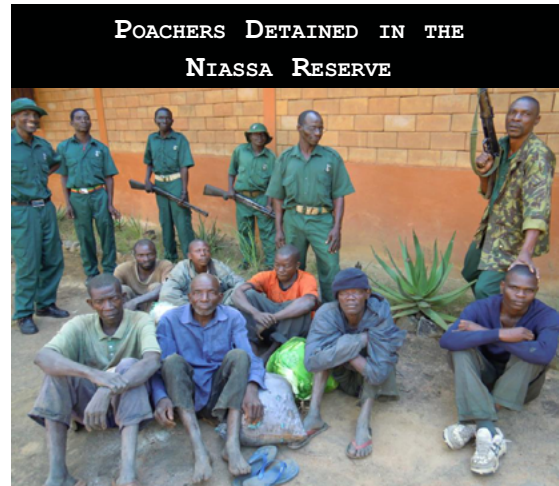
Complicity on the part of Mozambique’s elites is another worrying phenomenon. According to comments made by park rangers, within Niassa there exists a “special” zone near Mec-

ula accessible only to members of the Mozambican government; entry is denied even to rangers.⁷⁵ Within that zone, according to the ranger, “we can find 50 carcasses of poached elephants.”⁷⁶ The weapons for poaching in the region may also come from government stockpiles, with or without the acquiescence of authorities: in Montepuez, situated near to the NNR in the neighboring province of Cabo Delgado, a military training school is accused of transferring weapons for poachers within the park.⁷⁷

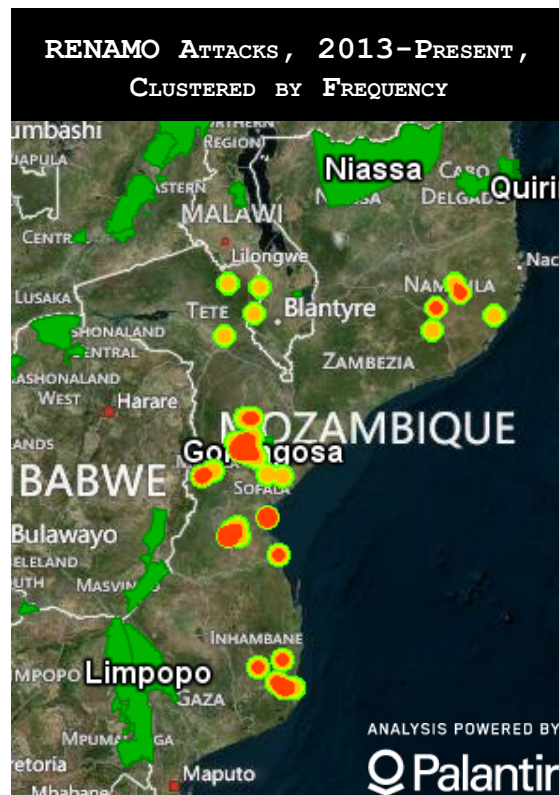
Besides the collaboration of local officials in low-level trade, there exists troubling evidence that ivory money makes its way much further up the chain. FRELIMO stands accused of using proceeds from ivory poaching to fund its party conference; rangers involved in anti-poaching patrols in Niassa, who did not want to be named for fear of losing their jobs, said they had noticed the use of heavy artillery and helicopters in poaching activities in the lead-up to the FRELIMO conference in Pemba in September 2012.⁷⁸ The rangers said they had been excluded from an area near the party’s district headquarters in Mecula, near the Niassa reserve, where the carcasses of more than 50 elephants had been stacked. Their efforts to report the slaughter to police officials and border guards were fruitless.⁷⁹ In at least one incident, a helicopter was also reported being used by poachers to hunt in Quirimbas National Park, and was believed by park administrator Jose Dias to have been used in the transport of ivory poached from elephants out of the park.⁸⁰

Resurgent Insurgents: RENAMO

RENAMO has a history of ivory poaching to support its militant activities, especially during the civil war, but while it could return to poaching in the future, the group’s isolation from elephant populations significantly reduces the possibility. RENAMO’s historic areas of operation were concentrated in Mozambique’s central provinces and it lacks support in Gaza province along the South African border,⁸¹ or among the Yao people who inhabit most of Niassa province in the north.⁸² Inside Mozambique, RENAMO has reopened bases in Nhamunde and at Casa Banana in Gorongosa National Park in Sofala province,



Poachers arrested in Niassa. One poacher is Tanzanian
Source: Sociedade para a Gestão e Desenvolvimento da Reserva do Niassa



Source: C4ADS Analysis of ACLED Data

which have since become the centers of much of its militant activity.⁸³ Gorongosa is home to a modest population of somewhere between 87 and 300 elephants,⁸⁴ which were rehabilitated into the park. Gorongosa saw the bulk of the conflict when hostilities restarted in late 2012, although RENAMO has come under severe pressure since then, with FADM attacks on strategic centers pushing current fighting mostly to the Muxungue district to the west, near the border with Zimbabwe. Throughout, RENAMO's range has generally been limited to the center of the country, far away from important elephant population centers in Niassa, Limpopo, and Quirimbas national parks.

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TRIDOM: Mining, Forestry & the Chinese in Africa

Booming African primary economies have brought commercial forestry operations, expanding infrastructure, and direct East Asian demand for ivory into remote elephant habitats.

The Tri-National Dja-Odzala-Minkébé (TRIDOM) area, comprising northern Gabon, southeastern Cameroon, and northern Republic of Congo (ROC), is the last haven for the African forest elephant. It also contains the world's second largest rainforest and one of the planet's most biologically diverse areas. While technically the area lies outside the conflict belt further east in Central Africa, Sudanese poachers have already arrived at the TRIDOM periphery, striking inside Cameroon and near the border with northern ROC in 2013. In 2014, Boko Haram and armed groups from CAR are increasingly spilling over Cameroon's borders.¹ However, despite these external actors, the primary poaching threat inside the TRIDOM area today is internal, and stems from the massive expansion of commercial forestry exploitation in the region and the coincident rapid growth and spread of East Asian and Chinese migrant populations. Meanwhile, the price of ivory, even at local levels, has exploded from a fairly stable 10,000-12,000 FCFA/kg (\$10-20) before 2005² to over \$40-60 today for a local hunter.

**DOMINANT MODEL :
THE DISTRIBUTOR**



In the TRIDOM area, the relative expense of mounting poaching expeditions in highly remote, sparsely populated and poorly-connected regions impels the support of patrons. Commercial elephant bushmeat poaching has been crowded out by an opaque set of patrons that appear closely connected to foreign and domestic forestry industries that have ready access to international shipping lanes.

Forestry exploitation, with its associated bushmeat hunting and poorly regulated deforestation, is a direct threat to elephant populations. Modern operations have opened up the Congo Basin, bringing international demand, including large and expanding Chinese migrant laborer camps, into previously unconnected rural areas and creating infrastructure to allow permanent access into once-pristine forest. There may be as many as 70,000 elephants in Gabon and the Republic of Congo.³ Gabon alone, with just 13% of Africa's rain forests, today contains over half the continent's surviving forest elephants.⁴ The region is fairly stable, without the levels of militarization seen further east, yet the poaching loss, especially recently, has been significant. Minkébé National Park, with the largest concentration of Gabon's elephants, has lost as much as 2/3rds of its elephant populations in recent years.⁵ The Republic of Congo has lost 50% of its elephants in the last 10 years, with remaining populations concentrated in the Odzala and Ndoki ecosystems near the borders with Gabon and CAR, respectively. This drastic decline is particularly notable given the remoteness and very low population densities in these regions, highlighting just how far into remote forests illegal interests have reached in lockstep with legal forestry exploitation.

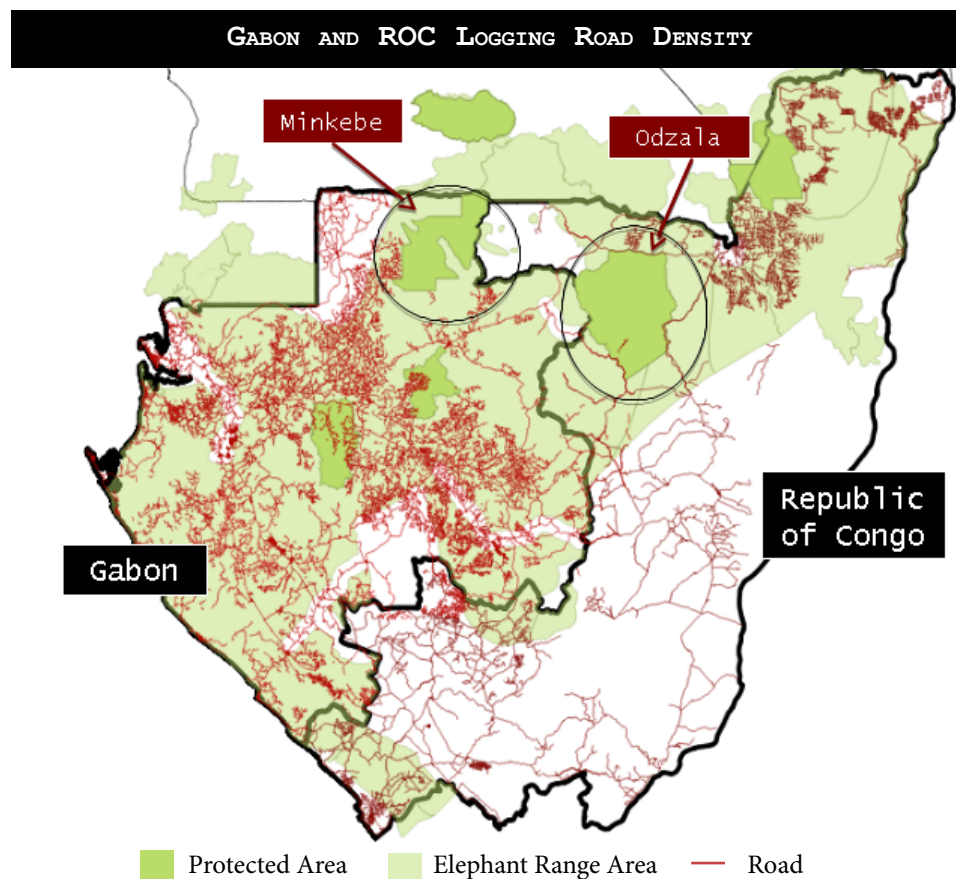
Gabon has taken serious steps to stem poaching, but it is unlikely to succeed on its own. President Bongo has used the substantial oil revenues at his disposal to increase the budget of the Gabon National Park Service from \$1 million in 2009 to \$18 million in 2013, and is raising a specialized 240-strong anti-poaching unit to be trained by AFRICOM. On the law enforcement side, Gabon's police force has all but wiped out the domestic ivory market in Libreville, airport authorities recently acquired their first wildlife canine unit, and L'Agence Nationale des Parcs Nationaux (ANPN) is planning the purchase of additional anti-poaching surveillance equipment, including two helicopters, from the US military.⁶

At a senior level, the Bongo administration has shown a willingness to police foreign interests operating on Gabonese soil, although Gabon has leverage, a rarity among other cash-strapped countries in the region: in July 2013, Gabon took the unprecedented step of withdrawing the oil exploitation rights of Addax Petroleum, a subsidiary of Sinopec, for breach of contract that included among other things, "shortfalls in respect for the environment," although the dispute was later settled with a substantial \$400 million settlement paid by Addax.⁷ With respect to ivory, President Ali Bongo has promised to demand "zero tolerance" from Chinese companies in the country, even threatening to cancel contracts if the poaching does not cease.⁸ Unfortunately, while Gabon has the financial capacity to robustly support conservationist endeavors, its neighbors in ROC and Cameroon – 142nd and 150th out of 187 countries in the 2013 UN Human Development Index⁹ – do not.

Logging, Bushmeat, Mining & Refugees

The vast expansion of extractive industries – from logging to mining to bushmeat hunting – has been devastating to elephants in the TRIDOM area. There is little hope of it easing. Gabon's economy is oriented around natural resource exports; the primary sector contributed 59% of real GDP growth in 2011, oil alone accounted for 50.5%.¹⁰ Commercial logging is much smaller, but has existed since the French colonial era, and its scale has expanded dramatically, especially with the entry of Asian consumers in recent years. This has resulted in the entry of large numbers of people into formerly pristine habitat; in 1957, fewer than 10% of Gabon's forests were allocated as logging concessions, by 2000 it was 50%,¹¹ and in 2013, 63% of land area was under forestry concession¹² with 70 separate companies operating today in Gabon's forestry sector.¹³ Similarly, southeast Cameroon, home to the country's last major elephant populations, is set to become a major mining region, while the ROC is experiencing rapidly increasing rate of road construction¹⁴ to support growing logging and palm oil industries. All these industries and activities impact and facilitate poaching. Ivory poachers free-ride off licit infrastructure; logging roads increase access and reduce hunting time, artisanal mining sites serve as staging areas for poaching expeditions, while bushmeat hunters can transition to ivory poaching with the turn of a rifle.

The TRIDOM area spans one of the world's last and largest continuous stretches of forest, and consequently has very low population density. Gabon is slightly larger in land area than the United Kingdom (population 63 million), but had only 1.6 million people in 2012; around half of this population lives in or around the capital Libreville. As such Gabon has very low capacity to control its hinterland or its long borders. The entire Gabonese army is 3,200 soldiers with a total of 7 multirole and transport helicopters, while neighboring ROC has an 8,000-man army but likely zero helicopters currently in active service.¹⁵ Viewed in the context of these numbers, President Bongo's stated commitment to raise a 250-man



Source: Adapted from World Resources Institute data

anti-poaching unit with two helicopters is quite significant. However, in absolute terms, it will likely be able to provide coverage of no more than a stretch of the densely forested terrain and the Aïna River that constitutes much of the border between Cameroon and Gabon.

Commercial natural resource exploitation, if well-managed and regulated, is essential for the development of Congo Basin countries, while artisanal exploitation is a vital means of sustenance for communities offered few alternative opportunities. Relatively small populations and abundant natural resource wealth make the primary sector a potential avenue to prosperity for all TRIDOM countries, but little wealth has been shared among local populations. Gabon's GDP figures mask high income disparities and youth unemployment of over 30% in 2013,¹⁶ while mismanagement of ROC's oil revenues has been a driver of civil conflict and political turmoil through the 1990s and 2000s. Meanwhile, the impact of commercial forestry exploitation has been disproportionately borne by a small segment of forest communities. The Baka pygmies are widely utilized as scouts and bottom-level ivory poachers given their innate knowledge of the forest and its wildlife. Their incorporation, however, stems in large part from the traumatic devastation of Baka society under the pressure of commercial and illegal logging. Unemployment, alcoholism, and destitution are now commonplace in Baka communities dispossessed of their homes,¹⁷ and it is little wonder they can be hired for weeks-long poaching expeditions for only flour, bushmeat, and whiskey.¹⁸

The park of Minkébé illustrates the impact of unmonitored artisanal mining and logging, illicit cross-border movement, and local poverty. A 2004 survey estimated a population of 21,000 elephants inside Minkébé National Park, but by October 2012, 44-77% of that population or 11,700 elephants had been killed.¹⁹ Minkébé has faced huge logging pressure in its west and south as can be seen in the map of logging road densities on page 83. However, large numbers of Cameroonian immigrants also crossed the Aïna River to find work at a now-shuttered artisanal gold mine in southern Minkébé. In 2011, an estimated 5,000 people worked at the mining camp, roughly 60% Cameroonian.²⁰

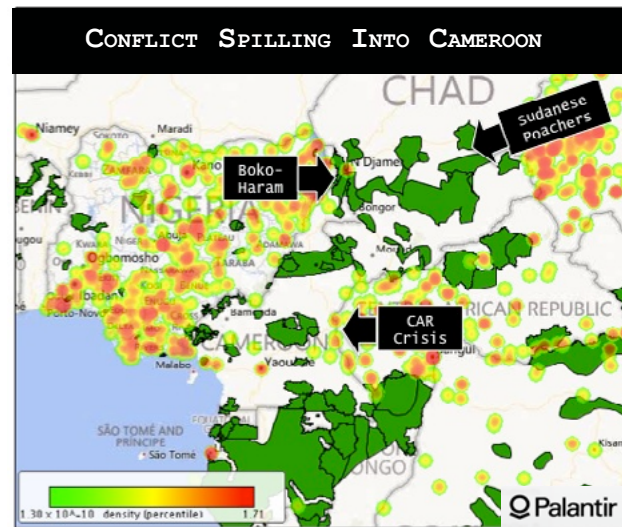


Source: Gustave Mbaza, WWF

The high percentage of foreign migrants galvanized a Gabonese military operation to clear the camp, but despite the eviction of most miners in June 2011 and the continued presence of the Gabonese military at some sites, a May 2012 ANPN assessment found that ivory poaching was not only still present, but was likely rising.²¹ From January to November 2012, ANPN recorded 141 arrests for poaching and gold mining in Minkébé: 82 Cameroonian and 43 Gabonese (many Baka) individuals, and seized 73 tusks.²² This sustained poaching pressure could be the result of former artisanal miners now pushed into the ivory trade, or could reflect independent ivory poaching networks that use artisanal infrastructure, but are distinct from the miners. Either way, the artisanal infrastructure in the region, such as the Minkébé pit mine, are controlled by Gabonese individuals, not independent cross-border poaching organizations.²³

The bushmeat trade is the precursor to the modern ivory poaching crisis, and is likely still a facilitator. Many rural communities in Central Africa receive 100% of their protein from bushmeat, but given the low population density in the area, subsistence hunting cannot account for the huge elephant decline. Commercial bushmeat hunting, on the other hand, can indeed be big business (as detailed by Daniel Stiles for IUCN), with ivory only recently supplanting bushmeat as the most lucrative wildlife commodity in the region. Elephants yield an enormous amount of luxury bushmeat – almost one ton smoked after wastage, if the entire elephant is harvested – an amount that could yield as much as \$3,000 for a hunting operation in southeast Cameroon in 2011. Generally, however, hunting parties in TRIDOM carried out between 60-100kg of bushmeat to be sold at about \$3.33-4.67/kg in regional markets.²⁴ Ivory has always been a valuable byproduct of the bushmeat trade, and 100% of hunters in the above sample carried out the tusks. Payment is often in kind: commercial hunters working for local middlemen repaid the loan of weapons and ammunition by handing over ivory, but could retain up to half with the option to sell.²⁵

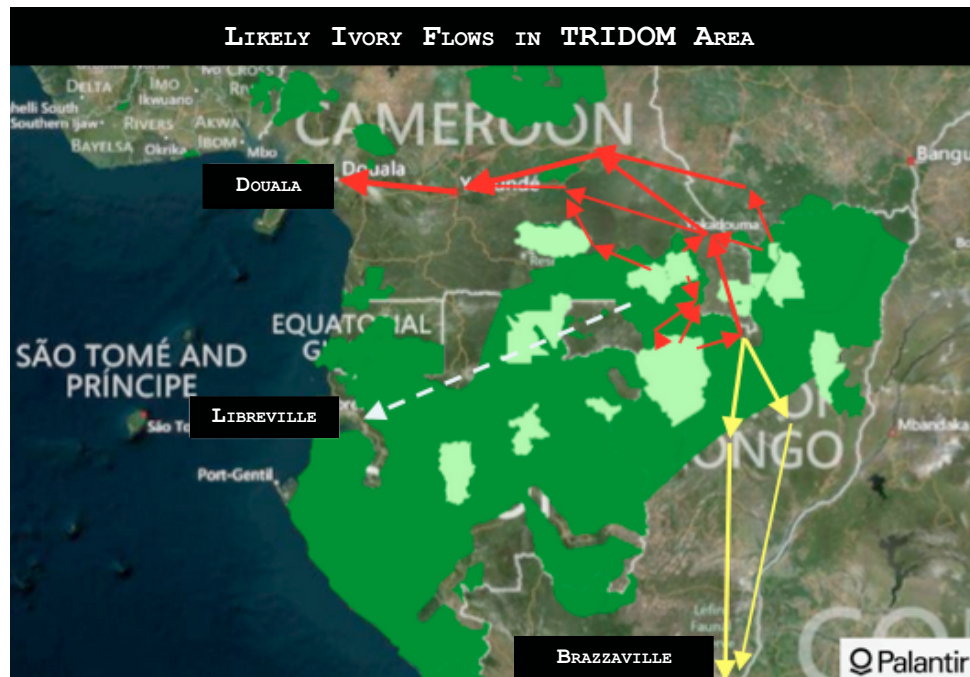
Related to the demand for bushmeat is the growing refugee population on the borders of the TRIDOM landscape, the result of successive waves of crisis in the nearby Central African Republic (CAR). In March 2014, almost 20% of the CAR's population was displaced, with roughly 300,000 refugees in neighboring countries, including more than 100,000 in Eastern Cameroon and more than 90 refugee sites down the Ubangi River in northern ROC.²⁶ Relief funding has fallen vastly short of needs, and the in-



Source: Adapted by C4ADS from ACLED data

adequacy of the international humanitarian response ensures that large segments of the displaced are food-insecure. Meanwhile, northern Cameroon too is growing increasingly destabilized, as Boko Haram violence from Nigeria begins to spill over. The most recent attack in March 2014 was in Kousseri, just across the Chari River from the Chadian capital of N'Djamena.²⁷ Core TRIDOM elephant areas are still some distance from this instability, but the diversion of resources and the growing number of internally displaced is a dangerous trend. The sprawling Somali refugee complex at Dadaab in northeastern Kenya is an extreme but instructive example: its destitute population has stripped local flora and wildlife in an almost 100km radius.²⁸

Broadly speaking, ivory flows out of Gabon and the northwestern ROC provide a clear example of how porous borders enable the transnational trade in ivory. Due to relatively low port capacity and fairly effective enforcement, Libreville has not yet emerged as a favorite trafficking hub, but ivory, including from Gabon, appears to flow in sizable amounts to ports like Douala in Cameroon and Pointe Noire in ROC. Ivory emerges from elephant ranges around Odzala-Koukoua, Dzanga-Ndoki, and Boumba-Bek into surrounding villages, before heading towards consolidation and assembly points in regional population centers such as Ouesso in ROC, Berberati in CAR, Mouloundou in Cameroon, and others. In Cameroon, Bertoua appears to be a hub for ivory from Dzanga-Ndoki and Boumba Bek, while Yokadouma is a later stage hub for ivory leaving all three main parks in the region. From consolidation centers, ivory is then trafficked to cities with access to international transit: northward and westward through Yaoundé toward Douala, and southward through the Congo to Brazzaville, and then possibly Pointe Noire.



Source: Adapted by C4ADS from Author Interviews, Infrastructure Analysis

The Chinese in Gabon/ROC

In many African and Western perceptions, it is the Chinese who are to blame for the modern poaching crisis. The Chinese market by sheer size dominates current ivory demand, but Vietnam and Thailand are also important horn and ivory end-markets, while other East Asian countries – Malaysia, Philippines, and Indonesia – are prominent ivory transit and transshipment countries, as are Persian Gulf port nations, particularly the United Arab Emirates (UAE). It is the Chinese, however, who tend to bear all the blame, including sometimes that of other nationals’ activities. With that important caveat, Chinese nationals have been associated with ivory trafficking at various stages along the value chain, and in virtually every African range state. Chinese syndicates work within existing Chinese economic projects and diasporas, and can range from migrant laborers buying a few kilograms of raw ivory or finished trinkets to bring home at the end of a contract, all the way to Chinese transnational organized crime arranging large multi-ton containerized shipments on a regular basis. As two recent examples: in 2011, a Chinese company, Tienhe, in Mozambique was caught attempting to smuggle 126 tusks inside a timber consignment,²⁹ while more recently in November 2013, a Chinese garlic exporting business in Dar es Salaam was used as cover for a 1.8-ton intercepted ivory shipment.

In Gabon and ROC, the Chinese presence is



Two Employees of China Road and Bridge Corporation Arrested with Ivory near Odzala, ROC
Source: CNN



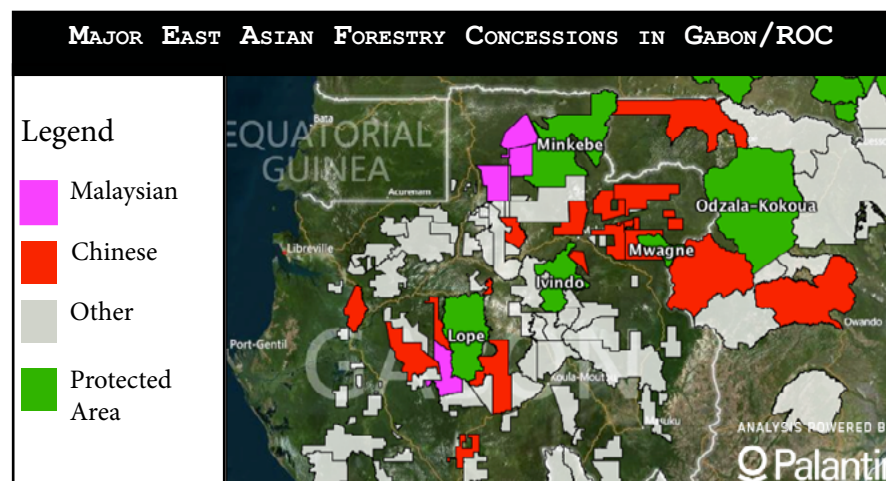
Source: African Parks

SAMPLE OF CHINESE LOGGING COMPANIES ACTIVE IN GABON/ROC			
Logging Company	Parent Company	State-Owned?	Concession Size
Hua Jia	China International Forestry Group	Yes	>400,000ha
Gabon Export Bois-ASSALA-GBK	Shenyang Group	No	>100,000ha
Leroy Gabon	Honest Timber	No	>450,000ha
Sunly/Sunry/SAFOR	China National Cereals, Oils and Foodstuff Corp. (COFCO)	Yes	>850,000ha
OLAM	--	No	>400,000ha

Source: C4ADS Open Source Research

relatively new, but has expanded rapidly, with Gabonese exports to China spiking from \$62 million USD in 2005 to nearly \$2 billion USD by 2008.³⁰ Chinese strategic and economic investments, as with the rest of Africa, are primarily centered around access to primary resources, with Chinese market share increasing significantly in the forestry sector. This investment and development has brought a cultural demand for ivory in close proximity to once remote elephant habitats. Gabon, ROC, and Cameroon are three of the largest exporters of logs to China, and in mid-2010, Chinese owned-companies held rights to 121 of 579 (or 25%) of Gabon's forestry permits, more than half of which belonged to just five companies. These five companies together shipped more than 70% of country's timber exports.³¹ There is substantial variation between estimates of illegal logging in Gabon, ranging from 20% to 70% of all timber being exported to China.³² Today, there are about 15 Chinese companies operating in Gabon, with several major concessions concentrated around elephant-heavy national parks, particularly Lope, Mwagne, and Odzala National Park in neighboring ROC. The Chinese have also been leading contenders for a range of mining operations, and construction contracts to upgrade national infrastructure.

Chinese companies complain that they are unfairly and disproportionately scrutinized in Gabon,³³ and an assessment finds significant variation in operating procedures. Sunry, a



Source: Adapted by C4ADS from Data Provided by World Resources Institute

state-owned subsidiary enterprise, had an excellent reputation inside Gabon in being “very serious with a great deal of ambition in terms of forest management planning and environmental considerations.” Other smaller operators, such as Honest Timber, were seen as much more problematic in their environmental impact, according to a detailed report.³⁴ Honest Timber is the parent company of Peng Xin SARL and Wan Chuan Timber SAR, according to data provided to C4ADS by the World Resources Institute. Honest Timber’s CEO, Guohua Zhang was arrested in Gabon in 2010 for falsification of identity and unpaid wages.³⁵ It is uncertain exactly how strategic-level policies at these companies translate to employee conduct on the ground, but employees of several Chinese companies have been implicated in the ivory trade, and in some cases local management is suspected of either active complicity or at least turning a blind eye.

A particularly visible example from the past year has been Chinese state-owned China Road and Bridge Corporation (CRBC). CRBC has held several contracts in ROC to upgrade infrastructure, including paving the country’s primary north-south highway from Brazzaville to Ouessou, which runs right along the edge of Odzala National Park. The CRBC camp at Moyoye, about 10km along the road from the edge of Odzala, has been associated with several ivory-related incidents. In October 2013, reformed poachers-turned-rangers helped identify and arrest a Chinese ivory trader and his driver, who they had previously supplied with ivory. Both were employees of CRBC at Moyoye, and were found with three pieces of ivory, including one tusk hidden at the CRBC camp. The court at Ouessou charged and released the two within hours, without bail or being required to surrender their passports.³⁶ In November 2013, at Yengo control post, eco-guards arrested another Chinese national with a piece of ivory in his laptop bag. Investigators also found traces of ivory at his camp. Though the man was arrested, the Ouessou prosecutor released him shortly thereafter.³⁷ After both incidents, CRBC management consented to a search of the Moyoye camp. Rangers found no further ivory, but noted white dust around wood carving machines, suspected to be ivory shavings, raising suspicions of a rudimentary carving or at least cutting facility.³⁸

Company employees may also be involved further up the value chain: in 2013, three poachers (who were also working construction at Ouessou airport under contract with CRBC), were arrested.³⁹ Authorities compelled the three poachers to call their dealer, who turned out to be a Chinese individual who said he could supply ammunition and weapons. This was the first time park authorities had discovered a Chinese national fully transitioning to the role of a local middleman.⁴⁰ Finally, the few Chinese who have been indicted and convicted so far have received low sentences: out of a group of 14 Chinese workers caught roasting an elephant trunk in a separate incident, only one received a prison sentence, and that too for only three months, raising questions about the will or ability to incarcerate foreign nationals operating in the ivory trade.⁴¹

CRBC’s activities at Moyoye are likely just the tip of the iceberg: Odzala has a well-trained and committed ranger force and very few access points into the park, yet has struggled to cope with rising poaching. The situation elsewhere could be worse. Across Sub-Saharan Africa, Chinese investment is expanding rapidly, often with little regulation and oversight. These construction sites are particularly problematic in that containerization can happen on site, and does not require trafficking to urban centers. Similarly, Chinese migrant workers often carry out small portions of raw and finished ivory trinkets in their hand baggage upon finishing their contracts, a trafficking model that can, or may already, be attractive for organized crime. However, African airports are still relatively unconnected to broader flight infrastructure, opening avenues for interception with relatively little resourcing. Flights out of Gabon to China are mapped below, highlighting how the vast majority must pass through either Bole International Airport in Addis Ababa or Charles de Gaulle in Paris. Other smaller chokepoints include Istanbul and Johannesburg.



Source: Adapted by C4ADS from OpenFlights Data

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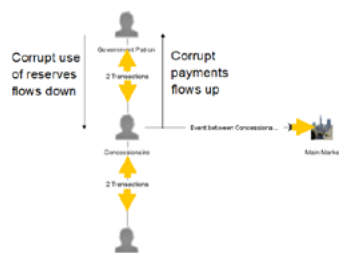
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Tanzania: Elite Capture of Wildlife Areas

Intensive, organized hunting in protected areas occurs against the background of a wildlife ministry captured by local and foreign elites.

In Tanzania, the wildlife sector is critically important to the economy. Official Tanzanian sources estimate that the legal trophy hunting industry alone was worth more than \$50 million in 2013,¹ and by some estimates, wildlife accounts for as much as 90% of tourism income.² In 2011, trophy fees may have accounted for nearly 1.4% of Tanzania's overall GDP,³ and a single elephant hunt can easily fetch over \$10,000, and that too only in the licenses. Sustainable legal hunting has been an economic boon for several Southern African countries, but Tanzania's weak regulatory institutions and oversight mechanisms have resulted in a very different outcome from that in other jurisdictions, such as Botswana and Namibia. Tanzania's Ministry overseeing wildlife and the hunting industry, the Ministry of Natural Resources and Tourism (MNRT), is perceived to have had a history of corruption; in 2011 the MNRT was accused of keeping 25 billion shillings (approximately \$1,525,000 USD) that should have been remitted to the national treasury "off the books," to distribute with no oversight.⁴ Another study by the Wildlife Division (WD) in 2007 estimated that revenue loss in logging, another area under the Ministry of Natural Resources and Tourism's purview, could be as high as 96% of total potential revenue.⁵

DOMINANT MODEL : THE LANDLORD



ANALYSIS POWERED BY
Palantir

Control of hunting concessions by Tanzanian and foreign elites has enabled organized hunting by small groups in concentrated areas. Professionalization is high, evidenced by the very quick surge of high levels of poaching. Poaching and transnational trafficking networks may align given Dar es Salaam port's role as the second busiest ivory trafficking hub on the continent.

Tanzania once had a strong reputation in conservation as home to one of Africa's largest elephant populations and as a strong backer of the 1989 CITES regulation that rendered the international trade in ivory largely illegal. In recent years, however, this reputation has been thrown into disarray with elephant populations currently being devastated by intensive poaching. In 1976, the Selous-Mikumi ecosystem had 109,419 elephants, but by 2009 that number had dropped to 38,975, and today, an aerial survey conducted by the Frankfurt Zoological Society in late 2013, estimated a remainder of 13,084.⁶ This represents a 66% decline over the last four years, and a decline of nearly 90% from the seventies.⁷ Declines have also been registered in Tanzania's other elephant populations, with a fall in Ruaha-Rungwa from 35,461 to 20,090, a decline of 36.5%, from 1990 to the present day.⁸ The most recent survey did not include Moyowosi-Kigosi, so the present-day status of that population is unclear, but is likely to have dropped as well. For the first time in recent history, the Selous ecosystem, and Tanzania itself, is no longer home to one of the largest elephant populations in Africa. In fact, if current trends are not arrested, Tanzania's elephants are in danger of being reduced to less than minimum viable population size.

Evidence points to concentrated hunting with sophisticated patterns of organization. A DNA analysis of 11 tons of ivory seized in raids in Taiwan, Japan, and Hong Kong in the summer of 2006 found that all 1,500 tusks had come from a concentrated area within the Selous/Niassa ecosystem.⁹ That these tusks were not collected from disparate poaching incidents spread across the country, but instead can trace their genetic origin to a single area indicates that elephant poaching in Tanzania is not the work of mobile bandits, but well-placed syndicates who are able to return to the same location to hunt repeatedly, and to consolidate supplies with low risk of interdiction. Such persistent access to elephant populations suggests a high level of complicity or at the very least inadequate oversight capacity by staff and officials from Tanzania's wildlife reserves and management bodies.

Even as poaching intensifies, Tanzania is reassuming its historic role as one of the continent's largest trafficking hubs. Tanzania's long-term economic vision includes challenging Kenya's role as the region's logistics hub, but along with these ambitious plans has come a boom in illicit trafficking. From 2008 to 2013, over 20 tons of ivory were seized either in, in transit to, or originating from Dar es Salaam, according to C4ADS's database of reported ivory seizures, making it second only to Mombasa as a trafficking hub. This is not counting the immense stockpile Tanzania has accrued over years of seizures, which by some accounts totals more than 90 metric tons.¹⁰ Tanzania's role as an export hub is not extensively explored in this report, but several factors make it suitable for use as a port of exit for ivory: relatively well-developed infrastructure, systemic corruption, proximity to large elephant populations, and established routes to transshipment ports (in particular, Jebel Ali in Dubai).

Weak Oversight & Regulation

There have been many documented instances of corruption at the MNRT, and nearly every Minister since 2000 has been dogged by allegations of corruption and graft. Periodic dismissals for corrupt activity are common, but appear to have had little long-term institutional impact. In December 2007, three of the five directors in the MNRT, including the directors for forestry and wildlife, were either removed or placed in less prominent positions.¹¹ The director of wildlife removed in the incident, Emmanuel Severre, openly bragged about the MPs he bribed and the gifts he gave them, and referred to himself as “chief mafioso” after getting the previous Minister (Anthony Diallo, Minister from 2005-2007) transferred out of the MNRT.¹² This was not the only incident. According to publicly reported allegations, the WD gave 200 million TShs to ex-Deputy Minister Juma Kayera during his failed run for Parliament; the WD also allegedly lavished Zakia Meghji with expensive gifts when she resigned her post as Minister of Natural Resources and Tourism in 2005 to head Tanzania’s Finance Ministry.¹³

In 2009, MNRT was the center of a scandal that saw Norway pull out of climate change aid programs after an audit found that millions of euros had been lost due to embezzlement.¹⁴ Minister Shamsa Mwangunga was later accused of wrongdoing by a Tanzanian MP after she led the push to have Tanzania sell part of its ivory stockpile while acknowledging that only a small portion of the proceeds were to go to conservation.¹⁵ Despite repeatedly being accused and investigated by public figures in Tanzania,¹⁶ no criminal charges were filed.¹⁷

Control of wildlife preserves in Tanzania falls, in part, to private individuals. Tanzania has a unique system of private management of hunting blocks within parks. These blocks are distributed via an administrative process every five years to Tanzanian and foreign operators. All wildlife in Tanzania is, legally, the property of the state,¹⁸ but owning a hunting concession gives a tourism operator legal ownership over animals hunted in the area, provided the right fees are paid. In addition to MNRT and the WD, wildlife in Tanzania is further regulated by Tanzanian National Parks (TANAPA), which is responsible for animals within national parks. The allocation of hunting blocks itself involves a three-step application process in which the minister first solicits applications for designated blocks through the media. Hunting companies then apply for specific blocks, submitting an application fee to the MNRT. A physical inspection of the company is then carried out to determine their fitness to manage the specific blocks for which they have applied. According to the law, no one operator can manage more than five concessions.¹⁹

The actual process of allocation, however, is extremely opaque, and very much open to abuse. Irregularities, including allegations of corruption and delays,²⁰ have dogged past iterations. A small number of foreign and Tanzanian hunting operators appear to have been able to exert disproportionate influence over the allocation process, to perpetuate their hold on profitable hunting blocks with minimal competition.²¹ The culture has been facilitated by the organizational structure of the MNRT with power concentrated at the top, and a high degree of policy latitude in the hands of the Minister of Natural Resources and Tourism. The Minister makes the allocations, and while applications by private companies are supposed to be subject to review by an Advisory Board, its members are mostly appointed by the Minister, and it has been overruled before.²² The power to censure hunting companies for violations in fitness and performance is also within the direct purview of the Minister.²³ The post is thus the key to Tanzania’s lucrative hunting industry, and by extension an attractive target for abuse.

The most recent allocation of hunting blocks took place in 2012, for the period 2013-2018. It was presided over by Minister of Natural Resources and Tourism Ezekiel Maige. After that allocation, a parliamentary report uncovered significant irregularities in the process: namely, that several companies, some of which have connections to Tanzania’s elite, were allocated concessions to which they had not applied, and that other companies were given concessions for which they did not have the requisite experience or infrastructure, against

the advice of the Advisory Board.²⁴ The resulting list of concessions was concentrated in the hands of a few individuals to the extent that incoming minister Khamis Kagasheki expressed shock at the allocations, noting that 21 blocks were in the hands of one person through different legal names.²⁵ Mr. Maige was previously accused of causing the government to lose 300 billion Tanzanian shillings (approximately \$184 million) through political interference in the operations of the country's national parks division,²⁶ and it was revealed that between 2010-2012, hundreds of animals were illegally captured and shipped, without appropriate legal documentation, to foreign countries, including Pakistan and Qatar, in the latter case on a Qatari military plane.²⁷ The Director of Wildlife at the time, who allegedly participated closely in the export of the animals, was dismissed.²⁸ Mr. Maige was later himself relieved of his position, along with five other ministers, in a general sweep of officials from President Kikwete's cabinet. The hunting concessions made during his tenure have, however, been allowed to stand, and will remain in effect in Tanzania until 2018.

Tanzania's system of wildlife management creates the conditions for abuse of otherwise legal hunting. Elephants are being killed outside the scope of this regulatory system, and there is no conceivable market for such a volume of ivory save for East Asia, via organized criminal trafficking channels. The real and potential negative externalities of increased organized criminal penetration into Tanzania are significant, given the profits at stake, and the destabilizing effects on East Africa's second largest economy are nontrivial. Finally, increased presence of transnational organized crime in Tanzania will continue to have negative effects on elephant and human populations in neighboring Mozambique and Kenya.

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As a note, these structures are due to change with the introduction of the Wildlife Management Authority, an organ created by legislation introduced in 2013 which will create a board, representing different members of the government and conservation communities, which will allocate hunting blocks. It is yet unclear how this board will fund itself, or how it will operate. The next allocation of hunting blocks will be in 2018, so we will have a chance to see the board in action before the next round of distribution.

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Recommendations

A comprehensive solution to ivory poaching and trafficking will require close cooperation not only across borders, but also across different functional sectors, from intelligence to law enforcement to development. Perhaps most importantly, it will require concerted action along the entire ivory value chain, with special attention paid to the intermediate steps of financing and trafficking.

Our data suggests four major areas where attention should be focused. Each has unique implications and strategies:

1. **Regulate or Restrict:** The vast majority of ivory's profits flow to illicit actors, causing sizable human impact. Better regulation or restriction will be needed to reduce the negative externalities from both the legal and illegal trades.
2. **Preempt Hotspots:** Policymakers cannot just be reactive, they must assess and preempt poaching hotspots before they emerge. Many emerging hotspots are outside current areas of attention.
3. **Strategy-Driven Tactics:** Injecting guns and money into failing systems will only exacerbate the underlying problems. Tactical measures must be improved to better secure ranges and deter poachers, but they must be a part of a cohesive strategy that is sensitive to local human populations. We offer a range of proven solutions that can together add up to a viable strategy.
4. **Move Up the Value Chain:** The most effective solutions to poaching are further up the value chain. Targeting trafficking profits and intercepting containers to disrupt criminal demand and drive up organized crime costs is a necessary stopgap until end-user demand for ivory can be reduced.

Regulate or Restrict

Based on our research, it appears clear that the majority of profits from the ivory trade today accrue to some of Africa's most illicit and destabilizing actors, resulting in tremendous human impact. Sudanese militias guilty of genocide in Darfur, armed groups in the DRC guilty of war crimes, violent land-grabbing politicians in Zimbabwe, and corrupt Tanzanian and Kenyan politicians looting from the most marginalized of their communities, all benefit. This is not new. Ivory has been a conflict resource through the decades, through both legal and illegal ivory trade regimes. Before the 1989 CITES ban, when raw ivory was legally traded on the open market, it was estimated that 90% of all ivory sold was of illicit origin.¹ Much of it was sourced from armies, militias, and rebel groups to sustain military campaigns. Siad Barre's regime in Somalia and South African Military Intelligence alone in the 1970s and 1980s oversaw the killing of hundreds of thousands of elephants, virtually none of whose profits went to the country, conservation, or the people, but instead to financing the perpetuation of corruption and conflict.

Currently, the ivory trade is not entirely illegal. CITES regulations allow for several means to legally trade ivory: ivory imported into a country before 1989 can be traded and re-exported, and "one off" sales of ivory stockpiles by governments can be approved by CITES (two such sales have been approved). The debate over whether these sales have reduced or increased demand is ultimately moot. Over the years since, and in reaction to, the 1989 CITES trade ban, organized crime and corruption has monopolized the trafficking of ivory and its associated profits at the hunting level. Harvesting ivory today requires violence, while its trafficking requires subterfuge, influence and connections. Over a period of two decades, illicit actors have consolidated their positions in the market to the extent that displacing them will prove extremely difficult. Most have learned to how use legislative loopholes to whitewash illicit profits while maintaining one foot in the licit world and another in the illicit. A recent case in Uganda is a good example; the first large-scale seizure of ivory

in Kampala's history was almost handed back to the trafficker as a result of legal confusion.²

Monitoring and regulating a legal trade may be a plausible strategy, but it will be extremely difficult to implement. Even today, CITES has problems keeping the lines of the licit wildlife trade free of abuse. A legal supply chain, in order to fulfill its implicit mandate of ensuring that elephant tusks are sourced in a sustainable and responsible way, would have to be checked at each link to ensure illegal ivory was not entering the licit stream. It is not enough to ensure licit sourcing at the retail level; a legal trade would require honesty regarding the source of a tusk from corrupt governments, from suppliers, those suppliers' suppliers, and so on all the way down to the ultimate source. In the opaque environments in which poaching takes place, such policing is beyond the ability of national governments, CITES, or indeed any organization involved. Moreover, given the role that political corruption plays in facilitating the trade, oversight agencies such as CITES, which must necessarily work through governments, are inherently handicapped. Even limited one-off sales in today's environment cannot be guaranteed to accrue anything more than a fraction of proceeds towards human development or wildlife protection.



Syria was used as a transit country to ship chimpanzees from Kenya to Italy
Source: Karl Amman, Pax Animalis

While difficult, there may still be some scope for using market-based mechanisms to crowd out illicit actors, particularly to mitigate the abuse of hunting quotas. The size of the US consumer market for trophy hunting offers potential leverage in countries such as Tanzania and Zimbabwe, where the industry is an important foreign exchange earner but also can serve as a cover for poaching operations. Blacklisting and sanctioning violators, while distinguishing them from the more responsible stakeholders, can allow countries to monetize and benefit from sustainable wildlife use while creating profit-based incentives to clean up the industry; it should be noted, however, that though this is a potential piece of the solution, US regulators have opted to ban the import of elephant trophies from Tanzania and Zimbabwe for 2014, due to concerns over abuse in the legal trade. In countries without hunting regimes, however, the US role in regulating the marketplace becomes significantly more complex. The bulk of African raw ivory today appears to flow to East Asia, and not to Europe or the US, creating fewer avenues for regulatory oversight, but a sizable opportunity to lead and shape multinational enforcement efforts.

Intensive poaching has significantly shrunk the timeline for the survival of the African elephant. Beginning to turn the tide against a militarized and professionalized illicit economy will in our judgment require a robust law enforcement response that targets illicit profits and attempts to alter organized crime operating cost structures. Establishing consistency and clarity on either the legal or illegal nature of the trade is imperative before building regulatory and enforcement capabilities.

Preempt Poaching Hotspots

Based on our research, elephant ivory poaching is driven by a series of enabling factors that differ by region, but collectively shape the operating environment. Many of the factors that enable elephant killings in existing poaching hotspots are also present in other countries that are not yet seeing crisis poaching levels, namely in Southern Africa. To mitigate the elephant-poaching crisis, it is essential for policymakers to not just be reactive, but to preempt future poaching hotspots before they appear.

C4ADS constructed a poaching risk index across 135 elephant range areas collected from

across the entire continent, excluding countries and ranges with marginal elephant populations. These populations were then indexed relative to 8 indicators listed below:

1. **Elephant Density** (ED, site level): IUCN Elephant Database
2. **Population Density** (PD, sub-national level): Individual Country Data
3. **Infant Mortality Rate** (IMR, sub-national level): Individual Country Data
4. **Small Arms Availability** (SAS, national level): Small Arms Survey/UNODC
5. **Control of Corruption** (CC, national level): World Economic Forum
6. **Governance Score** (GS, national level): World Bank
7. **Natural Resource Depletion** (NRD, national level) – UNDP
8. **Failed State Index** (FSI, national level) – Fund for Peace

The first index does not account for current levels of poaching. The second, however, in-

Top-15 High-Risk Reserves with 1,000+ Elephants									
Country	Range Name	IMR	PD	ED	SAS	CC	GS	NRD	FSI
Congo	Odzala-Koukoua	62.2	3.1	1.2	2.7	3.8	3.7	59.6	90.0
Angola	Luiana Reserve	99.5	2.0	0.2	17.3	4.4	3.4	35.1	87.1
Mozambique	Limpopo National Park	165.0	16.0	0.1	5.1	3.6	6.8	3.3	82.8
Chad	Zakouma* National Park	89.0	9.0	0.1	1.1	3.1	3.5	29.0	109.0
Congo	Noubale-Ndoki	62.2	1.5	0.4	2.7	3.8	3.7	59.6	90.0
Zimbabwe	Chirisa Conservancy	66.0	33.0	2.8	4.4	4.3	3.4	2.7	105.2
Zambia	North Luangwa NP	97.0	18.9	1.8	8.9	4.6	8.5	18.9	86.6
Mozambique	Niassa	139.0	9.0	0.3	5.1	3.6	6.8	3.3	82.8
Zimbabwe	Hwange National Park	46.0	9.9	3.4	4.4	4.3	3.4	2.7	105.2
Mozambique	Caborra Bassa North	125.1	18.0	0.5	5.1	3.6	6.8	3.3	82.8
Tanzania	Rukwa Game Reserve	106.0	22.0	2.1	1.4	4.2	5.2	3.2	81.1
DRC	Garamba	105.0	17.3	0.6	1.4	4.4	3.3	13.7	111.9
Kenya	Mt Kenya NP	60.0	36.0	1.8	6.4	3.5	4.1	1.1	99.6
Kenya	Aberdares NP + Outside	32.0	56.0	2.6	6.4	3.5	4.1	1.1	99.6
DRC	Maiko	105.0	17.3	0.3	1.4	4.4	3.3	13.7	111.9

* Zakouma has <1,000 elephants but is included due to relevance to report

Top-15 High-Risk Reserves with 1,000+ Elephants (w/ PIKE)										
Country	Range Name	IMR	PD	ED	SAS	CC	GS	NRD	FSI	PIKE
Mozambique	Limpopo (Mozambique)	165.0	16.0	0.1	5.1	3.6	6.8	3.3	82.8	0.9
Congo	Odzala-Koukoua	62.2	3.1	1.2	2.7	3.8	3.7	59.6	90.0	0.7
Chad	Zakouma*	89.0	9.0	0.1	1.1	3.1	3.5	29.0	109.0	0.7
DRC	Garamba Ecosystem	105.0	17.3	0.6	1.4	4.4	3.3	13.7	111.9	1.0
Mozambique	Niassa	139.0	9.0	0.3	5.1	3.6	6.8	3.3	82.8	0.9
DRC	Maiko	105.0	17.3	0.3	1.4	4.4	3.3	13.7	111.9	1.0
Congo	Noubale-Ndoki	62.2	1.5	0.4	2.7	3.8	3.7	59.6	90.0	0.7
Mozambique	Caborra Bassa North	125.1	18.0	0.5	5.1	3.6	6.8	3.3	82.8	0.9
Angola	Luiana Reserve	99.5	2.0	0.2	17.3	4.4	3.4	35.1	87.1	0.5
DRC	Salonga Outside	105.0	21.6	0.1	1.4	4.4	3.3	13.7	111.9	1.0
Zimbabwe	Chirisa Conservancy	66.0	33.0	2.8	4.4	4.3	3.4	2.7	105.2	0.7
DRC	Okapi Faunal Reserve	105.0	17.3	0.1	1.4	4.4	3.3	13.7	111.9	1.0
DRC	Salonga National Park	105.0	21.6	0.1	1.4	4.4	3.3	13.7	111.9	1.0
Zimbabwe	Hwange NP	46.0	9.9	3.4	4.4	4.3	3.4	2.7	105.2	0.7
Zambia	North Luangwa NP	97.0	18.9	1.8	8.9	4.6	8.5	18.9	86.6	0.6
Tanzania	Rukwa Game Reserve	106.0	22.0	2.1	1.4	4.2	5.2	3.2	81.1	0.7

* Zakouma has <1,000 elephants but is included due to relevance to report

cludes PIKE rates averaged at the country level, and with Angola given a placeholder of 0.5. Angola no longer has many elephants left, and Luiana is listed as its only reserve with elephants, but its dramatic presence in both set of results is as a result of its extremely high small arms availability, relative to continental averages. It may not deserve such a dramatic ranking, but a cursory reading of recent news from the region indicates rising levels of poaching in southeastern Angola and the Caprivi Strip that are not on the radars of anti-poaching attention.³

Indices such as this can never capture all the complexity of the systems they attempt to represent, and are best used as broad guides to assess trends. Elephant poaching at the hunting

level is driven by hyper-local trends, and a precise indicator would be able to collect data outlined above, and more, all at a site level and across the same time period – which this data does not achieve. As a result, the available data is not good enough to conduct precise measurements, but it does highlight how latent poaching risk is widespread across the continent. It is notable that Central Africa does not dominate the table, likely a result of the extremely low elephant population densities now prevalent across the region. On the contrary, several Southern African countries score very high, likely a result of their extremely large elephant populations (now 64% of the definite continental total), coincident with relatively high levels of rural poverty, small arms availability, corruption, and poor governance. While many of these ranges are not currently seeing high levels of poaching, the results are a warning of how syndicates can, and likely will, displace when elephant densities drop too low, or when enforcement risk gets too high in existing operational areas. It is essential that policymakers act preemptively in still-secure range areas, and not just reactively in visible hotspots.

A major weakness in the index is its failure to adequately account for East Africa, particularly Tanzania, which is seeing, and for the foreseeable future will continue to see, very high levels of poaching. However, many of the results in both indexes concur with our qualitative judgment of emerging hotspots.

Extinction Hotspots

- The last pockets of elephants in **Chad, the DRC and South Sudan** are highly vulnerable and possible targets for extinction in the near future. The continuing absence of the rule of law, impunity for high-level ivory and other natural resource exploiters, and persistence of low-intensity armed conflict in the DRC makes for a worrying future for its last 5,000 elephants. In Chad, Zakouma National Park now appears to have a well-deserved reputation among poachers for being tough to penetrate. However, highly militarized Sudanese gangs that include members of the military and Janjaweed-type poachers are not easily deterred, and moreover with their excellent local knowledge have been known to pick off elephants when they stray outside park boundaries and park jurisdictions. In South Sudan, civil war has re-erupted across the country, putting its last elephants in extreme danger.
- **Mozambique's** rhinos have already gone extinct three times this century, and its last 20,000 or so elephants are in grave danger of extinction in the near term. Elephants have already largely been eliminated in the center of the country, and are now concentrated in undefended reserves located along the borders amid Mozambique's most vulnerable populations. Mozambican organized crime, enabled by complicit members of security forces, has professionalized significantly, and the country has two large ports already known for natural resource-related trafficking.

Emerging Hotspots

- **Kenya and Tanzania** are self-contained poaching and trafficking systems (in addition to transshipping ivory from other regions), with large elephant reserves, modern economies, and major ports implicated in regional trafficking. These areas face the highest risk from organized transnational syndicates, vertically integrated from African reserves to Asian markets, which makes them particularly difficult to combat. Kenya's worsening rural periphery has all the ingredients for a return to 1980s-level poaching, except now with important implications for terrorist financing, with al-Shabaab potentially taxing cross-border ivory flows. Tanzania on the other hand appears to have some of the most concentrated poaching and politically connected syndicates on the continent, facilitated by high levels of corruption.
- The **Republic of Congo**, with almost 40,000 elephants has a heavy and expanding extractive and logging industry in an environment of poverty and corruption.

Its elephants are more vulnerable than Gabon's and are prime targets, now that most other Central African ranges are nearly barren. West Africa has established trafficking channels, through Douala and the deep water port in Lome, both of which have risen recently as ivory trafficking hubs.

- **Zimbabwe** and **Zambia** both score quite high, and both are exhibiting alarming upticks in reported poaching. Zimbabwe is highly vulnerable to politically protected poaching that can expand very quickly, while Zambia, like much of rural Southern Africa, has low levels of human development and income, and is susceptible to ivory's rapidly increasing price. Zambian poaching gangs are seen with increasing frequency crossing the border into Zimbabwe, indicating poaching levels that already may be higher than those inside Zambia itself.

Declining Havens

- **Namibia, Botswana, and South Africa** consistently score the lowest in terms of elephant poaching risk, but this is only relative. Syndicates in the region appear to be targeting the higher-value rhino, but are becoming increasingly successful and coordinated. We detail South Africa's growing losses despite robust anti-poaching efforts, but in Namibia too just recently three Chinese were arrested with 14 rhino horn, conservatively worth around a million dollars.⁴ Elephants are less protected than the rhino in each range state, and are extremely bountiful. Botswana alone may have as many as 150,000 elephants and has a large and lightly populated hinterland that is not easily monitored or policed.

Strategy-Based Tactics

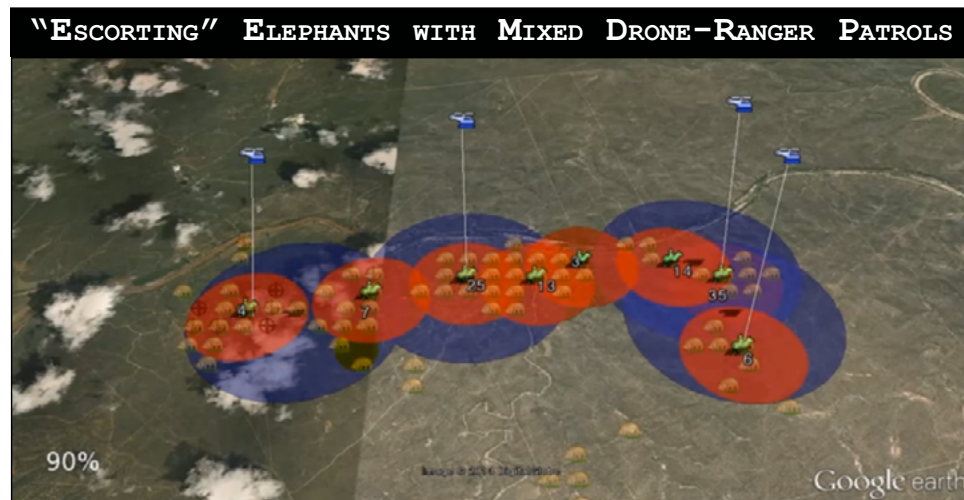
Based on our research, it will be extremely difficult to deter poachers, given the rising price of ivory against local purchasing power. Scale challenges make securing parks equally complex; many national parks are the size of smaller countries, and straddle some of the world's remotest and roughest terrain, with little transport infrastructure. At a national level, the governance challenges are tremendous, with even the best ranger forces handicapped by failing police and judicial systems. Nonetheless, securing ranges is increasingly important, as the human and security costs become clearer, and as the size of illicit financing flows to conflict and criminal actors continually increase.

Improvements in anti-poaching are essential to complement supply chain disruption and demand reduction efforts further up the chain, but they cannot succeed if they are focused on tactics at the expense of community outreach and intelligence-led policing. At the strategic level, elevating animal welfare over human welfare is likely a sure path to failure, breeding resentment and exacerbating underlying drivers of poaching. There are a number of ground-level solutions that are showing promise. They cannot succeed alone, but can together begin to form a cohesive strategy. We outline some that deserve support by all stakeholders but that can also be led and supported by NGOs and civil society:

Community-Based Conservation: Ultimately, community buy-in is most important to conservation efforts. Dispossessing or harming local communities to protect elephants is the surest way to widen the recruiting pool for local poaching syndicates. Community-based conservation has proven successful in several areas, and should be a guiding principle for conservation efforts. Best practices include sharing of economic benefits, local representation on management councils (especially finance-related), prioritizing local employment at all levels of operations, and educating communities on the tangible benefits of conservation. A major drawback is the tying of elephant security to local expectations, creating a susceptibility to external shocks on sectors like tourism. *Real World Example: Northern Rangelands Trust, Kenya; Community-Based Natural Resource Management, Namibia*

Maximize Patrol Efficiency: Data-driven analysis can be key in most efficiently allocating scarce ranger resources. Collating elephant behavioral data (known movement, preferred vegetation) against the physical terrain (water, elevation, etc.) against the local human terrain (transport infrastructure, local villages, artisanal forestry sites, known poaching routes, etc.) can help predict elephant and poacher movements, providing both escort and interdiction options for anti-poaching forces. Real World Example: *Dr. Tom Snitch, Institute of Advanced Computer Studies, University of Maryland*

Maximize Patrol Coverage: Harnessing modern technology, such as drones, can expand surveillance over a much larger area than foot-patrols. There are several important requirements for drones to be useful. They must be cheap and durable as they will suffer a high loss rate given the rugged operating conditions. They must be easy to operate for African rangers, and they should have as few logistical requirements as possible, right down to needing few replacement batteries. Drones are not a panacea. They will struggle in heavily forested terrain without more expensive sensors, and they must go hand in hand with more effective patrolling and rapid reaction ranger capabilities. Real World Example: *Stimson Center, Ngulia Reserve*



Source: Provided to C4ADS by Dr. Thomas Snitch, Advanced Computer Studies at University of Maryland

Ranger Protection: The vast majority of sweat and blood expended on protecting wildlife is African, but rangers rarely receive the levels of support and compensation they deserve. Donor resources should prioritize ranger welfare beyond the provision of guns and equipment. Many rangers are primary breadwinners in their families, and support should include improvement of wages, living standards for families, and compensation and pensions in the event of injury or death in the line of duty. Moreover, training in both tactical maneuver and forensic evidence collection is essential to increase ranger morale, and make them more secure and effective in the field. Real World Example: *US Fish and Wildlife Service, Fallen Rangers Fund*

Poaching Reintegration: Shooters are the lowest and most expendable on the ivory value chain, but they are also the most frequently killed or arrested by authorities. Reintegration has tremendous intelligence value, but is tricky to execute. There is likely to be a built-in level of relapse, and syndicates will no doubt use any such program to try and infiltrate wildlife forces. Some best-practice needs include close communication with local chiefs and elders, careful vetting and screening, and giving rangers a reason not to relapse – e.g. compelling them to provide written statements detailing past crimes and the turning in of illegal weapons. Real World Example: *African Parks, Odzala-Kokoua National Park*

Intelligence-Led Policing: Simply building up ranger forces to react to poaching may increase the rate of local arrests, but it will not disrupt poaching. Organized poaching net-

works can easily expend hunters at the bottom of the chain, while middlemen can quickly bid up the supply of poachers by increasing profit distributions. Law enforcement strategies should focus on mapping out poaching networks to identify the most impactful points of local networks. These are most obviously middlemen but can include other important enabling actors from weapons distributors to corrupt local officials. Real World Example: *Anti-Poaching Intelligence Group Southern Africa, Last Great Ape Organization (LAGA), Maisha Consulting*

DNA-test all major ivory seizures: A ‘Kimberly Process for ivory’ is already beginning, however, the process should be far more comprehensive and transparent than it is today. Every large shipment of ivory should be DNA-traced, while results should be made public, so as to put evidentiary pressure on poaching hotspot countries to better police their range areas. Identifying emerging hotspots can also help facilitate preemptive anti-poaching as well as narrow likely routes and gateways. Real World Example: *Samuel Wasser, University of Washington Center for Conservation Biology*

Work with Legal Natural Resource Exploiters: Whether hunters, loggers, or miners, conservationists often find their missions at odds with those of natural resource exploiters. Extractive industries are essential to African growth and prosperity, and will continue despite the wishes of conservationists. Working collaboratively to design actual environmental impact assessments and transparency can help ensure that poaching and ecological risk is mitigated, bringing natural resource exploiters into the monitoring and policing systems. Promoting more responsible stakeholders can earn valuable allies as well as enhance reputational pressure on illicit actors.

Move Up the Value Chain

Based on our research, the solution to the ivory crisis is not at the poaching level. Moving up the value chain to at least target the focal points of regional poaching and pre-containerization trafficking networks is likely to be far more impactful. Even relatively small increases in interception rates along major trafficking routes can potentially have outsized impact in squeezing syndicate profit margins and disrupting the trade until demand-reduction and anti-poaching efforts can bear fruit.

The supply chain out of Africa is particularly vulnerable because of the relative scarcity of transport and logistical infrastructure capable of transport to East Asia. Illicit goods must disguise themselves within licit patterns of trade and transportation. Much ivory is transported in containerized shipments of as many as 1,500 tusks, which must pass through the relatively few border checkpoints, freight stations, and deep water ports, where the risk of seizure is greatest. International actors have far greater access to, and leverage over, these internationally connected logistical hubs and entities than they do over bush poaching and local trafficking. Port and container security is critical to a range of law enforcement issues, while shipping companies and freight logistics specialists that service international consumers can be incentivized to divest through reputational pressure.

Hardening the environment through which ivory moves is crucial. Identifying chokepoints along which to target countermeasures can force traffickers to displace into costlier and more complicated forms of evasion. A portion of ivory is, for example, carried out in the personal luggage of East Asian migrant workers exiting Africa regularly; while these individuals are spread across a range of countries, they all pass through a relatively small number of airports where canine units and wildlife specific screening equipment can significantly disrupt the flow. Similarly, simply following the movement of shipping containers can yield insights. Mombasa port in Kenya is the continent’s primary ivory trafficking hub and has a dedicated canine unit. Containers, however, pass through screening both at the port where the dogs are present, but also at pre-port clearance facilities, or container freight stations, where screening appears lower.

There are a range of new stakeholders entering the battle to combat the illicit wildlife trade, although there are still sizable gaps. In July 2013, President Obama issued an Executive Order targeting wildlife crime with specific attention to elephant ivory, although it remains highly oriented towards US nationals' involvement, which appears relatively marginal in the raw ivory trade. In November 2013, the State Department followed up with its first-ever wildlife crimes bounty, targeting the Laos-based Xaysavang Network, while in January 2014, the United Nations expanded its sanctions architecture in the DRC to include wildlife criminals. Both are promising starts, but still relatively small steps against the scale of the trade. The Xaysavang Network is just one of many transnational syndicates, and has already been at least partially disrupted by South African authorities. Meanwhile, today the DRC has few remaining elephants and it appears unlikely that the true beneficiaries, the senior generals and politicians, will face censure.

The modern ivory trade is not a simple series of "syndicates" controlling the ivory trade from the bush to Beijing; instead it is a complex, trans-bordered illicit economy that no single actor or entity can disrupt by itself. Different skill sets are necessary to identify and disrupt networks - investigative reporting, intelligence analysis, container security, anti-money laundering, and community-based conservation all have a vital role to play in crafting a viable solution that impacts the entire value chain.

The networked nature of ivory trafficking requires a networked response from conservationists, government, NGOs, and international partners. Today, there is an urgent need to integrate the disparate capabilities of the many stakeholders entering the wildlife crime issue. Anti-poaching, anti-trafficking, and demand-reduction efforts are all currently siloed, with information from the field not effectively shared across sectors or transmitted up the intelligence chain. Governments are expanding legislation and enforcement architecture from container security to anti-money laundering mechanisms, which open up new capabilities, but NGOs and civil society can serve as important intermediaries and analytical fusion centers to bridge the gap between these high-level enforcement capabilities and the ground-level intelligence collection. The same inter-connectedness and technological proliferation that allows the ivory trade to exist on its modern scale also provides opportunities for different stakeholders to work together more effectively than ever before. Especially today, there is a unique opportunity to pool capabilities, share the burden, and maximize the impact. The scale, human impact, and trans-bordered nature of the modern ivory trade demands no less.

Citations

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