

Ivory's Curse

The Militarization & Professionalization of Poaching in Africa

—
by Varun Vira and Thomas Ewing

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c4ads

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Executive Summary

Elephant ivory poaching is no longer solely a conservation issue. As poaching reaches levels that threaten to render African elephants near-totally extinct within the next ten years, it also funds a wide range of destabilizing actors across Africa, with significant implications for human conflict. A single elephant yields 10kg of ivory worth approximately \$30,000; a conservative estimate is that 23,000 elephants were killed in 2013. With the true figure likely much higher, the ivory trade could be worth as much as a billion dollars annually, and will likely increase with the escalating retail price of ivory. This report provides detailed case studies of how these profits empower a wide range of African conflict actors:

- From Sudan, government-allied militias complicit in the Darfur genocide fund their operations by poaching elephants hundreds of miles outside North Sudan's borders.
- In the Democratic Republic of Congo, state security forces patronize the very rebels they are supposed to fight, providing weapons and support in exchange for ivory.
- Zimbabwean political elites, including those under international sanction, are seizing wildlife spaces that either are, or likely will soon be, used as covers for poaching operations.
- In East Africa, al-Shabaab and Somali criminal networks are profiting off Kenyan elephants killed by poachers using weapons leaked from local security forces.
- Mozambican organized crime has militarized and consolidated to the extent it is willing to battle the South African army and well-trained ranger forces for rhino horn.
- In Gabon and the Republic of Congo, ill-regulated forest exploitation is bringing East Asian migrant laborers, and East Asian organized crime, into contact with Central Africa's last elephants.
- In Tanzania, political elites have aided the industrial-scale depletion of East Africa's largest elephant population.

In short, ivory poaching has significant human impact. At the most macro level, the ivory trade is essentially a large-scale illicit resource transfer from Africa to Asia; on the ground, however, ivory is bush currency for militants, militias, and terrorists, and one of the most valuable pieces of illicit contraband for organized criminals and corrupt elites.

The modern ivory trade was built on war, and elephant poaching remains highly militarized, empowering a wide range of conflict actors and transforming the nature of wildlife conservation in Africa. Park managers and conservation NGOs have already been forced into roles as *de facto* soldiers and policemen, and the pace and professionalization of poaching show no signs of abating. Finally, as elephant populations disappear in Central Africa, and the price of ivory continues to rise, poaching will continue to displace into Eastern Africa, and will likely soon appear in still-secure ranges in Southern Africa.

This study was based on extensive C4ADS interviews and correspondence; public records research; local, international, and native language reporting; social media; analysis of available datasets from governments, NGOs, and other sources; and other forms of open-source research. The mention of any individual, company, organization, or other entity in this report does not imply the violation of any law or international agreement, and should not be construed as such.

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Introduction

An abundant endowment of high-value wildlife can be a resource curse that ultimately leaves human societies worse off. The damage being done to African elephants from poaching is very real, but so is the damage being done to African societies.

The specialized skillsets required for modern ivory poaching and trafficking explain the prominence of conflict actors, human rights abusers, and predatory elites. Harvesting ivory requires violence, its trafficking requires subterfuge and influence, and its marketing requires connections. Those individuals and entities with skills in killing, smuggling, and leveraging corruption are best positioned to profit, and today they have monopolized the trade and the majority of profits. As demand for ivory causes the price of an individual tusk to reach record levels throughout Africa, there is no shortage of young men willing to shoulder a rifle to kill an elephant. A surplus of armed young men with dwindling economic opportunities creates a potential for conflict that will almost certainly outlive the wild African elephant unless the problem is addressed soon.

African elephant poaching is reaching a crisis point. There are no exact numbers on the death toll, but the International Union for the Conservation of Nature (IUCN) conservatively estimated 22,000 elephants were killed in 2012 alone (an estimated 7.4% of the population¹) yielding \$552 million in retail value.² The vastness of elephant ranges, the remoteness of terrain, and the insecurity prevalent in many areas of Africa means large numbers of elephants die in near-complete invisibility, with carcasses not documented until months or years after the fact. Under these conditions, it is possible and even probable that the true rate of poaching is much higher. The scale of ivory trafficking suggests as much: in 2013, TRAFFIC (an investigative division of the World Wildlife Fund) counted 41.5 tons of ivory seized by law enforcement, almost double that of 2011.³ If the interdiction rate is estimated at 10%, this would imply that the true amount of trafficked ivory in 2013 was closer to 400 tons, or roughly 50,000 elephants.⁴ Even this could be conservative given that the so-called “1-in-10” (or 10%) rule for estimating interdiction rates is a Western law enforcement estimate generally applied to more familiar types of contraband, such as narcotics. Ivory transits primarily through African and Asian ports where security screening is less stringent, and where the penalties for wildlife crime are rarely enforced or virtually nonexistent.

Ivory poaching is not a new phenomenon, but given current prices, it is more lucrative and thus more prevalent than ever before. In 1976, ivory was worth US\$5.77 per kilogram, but today its retail value in Asia is over \$3,000/kg.⁵ Growing demand has resulted in an organized and professionalized ivory value chain with three distinct components: poaching, the transport chain, and the retail market. First, ivory is harvested from hunting areas in the forest. Then, ivory is transported from the bush to consolidation points, where it is bundled into larger shipments of 300-1,500 tusks and hidden in standard shipping containers. Finally, it is smuggled through the international shipping system from African ports to Asian markets. This complex logistical maneuver is less centrally directed than often assumed. Some syndicates may direct the trade from start to finish, but most others appear composed of networks of actors who likely see only as far as the next link in the chain.

African actors dominate poaching and the transport chain up until ivory is loaded into a shipping container (“containerization”), usually at or near an African port, at which point Asian organized crime often takes over. This report focuses on the pre-containerization phase, where the harmful human effects of wildlife crime are most evident. It is at this point of origin that ivory poaching exacerbates and perpetuates militarization, increased corruption, conflict, and the breakdown of governance. What we term the “enablers,” or socio-political prerequisites, of poaching are derivative of Sub-Saharan Africa’s most pressing issues: corruption, poverty, hunger, ill-defined land rights, failed states, ungoverned spaces, small arms proliferation, and conflict.

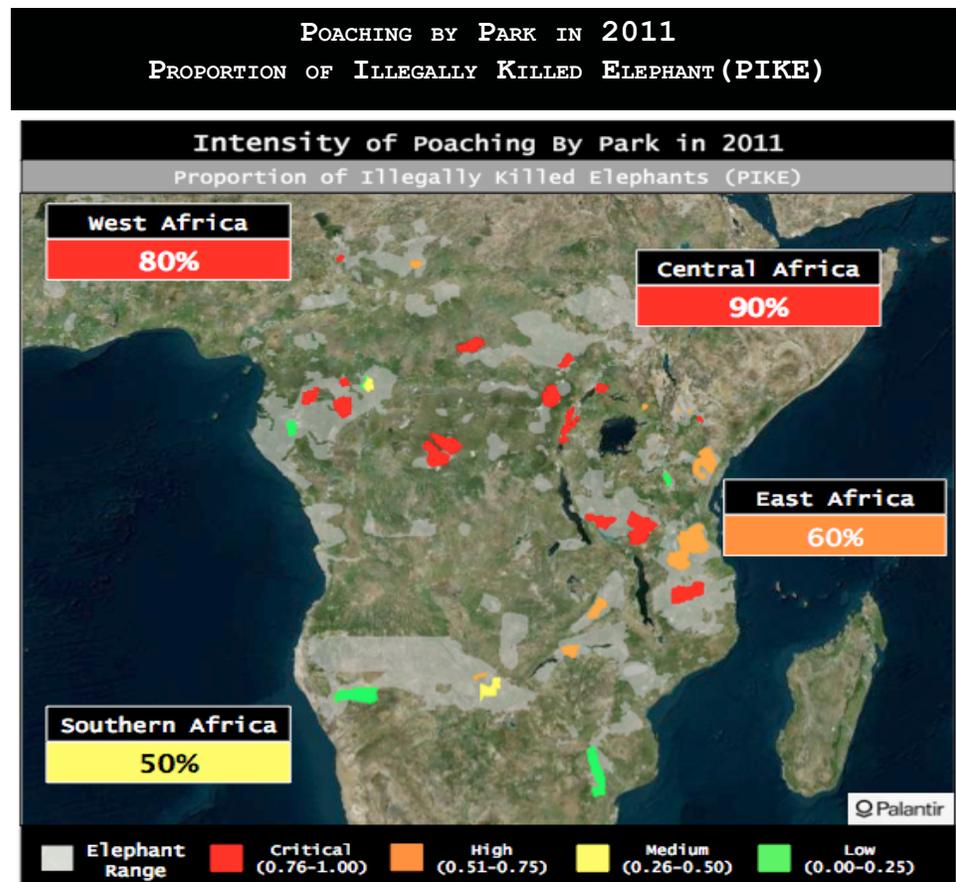
The economics of ivory differ significantly at local and international levels. While ivory does indeed fetch \$3,000 per kilo, this price point is only true in retail Asian markets. Low-level traffickers and poachers are guided more by the prices offered by local middlemen, which

are only indirectly connected with larger, growing demand in Asia. Ivory trafficking networks within Africa have their own distinct economies, which merit close study to form effective wildlife crime strategies.

Any comprehensive solution to the problem of wildlife crime must target each point in the value chain: poaching, trafficking, and the retail market. Government and nongovernment actors are expending significant resources to harden elephant ranges (poaching stage) and to address Asian consumption patterns (retail stage), but these efforts often require years to take effect, time which neither elephant populations nor poaching-afflicted communities can spare. A more immediate complementary measure is to focus on disrupting the supply chain, preventing middlemen and traffickers from realizing profits; this report focuses on the pre-containerization phase of that supply chain.

Poaching Trends: Crisis Levels & Displacing

The current wave of elephant poaching appears to have begun about a decade ago, in the early 2000s in Central Africa. By 2009, the Proportion of Illegally Killed Elephants (PIKE), which expresses the proportion of dead elephants found to have been illegally killed (as opposed to death from natural causes or legal hunting), was rising across the continent and had reached catastrophic levels in Central Africa. By 2011, 5 out of 15 recorded sites in Central Africa were registering a 100% PIKE rate, meaning every single elephant found dead had been illegally poached; at another four sites, the PIKE rate was higher than 87%.⁶ It was once estimated that Central Africa's forests could support over a million elephants.⁷ Today, there are likely no more than 50,000 left, with the vast majority concentrated in Gabon and the Republic of Congo. This decline, which has claimed more than 70% of Central Africa's elephants,⁸ provides a compelling explanation for why, according to IUCN, poaching rates



Adapted from CITES CoPS16 by C4ADS. Elephant range shapefiles from the African Elephant Database (AED) maintained by the IUCN/SSC African Elephant Specialist Group (AfESG).

in Central Africa are leveling off⁹ and displacing into other areas of Sub-Saharan Africa.

Multiple case studies show that ivory poaching is capable of rapid displacement. As Central African elephant populations dwindle, poaching has shifted into East Africa, where elephants are more abundant. Tanzania and Mozambique have recently reached critical poaching levels: as many as 25,000 elephants (66% of the population) were killed in Tanzania's Selous ecosystem between 2009-2013, and over 8,000 elephants (roughly 40%) in neighboring Niassa in Mozambique over a similar period.¹⁰ Gabon and the Republic of Congo (the last major elephant populations in Central Africa), as well as Kenya and Zimbabwe, are all seeing rapid increases in elephant poaching. Warning signs of escalation are also present in still-secure ranges in Southern Africa.

Elephants are killed across Africa with a variety of methods, both primitive and advanced. Some tools are designed to kill in large numbers, such as poison deployed in watering holes or thousands of snares distributed across a wide area. Mobile bands of hunters operate with weaponry ranging from poisoned arrows for silent kills to .358 and .475 large-caliber hunting rifles and military-grade assault rifles.



Source: PAMS Foundation, IFAW, VICE, Nightline, Wildlife Direct

Elephant poaching and trafficking is not uniform. Poaching operations in different areas of the same park employ different organization and tactics, let alone between different countries. Variations in geography, human population density, and transportation infrastructure help determine the nature of poaching, and the movement of ivory through national, regional, and international trafficking channels. Elephant population densities (which are rapidly declining in Central and Eastern Africa) are of particular importance in determining where poaching hotspots currently are, or are likely to be in the future.

The First Wave: Born in War

Ivory has helped fund conflict across Africa for decades. In the late 1970s and 80s, elephants were killed at a rate of perhaps as many as 100,000 per year at peak volumes.¹¹ Much of the killing was driven by a wide array of African armies and militias seeking to feed and fund their forces. UNEP estimates that 40% of intrastate conflicts in the past 60 years have had a link to natural resources.¹² In this regard, ivory is similar to other high-value commodities such as diamonds or gold,¹² but in fact perhaps easier to harvest and transport.

Over the past four decades, elephant ranges and conflict zones have often overlapped, with predictable results. This was especially true in the 1970s and 1980s, an era plagued by a series of bush wars and small arms proliferation. In a single generation, traditional weapons were upgraded for modern assault rifles, as countries such as Muammar Qaddafi's Libya flooded Central Africa with light weaponry. Meanwhile, the Idi Amin regime in Uganda collapsed after invading Tanzania, the Ogaden War erupted in Somalia with Kenya arming in response, and in Sudan, civil war re-erupted with the North pushing south for the natural resources. In Southern Africa, a series of independence struggles and bush conflicts persisted from the 1960s through the 1970s and 1980s, and grew into civil and proxy wars in Namibia, Angola, and Mozambique. Conflict in all these theaters was generally fought far from population centers, deep inside the "bush," within close proximity to elephant habitats.

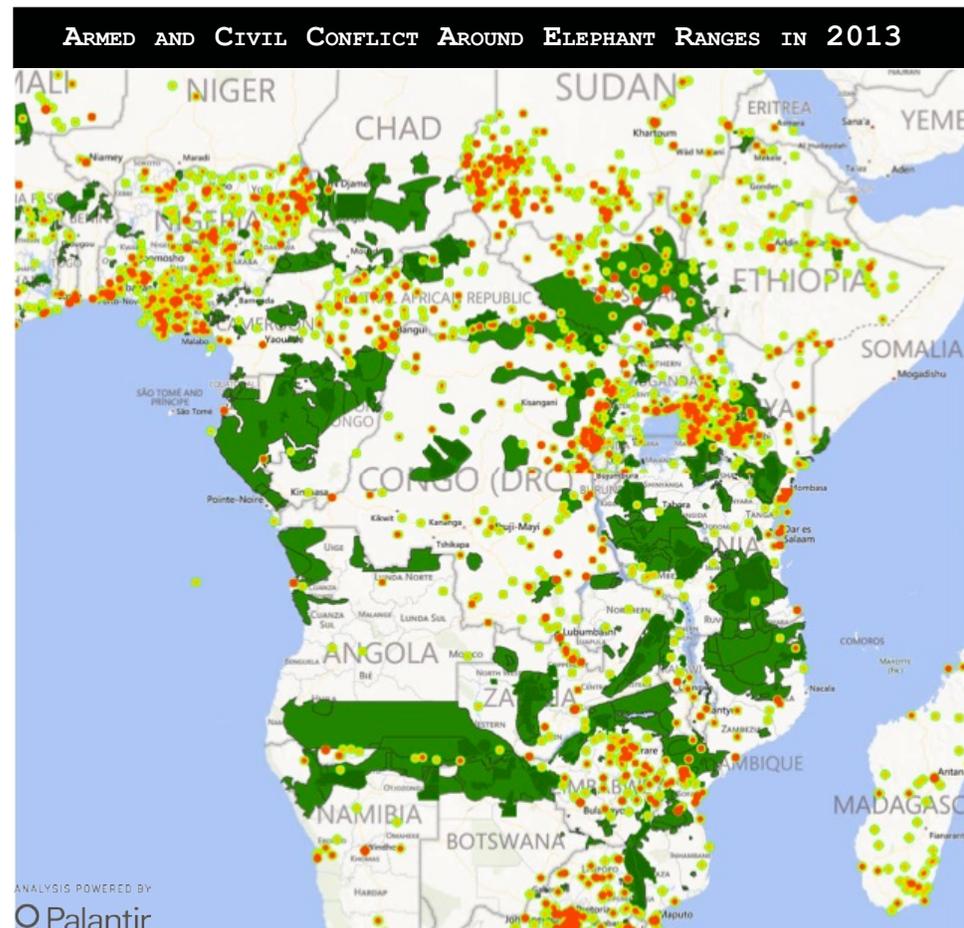
Each of these conflicts has had a devastating impact on elephant populations. In Sudan alone, 12,000 elephants were being killed per year in the early 1980s, as Sudanese forces fed themselves on bushmeat. In neighboring Central African Republic, which has always been a "reservoir of resources" for neighboring countries, the estimated 100,000 elephants in 1976 crashed to as low as 15,000 by the mid-1980s,¹³ while 64% of the elephants in Garamba National Park in the northern DRC were killed by the end of the 1980s.¹⁴ In eastern Kenya, spillover and poaching from Somalia reduced elephant numbers from 20,000 in 1976 to 6,000 by the 1990s,¹⁵ while Idi Amin's retreating army in 1979 passed through and hid inside Murchison Falls Park in Uganda, devastating the animal population. Later in the 1990s, the resource wars continued, as horseback Sudanese poachers armed with Kalashnikov rifles fanned out across Central Africa, while Ugandan, Rwandan, Zimbabwean and other regional armies looted the eastern DRC's abundant natural wealth, including its wildlife.

Much of the killing in the era was designed to fund and fuel wars. However, the nexus between poaching and high-level military criminal networks trafficking in ivory was most dramatically illustrated in Southern Africa, where South African Military Intelligence used ivory and horn on a vast scale to covertly fund proxy wars in Angola, Mozambique, and former Rhodesia. Rhodesian military units such as the Selous Scouts gravitated into poaching as they collected and delivered ivory found on elephants killed by landmines to their contacts in South African Military Intelligence. Eventually, however, the demands grew institutionalized, and the "provision of ivory and other goods appears to have been required by the South Africans as part-payment for their support of the Selous Scouts."¹⁶ Similar arrangements were reported with UNITA in Angola, a story that first broke with the testimony by Col. Jan Breytenbach, founder of South Africa's infamous 32 Battalion. He accused the highest levels of UNITA, along with senior South African intelligence and defense officials, of a "massive extermination campaign" against Angola's elephants that turned the country into a "sterile, lifeless desert."¹⁷ Breytenbach and others named a Portuguese company, Frama Inter-Trading, as having facilitated and directed the trade, accusations that were later confirmed by the Kumblen Commission Report, authorized by the Mandela administration. Released in January 1996, it confirmed that the South African National Defence Force (SANDF) had been involved with Frama from "the womb to the tomb" and that the SANDF "officially, but covertly, participated in the illicit possession and transportation of ivory and rhino horn"¹⁸ with export lines through Johannesburg.¹⁹ Today as few as 1,000 elephants live in Angola,²⁰ down from estimates as high as 200,000 in the 1970s.²¹

The 1970s and 1980s institutionalized ivory as a conflict resource, although it never received the recognition of commodities like blood diamonds or gold. Ivory is portable, cheap to harvest, and does not require static control of territory, while its value, especially today, rivals virtually that of any other bush commodity. As such, it has increasingly become a lifeline commodity for actors who are otherwise excluded from the global financial system. The LRA, Khartoum's proxy militias, al-Shabaab, and others are all under severe economic strain, and ivory has become an easily accessible and valuable component of their funding portfolios. However, isolated conflict actors are not unique in taking advantage of ivory, nor is it simply a commodity of convenience. Political, military, and other high-level corruption and criminal networks continue to expand into the wildlife trade, incentivized by its highly attractive economics. Many of today's conflict actors are concentrated in Central Africa, although modern "conflict" and "commercial" poachers are often difficult to distinguish. Commercial organized crime networks, born from political corruption, can become highly militarized and operate essentially as conflict actors.

The Modern Wave: A Global Criminal Enterprise

Thirty years ago, militaries were able to dominate poaching because they were among the few organizations with the logistical capability to access global markets. Today, the environment is very different. Better infrastructure, technology, and individual empowerment have allowed for bustling boomtowns and the lifting of millions out of poverty, however these factors have also facilitated the vast expansion of illicit transnational economies, including in wildlife. Since 1989, when the trade in ivory was mostly banned, the industry has con-



Source: Adapted by CAADS from AfESG's AED, ACLED data; ACLED Data Accessed at: Raleigh, Clionadh, Andrew Linke, Håvard Hegre and Joakim Karlsen. 2010. Introducing ACLED-Armed Conflict Location and Event Data. *Journal of Peace Research* 47(5) 1-10.; IUCN and UNEP. (2014). *The World Database on Protected Areas (WDPA)*. UN-EP-WCMC. Cambridge, UK. www.protectedplanet.net

solidated. Most subsistence or artisanal poaching for supply to local markets has since been co-opted or crowded out by an illicit commercial trade that is monopolized by organized crime, and enabled by government functionaries, security forces, and businessmen. The logistics of ivory trafficking are complex and highly variable across the continent, but there are three distinct phases of wildlife crime - poaching, trafficking, and retail - each increasingly professionalized and dominated by criminal and corruption networks.

During the poaching phase, elephants are killed and their tusks removed. Poachers - often poor subsistence farmers - are recruited by organized crime figures from African bush-towns that act as trafficking middlemen. These middlemen outfit the poachers with weapons and supplies to harvest ivory. At this stage, profits are lowest and adverse human impact highest. Poaching parties comprised of 10 individuals or more are paid as little as \$30/kg for their time in the bush, a minuscule fraction of ivory's potential value at Asian retail prices, or even at prices in intermediate African trafficking hubs. Conversely, marginalized populations living along the peripheries of elephant ranges bear the full brunt of the trade's negative externalities: militarization and banditry, increased petty corruption, and the destruction of tourist-drawing nature reserves that are among the biggest economic assets of rural peoples in some areas of Africa.

Once ivory has been poached, it has to be transported to a retail market, generally in Asia. Trafficking can be roughly divided into two stages, the first of which includes all trafficking activities within Africa, before the contraband is packaged into a container (containerized) for international transport. Here, profits begin to rise, principally accruing to individuals whose actions drive the trade: the middlemen, corrupt politicians, conflict generals, and logistics specialists. Interdiction opportunities are plentiful and have a high chance of imposing losses on a trafficking operation. The second phase of trafficking encompasses all activities after a consignment is containerized. This division is not arbitrary; it is generally at this stage that transnational syndicates and Asian organized crime get involved in the trade.

Finally, at the retail phase, tusks are worked, carved, and sold, generally in an Asian country. Further analysis of retail markets is essential to forging a long-term solution to the elephant poaching crisis, but is outside the scope of the present study, which limits itself to African-level poaching and pre-containerization trafficking.

The ivory trade is a complex logistical enterprise that transports illicit products from the remotest corners of Africa to markets tens of thousands of miles away. Local communities on the forest and savannah periphery do much of the physical hunting, but current levels of poaching could not be sustained without the support of patrons further up the chain. Contrary to common perception, elephant poaching is not "cheap" when it is valued in local terms, and poachers rely on middlemen further up the value chain for weapons, ammunition, rations, and other forms of support. This "seed capital" has allowed illicit criminal networks to indirectly control the scale and location of elephant poaching, as well as indenture local hunters into repeated service.

Professionalization has changed the paradigm of ivory poaching from that of an "economy of proximity" to a networked transnational enterprise, in which the oft-cited leading drivers of elephant poaching - poverty and East Asian demand - do not adequately explain the situation. Poverty, of course, plays a role, but nearly all of rural Africa is poor in absolute and relative terms, and poaching is occurring with similar intensity in countries as diverse as Gabon, Tanzania, and the DRC. Moreover, while East Asian demand undoubtedly fuels the ivory trade as a whole, local hunters do not frequently source directly to East Asian organized crime groups. They are instead incentivized by more local sources of demand in trade and transportation hubs around elephant range areas. As such, end-user demand and retail prices in East Asia can only offer so much insight; in many areas hunters receive less than 3% of end-value, and thus it is the relative level of profit distribution offered by the African middlemen that affects the price of ivory within Africa.

Conceptualized broadly, the ivory trade is a giant illicit resource transfer from Africa to Asia that is robbing local communities of an important source of potential wealth, destroying the potential of critical economic sectors such as tourism, and financing a wide range of predatory and corrupt actors across the continent. Locals incur the majority of risk, and bear the majority of costs, but receive the minority of profits. Local ‘subsistence’ poachers have rarely benefited from ivory’s rising price, or ever captured enough value to move beyond roles as hunters. Rather, organized crime groups have responded to the rising end-price of ivory, and from the top-down increasingly worked to create vertically integrated poaching and trafficking operations to capture and benefit from the labor of rural and forest communities.

IVORY HOTSPOTS AND FLOWS			
<i>LIST IS NOT EXHAUSTIVE, AND INTENDED TO HIGHLIGHT LIKELY BROAD FLOWS</i>			
Poaching Area	Poaching Pressure	Approximate Elephant Population*	Main Ivory Exit Routes
DRC	High, Decreasing	4,744	Uganda, Kenya, Sudan
CAR/Chad Northern Cameroon	High, Decreasing	2,131	Sudan, Libya
Gabon/ROC Southern Cameroon	High, Increasing	74,584	Togo, Cameroon, Nigeria
Tanzania Northern Mozambique	High, Increasing	120,255	Tanzania, Kenya, Mozambique
Southern Mozambique/ South Africa	Low**	23,903	Mozambique, South Africa
Kenya	Medium, Increasing	27,136	Kenya
Zimbabwe	Medium, Increasing	51,141	Zimbabwe, Mozambique, South Africa

* *Approximate elephant populations include definite plus probable numbers from AfESG’s AED & some sub-national site level survey estimates.*

** *In South Africa, the trade is primarily in rhino, where poaching levels are high, and rising.*

Enabling Factors Across the Continent

In general, actors up the ivory value chain are able to successfully “capture” their poorer neighbors, turning artisanal hunters into the agents of a transnational criminal enterprise, in no small part because societies across Africa are already affected by conflict, poverty, and corruption. However, ivory poaching is not a uniform enterprise, and local trends play an important role in influencing the nature of elephant poaching on the ground, as well as the manner in which poachers interact with middlemen, “kingpins,” and individual traffickers.

Additionally, there are several non-intuitive current, emerging, and potential poaching hotspots that receive inadequate attention compared to the active warzones. For example, though the country itself is relatively stable compared to its neighbors, Cameroon’s last elephants are trapped between waves of conflict and spillover from all directions, including horseback poachers backed by the Sudanese military, armed groups and refugees spilling out of the Central African Republic, and Boko Haram forces moving out of Nigeria into

Cameroon's far north. Similarly, cross-border poaching activity by Somalis in Kenya receives attention because of possible links to al-Shabaab, but this masks the significant domestic insecurity and violence internal to Kenya, which frequently occurs in immediate proximity to elephant ranges.

In short, large tracts of rural Sub-Saharan Africa are highly insecure for both humans and elephants, but different enablers, key actors, and poaching models play out across each theater. This report examines the following enabling factors in detail:

1. A series of ***Failed and Fragile States*** across Central Africa allows for huge swathes of ungoverned territory to be exploited by violent armed groups. Militias of **North Sudan**, complicit in Khartoum's genocidal campaign in Darfur, have for decades been financed by ivory proceeds. Other conflict-poaching actors in the region include the Lord's Resistance Army (LRA), and the various armed groups in the Central African Republic (CAR) and South Sudan.
2. A ***Conflict-Crime Nexus*** perpetuates and increases insecurity in the **Democratic Republic of the Congo**. Political, military, and militant actors illicitly exploit the DRC's natural wealth, perpetuating violence and undermining the rule of law. Ivory has been an important component of these groups' financing cycles, and has bred destabilizing alliances between security forces and the militants they are tasked to fight.
3. For individuals and entities excluded from the global financial system, the need for alternative streams of revenue draws them toward wildlife crime as a means of ***Sanctions Evasion***. In **Zimbabwe**, sanctioned Mugabe cronies in the government, military, and intelligence agencies loot protected areas while bilaterally making natural resource deals with Chinese investors. Hunting and safari areas are being seized, with a high risk that they will, or are, being used as covers for ivory and horn poaching operations, while environmentally sensitive areas in close proximity to elephant populations are being auctioned off for Chinese exploitation with little transparency.
4. Outside of active conflict zones, in places like **Tanzania**, the presence of ***Political Corruption*** creates a high-risk vector for the potential looting of national wealth for personal gain. A history of corruption in key environmental ministries and a unique system of allowing private individuals to manage wildlife ranges with little oversight exacerbate this risk.
5. In rural **Kenya**, the ***proximity*** of marginalized, impoverished, and well-armed pastoralist communities to existing trafficking infrastructure creates the conditions for emerging poaching hotspots. The widespread availability of firearms and ammunition, much of it likely leaking from government forces, exacerbates the problem.
6. Evidence from multiple anti-poaching operations in **Gabon and the Republic of Congo** suggests that ***Expanding East Asian Resource Extraction***, in close proximity to wildlife ranges, provides a vector through which local poachers and middlemen can easily and quickly meet increasing demand.
7. The ***Power of Price*** is evident across the continent, but South Africa, with some of the most capable security and ranger forces, offers a unique case study. Despite all efforts to secure the border, poaching gangs from Mozambique are devastating rhino populations after decimating their own, a possible harbinger of the coming displacement of elephant poaching, and its associated security implications, into Southern Africa.

Citations

We used datasets from ACLED and IUCN frequently throughout our report for analysis of elephant population distribution and conflict frequency.

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The Ivory Value Chain

The ivory value chain is an organized, three-phased system. It must be disrupted at all points, but the supply chain (as opposed to poaching or retail) is a point of vulnerability. Price analysis along the value chain can provide important insights on ivory flows and can help measure enforcement success.

As poaching has militarized, ivory trafficking has professionalized, now capable of transporting contraband from the remotest corners of the African bush to East Asian markets thousands of miles away. Conceptualized in broad terms, there are three major components to the ivory value chain: poaching, trafficking, and retail. African actors are dominant from the poaching phase to the point when ivory is consolidated and hidden inside a container, while Asian and other organized crime groups control the supply chain from containerization all the way through the shipping and transport systems to market.

The ivory trade can be attacked at any of these stages, but each has unique difficulties and time sensitivities. Securing elephants with more rangers and drones is expensive, and the mismatch between ivory's value and local incomes ensures that there will always be a nearly inexhaustible supply of poachers. Further, applying hard security measures, such as injecting weapons and money into already failing governance and security systems, may only exacerbate underlying problems and create new conflict actors in the future.

Demand-reduction on the retail end is also problematic, primarily due to the time constraint. Demand reduction is the only permanent solution for a trade that is driven by black market economics, but changing cultural attitudes and consumption preferences is a very lengthy process that can take decades to materialize, and moreover is not conducive to dictation by outsiders. Given current rates of poaching, the time lag for demand-reduction is simply too long. Per the latest estimates, 7.4% of the elephant population is being killed annually, at an accelerating rate, shrinking the timeframe for elephant survival across most of the species' range to within 10-15 years.

Disruption and suppression in the intermediate phases, however, is likely to be a key point of vulnerability in the ivory trade system. Targeting syndicate profits and focusing on increasing the rate of seizures can induce higher levels of operating cost and risk, forcing syndicates out of business or displacing them into an alternative trade. Supply chain disruption is particularly attractive as it targets those actors who benefit the most from the trade: the traffickers, middlemen, and logistics specialists who are drawn by illicit profits and not poverty. While supply chain disruption is likely to be a high-impact short-term strategy, it is inherently temporary. Poaching will displace, middlemen will shift areas of operation, trafficking routes will change, and law enforcement will have to adapt accordingly.

The simplified conceptualization of the "supply chain" obscures significant complexity, and there are multiple intermediate steps between the bush and the market:

- Extraction areas are the towns along the forest where ivory is sourced, which generally also provide labor for the hunting groups.
- Consolidation points are reached through a middleman or a series of middlemen, who negotiate with local officials, and collect, sort, and transport increasing amounts of ivory.
- The final consolidation point is generally the point of containerization, where ivory is packaged and hidden inside a shipping container, and the paperwork is prepared for international transit.
- Export and import points include the ports and transportation hubs through which ivory is loaded, smuggled through security screening, and unloaded to finally reach a carving center that creates the final product and distributes it to retail markets.

Few syndicates 'vertically integrate' to control all these different logistical points, or have all the individuals and tools required to fulfill all these tasks in-house. Instead, an array of actors work together formally and informally, in complicated networks at varying stages of professionalization.

This report primarily examines the phase prior to containerization, to focus on the physical

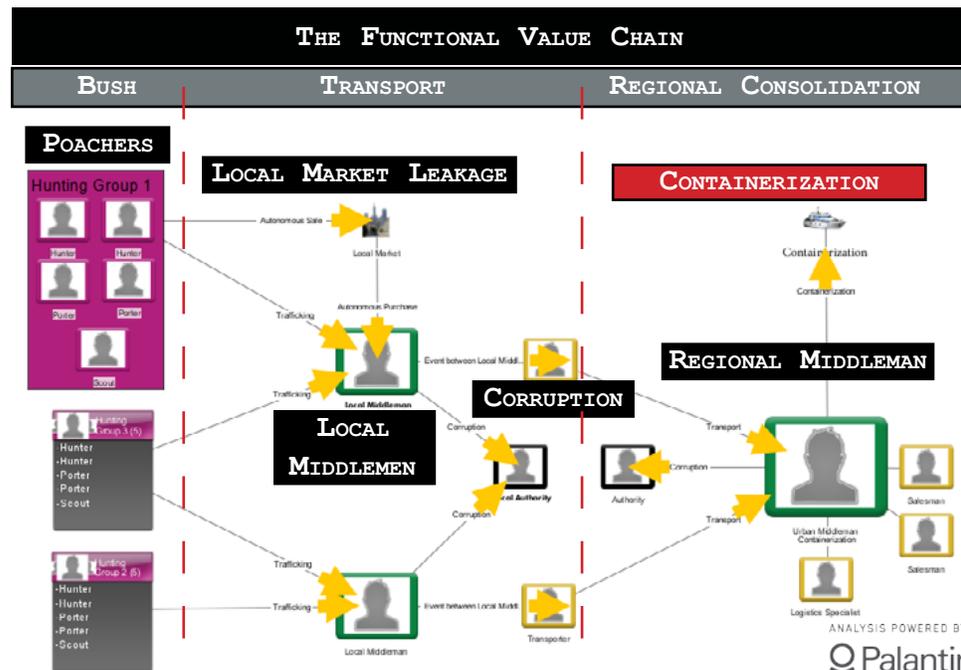
poaching actors and their direct enablers. However, it is impossible to fully decompartmentalize the poaching from the local trafficking or the middlemen who organize the containers and the transnational trafficking. Where appropriate, we attempt to go into as much detail as possible.

Organization

Poaching has evolved from an “economy of proximity,” in which the primary determinant of elephant poaching was access to elephants, into an “economy of networks” that links together multiple regions, skillsets, and areas of control within a single ‘syndicate.’ It appears relatively rare for transnational traffickers to source directly from the forest periphery, or from actual poachers. Instead, a series of local middlemen funnel supplies to a “regional middleman” who serves as an intermediary between local supply and international demand. These individuals or entities coordinate relations between the African and East Asian end of operations, and generally manage all operations prior to containerization. They can be powerful poaching “kingpins” in their own right, or they can merely be nodes, albeit important, in a larger network. Regional middlemen or the African kingpins serve as ‘patrons’ to various local middlemen and hunting groups, directly or indirectly controlling or coopting them to secure reliable and regular supply.

The role of a patron, namely a person (or organization) who supports and enables operations by providing equipment, access, and a competitive local price, is crucial across all poaching theaters. The provision of arms, ammunition, rations, park-level intelligence, and higher-level corruption, cannot be underestimated. Price, however, appears to be the most important means by which syndicates control and co-opt local ivory poachers and traffickers. African patrons, by virtue of their access to transnational traffickers and their control of local ivory flows, can command significant shares of profit, and can afford to distribute higher than average wages down the value chain. Their ability to outbid local demand (in addition to available recourse to violence or coercion) allows relatively smaller numbers of syndicates and individuals to dictate the terms of regional poaching and indirectly control its scale.

Ultimately, poaching itself is somewhat spatially fixed, in that it depends on proximity to elephants, with hunters generally drawn from the surrounding area. However, middlemen



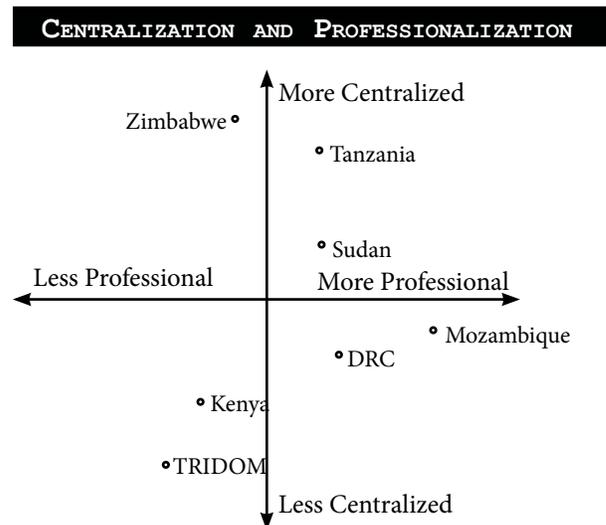
are not necessarily fixed in their areas of operation. Depending on the nature of their access, middlemen can patronize hunting operations across a wide swath of territory or focus on specific ranges: Sudan-sponsored poachers cover immense amounts of territory to target isolated elephant ranges, whereas in Tanzania there is growing evidence of very concentrated hunting in specific sectors of parks. The ability to adapt poaching operations and choose optimal trafficking routes is generally a feature of increased network organization and capability. There are likely limits to this adaptability (for example a Ugandan regional middleman may easily displace his poaching networks across countries in Central Africa but would find it harder to operate outside the region), however there is some evidence of extreme displacement, such as West Africans trading in faraway Mozambique. The most vertically integrated syndicates may have no regional boundaries at all.

In the functional sense, there are strong commonalities between poaching networks across the case studies we examine. However, important variations exist in the way that networks are organized. Local socioeconomic conditions, such as the availability of labor, the price of weapons, the availability of infrastructure, and the presence of non-state organizations capable of moving into poaching (such as militant groups) influence the level of centralization and professionalization a network is able to achieve. These two factors determine the rough shape of a poaching network, as well as the prevailing profit distribution model within it.

Professionalization is characterized by increased organization, increased use of sophisticated weapons, and increased access to transnational trafficking networks. Centralization is the direct control over the poaching on all levels of its organization by a central patron figure. Two simple models serve as extremes on a cartesian plane of professionalization and centralization.

In one extreme, the “landlord model,” the poaching patron essentially owns or controls elephant ranges, and can either directly control the hunting or rent out controlled access. Such a network generally has a hierarchical form of organization with static control of territory and strong direct control over hunting parties. The model is best associated with the case studies of Tanzania and Zimbabwe, where powerful businessmen and politicians own licenses or exert strong influence over hunting and safari concessions, and thus seem to be able to control the scale and manner of hunting on their lands.

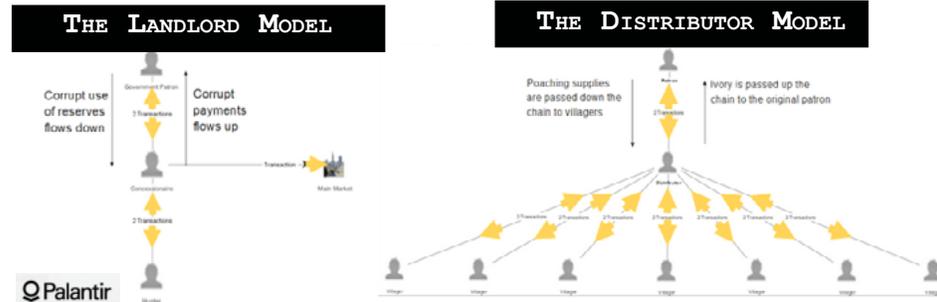
On the other extreme, the “distributor model” features a patron who supplies enabling equipment down the chain, but exercises little direct control over the hunting. Variations of distributor model are seen in virtually every case study we examine and can overlap alongside the landlord model. In Zimbabwe, in Hwange National Park, a notorious incident in 2013 involved the distribution of almost a ton of cyanide to several villages. The patron enabled the villagers to kill hundreds of elephants, but the actual killing was done at the villagers’ discretion, with the patron only coming later to collect tusks. Conflict generals in



the DRC also trend closer to the distributor model. They supply arms and ammunition to militant groups, and expect ivory to flow back up the chain to their criminal networks, but appear to have little concern over how and where the actual hunting occurs.

In truth, few studies align neatly and most actors navigate a murky nexus of control versus cooption. In nearly all cases, however, the provision

MODELS OF POACHING NETWORKS



of equipment implies some form of payback, and more often than not, the terms of trade are weighted against poachers. Many business models require poachers to essentially 'rent' the equipment, which can quickly indenture them into criminal networks.

Incentives

Ivory's rising value is the primary incentive drawing individuals into the ivory trade. Measuring prices along the value chain, and the relative profit distribution within networks can offer important insights into how poaching is manifested in different regions. The price of ivory in dollar terms, however, is a misleading measure, as it can obscure local purchasing power, and miscast the effective value of ivory in local markets. Especially at the bottom of the value chain, where profit distributions are a small fraction of retail value, it is important to examine what ivory's value means in the context of local economic activity. A poacher on the forest periphery will not receive the \$3,000/kg transnational traffickers might receive, or even the \$400/kg that a middleman in Mombasa might command, but will make closer to \$50-100/kg for his effort. However, even this small profit distribution can constitute a very significant wage in local purchasing power.

In reality, poaching earnings can be even smaller. Hunting groups may be composed of as few as three individuals; a hypothetical successful 3-man hunting party being paid \$50-100/kg for their work would make at maximum \$33/kg each. This is still a sizable amount in local terms, but is a minuscule portion - between 1.6% and 3.3% - of end-value. Even this estimate may overstate the true value. Isolated areas near national parks where ivory is harvested are still unconnected to local, let alone regional or global commodity chains, and a great deal of economic activity is still conducted through bartering. Especially in Central Africa, it is not uncommon for poachers to be paid nothing in physical currency, but instead be loaned weapons, a significant investment, and in return allowed to keep the meat of any animals they kill, with perhaps a small bonus after successful hunts. Different models of centralization can further affect profit distributions; more centralized syndicates with skilled poaching employees are likely to have higher and more fixed wages as compared to informal negotiations in less centralized models.

At the network level, ivory is still an attractive and lucrative commodity that has several advantages over alternative resources. Ivory is a portable resource that has low sunk costs relative to other extractive industries. It requires only transient control or access to territory, unlike, for example, illicit gold, whose owners have to invest in costly and static mining infrastructure, and then often have to defend mines against other armed groups. By contrast, at the bush level ivory is highly attractive as a source of financing to mobile groups such as the Lord's Resistance Army that do not have access to established markets or infrastructure. As such, ivory has also grown into a lifeline commodity for groups starved of other financing opportunities. Finally, and perhaps most importantly, wildlife crime is not treated as seriously as other forms of illicit trade in Africa, with international attention and penalties paling in comparison to those meted out to conflict miners or human traffickers; ivory thus has attractively high levels of impunity compared to alternative illicit activity.

LOCAL INCENTIVES AND PURCHASING POWER (EASTERN DRC)



ONE TUSK

- **Average Weight:** 3.8kg (CITES)
5kg - Rough
 - **Bush Value/Kg (DRC):** \$100
- Tusk = \$380-500**
- **Hub Value/kg (Kampala):** \$250
 - **Retail Value/Kg (Asia):** \$3,000

PURCHASING POWER

GDP/Capita: \$422 (2012)
Local Wage (monthly): \$167 (miner)
 \$97 (top army)
 \$50 (official)

Local Retail Prices (Bunia)

- Flashlight \$2
- Local Beer (Bottle) \$1.50
- Measure Local Rice \$1.15
- Measure Corn Flour \$1.43
- Measure Cassava Flour \$0.85
- Salted Fish \$3.80
- Can of Palm Oil \$25

Weapons Markets

- AK-47 Rifle (New) \$200-250
- AK-47 Rifle (Used) \$20-50
- Single Round \$0.05-11

Sources: Southern Africa Resource Watch, Enough Project, UNECA, FAC/WFP Food Security Cluster November 2013, UN Panel of Experts, World Bank 2012, Small Arms Survey, Local Sources

INCENTIVES COMPARISON



CONFLICT IVORY

- **Low Sunk Costs**
- **Transient Control of Territory**
- **Niche Industry**
- **Portable**
- **Higher Impunity**



CONFLICT GOLD

- **High Sunk Costs**
- **Static Control of Territory**
- **Competitive Industry**
- **Portable**
- **Lower Impunity**

Costs

The act of killing an individual elephant can be fairly rudimentary, however an organized poaching operation can quickly get quite complex. An ambitious poaching expedition is long and employs several people, while equipment, logistical, and access costs can quickly mount up to amounts beyond the capability of impoverished local actors. Detailed studies by IUCN found, for example, that in the Central African Republic, a single .458 caliber round could cost as much as US\$20 each, while AK-47 users in Cameroon often expended 60-500 rounds each hunting trip, which can rack up costs of over US\$100 on ammunition alone.¹ None of these costs are easily borne by locals. Moreover, contrary to common perceptions, a firearm constitutes a significant investment for nearly all would-be poachers. Africa is not "awash" in firearms. A modern weapon is a highly valuable commodity, and prices even in conflict areas are substantial compared to local incomes. As a result, the provision of firearms, ammunition, rations, and other poaching-related equipment by a

middleman is the primary way in which actors further up the value chain incentivize and indirectly control local poaching. This patronage and provision of supplies, particularly appropriate weapons and ammunition, is a common theme across regions, from Mozambique to Gabon.

**FINANCING A POACHING EXPEDITION
(RURAL CAR, 2011)**

• Weapon	\$100-150
• Ammunition	\$20
• Bribes	\$10-20
• Transport	\$40
• Labor	\$13/person
• Provisions	\$10/day
Total	\$200-300

Source: IUCN, Small Arms Survey

Poachers endure other costs not easily expressed in dollar terms. Poachers must be willing to spend sizable amounts of time in the bush, anywhere between 72 and 750 hours for a commercial hunt,² and thus incur sizable opportunity costs in their forgoing of alternative economic activity. Others may spend considerably more; the Sudanese poaching parties for example spend the entire dry season on task, time that could also be spent on raiding other villages and resources. In addition to opportunity cost, the poachers' cost calculus includes a risk-reward calculation – the probability of finding elephants, a sizable risk of injury in the forest, the possibility of confrontation with other armed groups, and the likelihood of enforcement action by authorities are all measured against the price received from a middleman. At current trends in most areas, enforcement costs do not appear to be high enough to serve as an effective deterrent, but even if they were, given current profit distributions, there is still a sizable cushion for the middleman to bid up price and offset increased poaching risk.

Following Ivory & Measuring Disruption with Price

Mapping local prices and local routes with extreme precision is notoriously difficult, and ultimately probably futile. Precisely and accurately gauging prices of tusks or a kilogram of ivory requires establishing contact networks, venturing into difficult to reach, often-isolated parts of Africa, and locating and talking about illegal activity with reluctant interlocutors. Similarly, bush routes can change depending on weather, the individual poacher, enforcement action, or terrain. However, broader attempts to identify trends of relative pricing along known value chains can provide an understanding of ivory flows, and suggest optimal points for interdiction. Price mapping pre- and post-seizures can also offer important insights into the level of disruption and the recovery period inflicted upon syndicates by law enforcement. (The local ivory prices referenced in this study were collected across multiple interviews in 2013 and 2014).

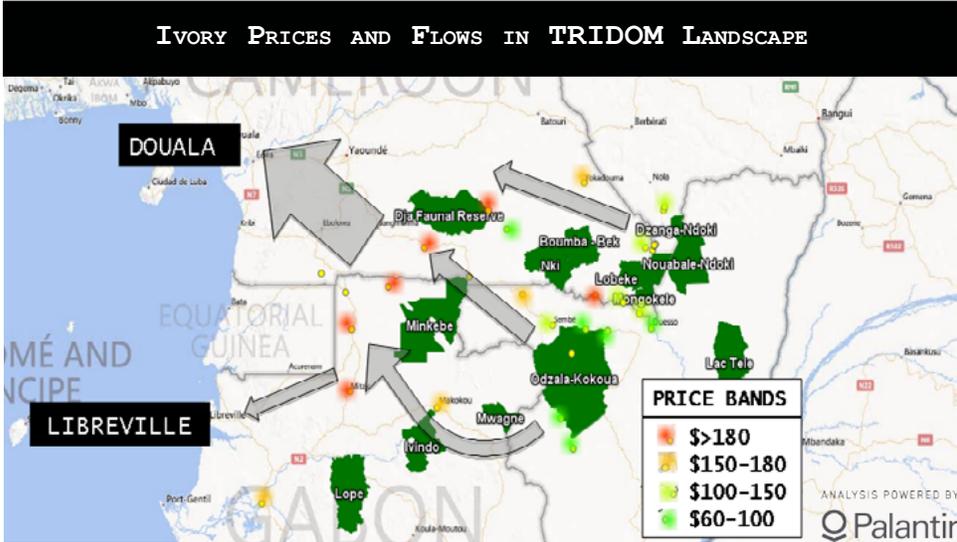
Ivory's value is lowest in the isolated, infrastructure-poor areas near the national parks where it is harvested, and steadily increases as it is trafficked towards urban consolidation and containerization hubs, reflecting in part the increased cost and risk incurred to move the product. At no point do African prices approach East Asian retail prices; however, there is a very significant increase in price between the forest periphery and an export point. A

IVORY PRICE INCREASES ALONG THE VALUE CHAIN

Village (Poaching Hub)		Local Urban (Consolidation Hub)		Regional Urban (Export Hub)	
Name	Price	Name	Price	Name	Price
<i>West Africa</i>					
Etoumbi	\$30	Yakodouma	\$172	Lomé	\$350
Kika	\$62	Moloundou	\$200	Douala	\$400
Mlelekouka	\$58			Libreville	\$100
Ouessou	\$54.5				
<i>East Africa</i>					
Rungwa Area	\$60	Isiolo	\$100	Addis Ababa	\$275
Tsavo Area	\$120-180	Nanyuki	\$100	Dar es Salaam	\$400
				Kampala	\$200
<i>Central Africa</i>					
N'dele	\$34	Arua/Ariwara	\$150		
Chinko Area	\$60	Kisangani	\$225		
Nia-Nia	\$100	Bangui	\$120		

Source: Author interviews with WWF, LAGA, KWS, Chinko Project, African Parks, Conservation Justice

sample compilation of prices that highlight the three major phases - local forest periphery village prices, local hub consolidation prices, and finally the regional export hub price - is included above. The data are of course, imperfect, but are sourced from researchers who demonstrably visited the locations from which they reported. Similarly, as can be seen in the TRIDOM flow map provided below, simply following ivory prices can reveal the logis-

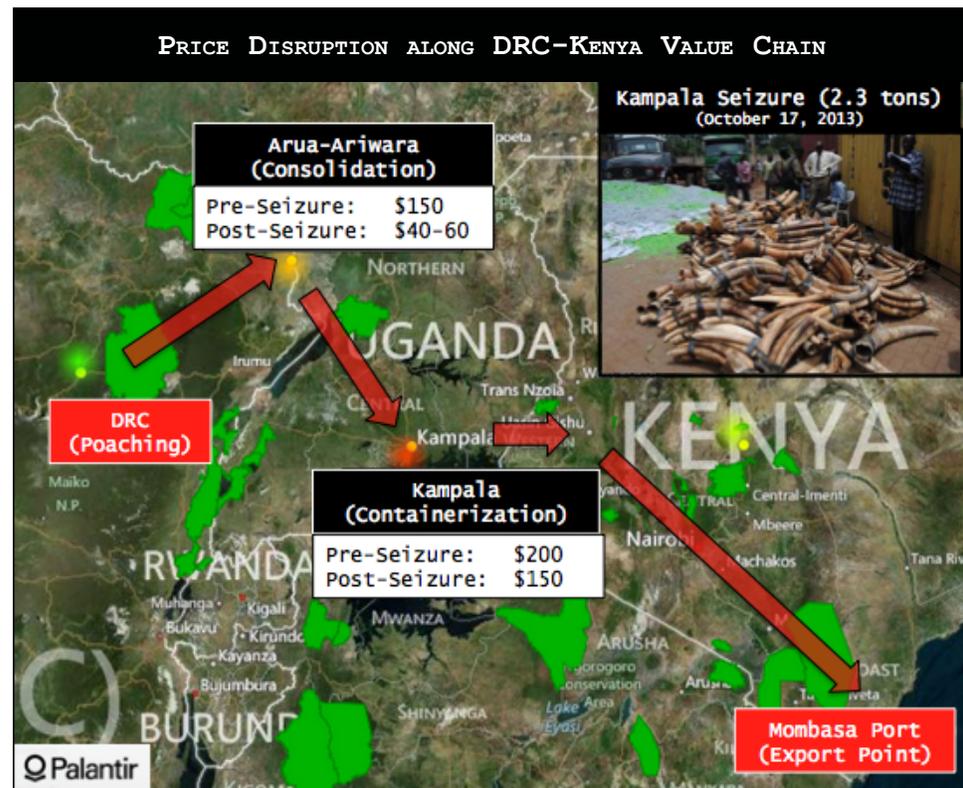


Source: Author interviews with WWF, LAGA, Conservation Justice

A careful measurement of price dynamics can also help determine areas where ivory consolidation occurs, and where enforcement action could be most fruitful. There are a limited number of markets and middlemen that local poachers and traffickers can access, and as a result, ivory prices in one location appear heavily dependent on demand from the next link in the value chain. Due to the lack of substitute markets, the dearth of transport infrastructure, and the difficulty of establishing new contacts in a fairly niche illicit trade, ivory traffickers do not appear capable of easily or quickly rerouting consignments in the event of a disruption in their principal market. Ivory prices are thus responsive to disruptions further up the supply chain, although the level of debilitation and the recovery period may vary between syndicates and regions. The Arua-Ariwara case study provided below provides a compelling example of a situation where following major ivory seizures in a traditionally safe trafficking hub, traffickers appear to have temporarily divested out of the trade, rather than attempt to shift logistics hubs or run the risk of arrest and interception. Relatively small increases in operating risk within principal trafficking hubs or markets may thus provide disproportionate impact to discourage or at least temporarily mitigate local ivory flows.

The Arua-Ariwara Case Study

Ariwara and Arua are cities situated across from one another on the border between Uganda and the DRC. Both cities have a population of around 60,000, and together form a hub of cross-border trade, where merchants from Uganda, South Sudan, and the DRC meet to trade in cattle, raw materials, and other goods. In January 2014, the UN named Ariwara as one of the main centers of the illicit gold trade in the DRC.³ It has also been identified as an important waypoint along the supply chain for ivory flowing out of the Northeastern DRC en route to Kampala for containerization. In 2013, two large ivory seizures in Kampala and Mombasa port were followed shortly by significant ivory price shocks within Arua and Ariwara.



Source: C4ADS conversations with Kristof Titeca

In July of 2013, 3,287 kg of ivory were seized in Mombasa port. This seizure, which was later found to have entered through the Malaba checkpoint on the Kenya-Uganda border, was followed by a decline in ivory prices in Kampala, from approximately \$200 to \$150/kg. The price depression extended farther down the supply chain as well; prices in Ariwara and Arua fell from about \$150 to the \$80-120/kg range.⁴

In October of 2013, in the Bweyogerere neighborhood of Kampala, 1,903 kg was seized from a truck exiting a warehouse, believed to be on its way to the Kenyan border.⁵ This seizure was one of the first, and certainly the largest, ever to have taken place inside Uganda, and it was followed by a collapse in demand for ivory in Arua and Ariwara, which as of November 2013 traded at approximately \$40-60/kg.

The sensitivity of the ivory price in Arua and Ariwara to ivory seizures in Mombasa and Kampala indicates that the latter two cities are most likely the principal transport points for ivory coming out of the DRC. A collapse of almost 60% of original value suggests a major disruption to a principal market, and suggests that ivory traders had few alternatives to reroute their shipments to Kampala. This could be as a result of multiple factors: low infrastructure availability from the northeastern DRC, relatively low network resilience, and low elephant densities that prevent shipments from being easily reconsolidated.

The timing of the price fluctuations indicates the importance of perceived risk calculations by traffickers. After the Mombasa seizure, prices fell only marginally in Arua and Ariwara. It was only following the Kampala seizure that the price in ivory collapsed. Kristof Titeca, a Belgian researcher who collected the price data and has published extensively on illicit economics in the region, posits that this is because the Kampala seizure introduced a far more powerful element of uncertainty into the trafficking calculus. Kampala had previously been a secure hub with low risk of enforcement, but once denied a principal transit point, it seems traders acknowledged that the immediate-term risks outweighed the benefits, providing direct impact far down the value chain, possibly extending even to the forest periphery towns where Arua and Ariwara source.

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Sudan: Failed States & Ungoverned Corridors

Militias linked to the sanctioned government in Khartoum are financing military operations and atrocities with ivory, and are today operating more than 600km outside North Sudan's borders.

Sudanese militias linked to the sanctioned government in Khartoum are financing military operations – including atrocities in Darfur – with ivory poaching. Sudanese hunting expeditions are today operating more than 600km outside North Sudan's borders into Chad, Cameroon, Central African Republic (CAR), and northern Democratic Republic of the Congo (DRC) in order to poach Central Africa's remaining elephants. These large, well-armed groups, whose origins can be traced to the Sudanese civil wars, are born of and contribute to conflict. They helped poach the northern white rhino into extinction in the 1980s, and have contributed to a severe decline in local elephant populations and a continued lack of basic security in their operating areas. The profits they have reaped from ivory have likely helped enable tribal conflict, as well as allowed the government in North Sudan to mitigate the effect of international sanctions in funding its proxy militias.

Over the past decade, there has been a severe decline in Central African elephant populations. Between 2002 and 2011, elephant populations fell by 62%, with a range contraction of about 30%.¹ According to the latest estimates by the African Elephant Specialist Group's African Elephant Database, fewer than 8,000 elephants are estimated in definite and probable populations outside Gabon and the Republic of Congo,² two of the last countries outside Sudanese operating areas. This is a catastrophic decline from the 130,000 elephants that ranged in (what is now) South Sudan alone in 1986,³ while the formerly 50,000-strong herds of Chad have been reduced to as few as 500 elephants today.

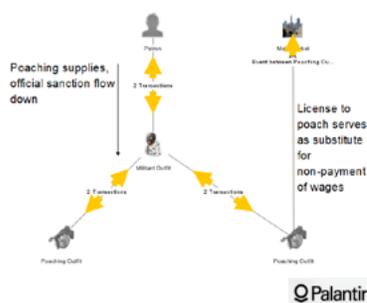
A primary cause of this decline is intensive poaching by Sudanese militias. The Arab tribes of North Sudan, the backbone of the Janjaweed militias, have been making ivory runs through Central Africa for decades, but their scale expanded through the 1990s and, since 2009, so has their operational range. Some of the continent's most notorious recent massacres have been attributed to these groups. These include Bouba Ndjida National Park in Northern Cameroon in 2012 where nearly 450 elephants were wiped out in a single incident, Zakouma National Park in 2012 where five rangers were murdered, and in Dzanga Sangha in the southwestern Central African Republic (CAR) in 2013, where shooters massacred 26 elephants at a UNESCO World Heritage Site. Today, raiders out of Sudan are traveling over 600km of desert and forest to reach the last few pockets of Central African elephants, well outside their traditional hunting areas.

Poaching into Extinction

Most elephants within these areas are already extinct, primarily due to poaching. Militarized Sudanese poachers have perpetrated a three-decade long poaching spree, with operational ranges expanding as elephants die out. They have been assisted by a range of actors and by widespread bushmeat hunting, the practitioners of which they enlist in support of their ivory poaching operations. In the Congo Basin, a volume of bushmeat equivalent to 4 million heads of cattle is extracted from the forests every single year.⁴ The civil wars between 1983 and 2005 decimated local wildlife as armies fed themselves off bushmeat, while the Sudanese were routinely implicated in large-scale poaching incidents through the 1990s, particularly in Chad. Groups reported as "Sudanese" often encompass a broad array of actors including Arab Darfuri tribes, Chadian pastoralists, and Muslim militiamen from the northeast CAR, all of whom have been tied to conflict in their respective countries, as well as poaching. As a result of these combined pressures, today the Sudans have been almost entirely stripped of once-huge herds of big

game. In the Congo Basin, a volume of bushmeat equivalent to 4 million heads of cattle is extracted from the forests every single year.⁴ The civil wars between 1983 and 2005 decimated local wildlife as armies fed themselves off bushmeat, while the Sudanese were routinely implicated in large-scale poaching incidents through the 1990s, particularly in Chad. Groups reported as "Sudanese" often encompass a broad array of actors including Arab Darfuri tribes, Chadian pastoralists, and Muslim militiamen from the northeast CAR, all of whom have been tied to conflict in their respective countries, as well as poaching. As a result of these combined pressures, today the Sudans have been almost entirely stripped of once-huge herds of big

DOMINANT MODEL : THE MOBILE LANDLORD



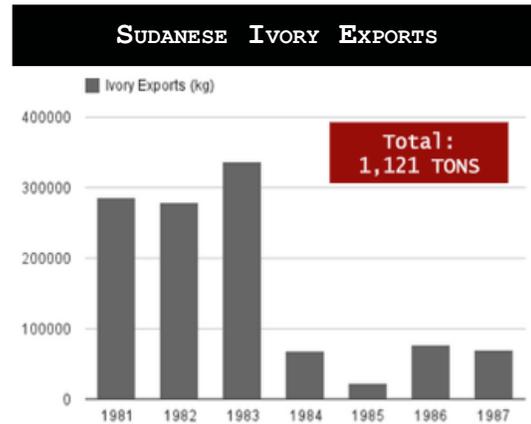
Sudanese poaching outfits exhibit a high degree of centralization as agents of existing military and tribal groups. Using highly coordinated logistics, effective infantry tactics, and good local intelligence, they are among the most militarized poaching organizations in Africa. Due to these superiorities, Sudanese groups are able to roam vast distances and occupy them for the duration of their poaching activities, acting as a temporary "landlord."



Source: Mike Nichols, National Geographic

game like elephants, buffalo, giraffe, and zebra. South Sudan's last elephants are found in pockets east of the Sudd marshlands, areas where the civil war never fully reached, and where the Northern horsemen could not ride.

North Sudan is closely tied to the ivory trade. Major cities like Omdurman and Khartoum are ancient carving centers, clearing houses, and markets for ivory. They have long serviced two of the largest historic African ivory markets, Egypt and Ethiopia, as well as provided transit to markets in the Gulf and throughout the Arab world. Before World War I, ivory accounted for as much as 10% of Sudan's total exports,⁵ and as recently as 2005, a survey found a thriving ivory market in North Sudan, counting over 11,000 pieces of ivory in the souvenir shops



Source: Sudan AECCG Sudan Elephant Conservation Plan

of Khartoum and Omdurman, and over 150 ivory carvers, mostly situated around Omdurman.⁶ However, domestic Sudanese demand for ivory is limited and traditional demand in markets like Yemen has largely been eclipsed by East Asia. To some extent, this vacuum may have been filled by a growing Chinese migrant population and exports through the region's major deep-water port at Port Sudan on the Red Sea. Opacity in the port's operations make this factor difficult to analyze without further investigation.

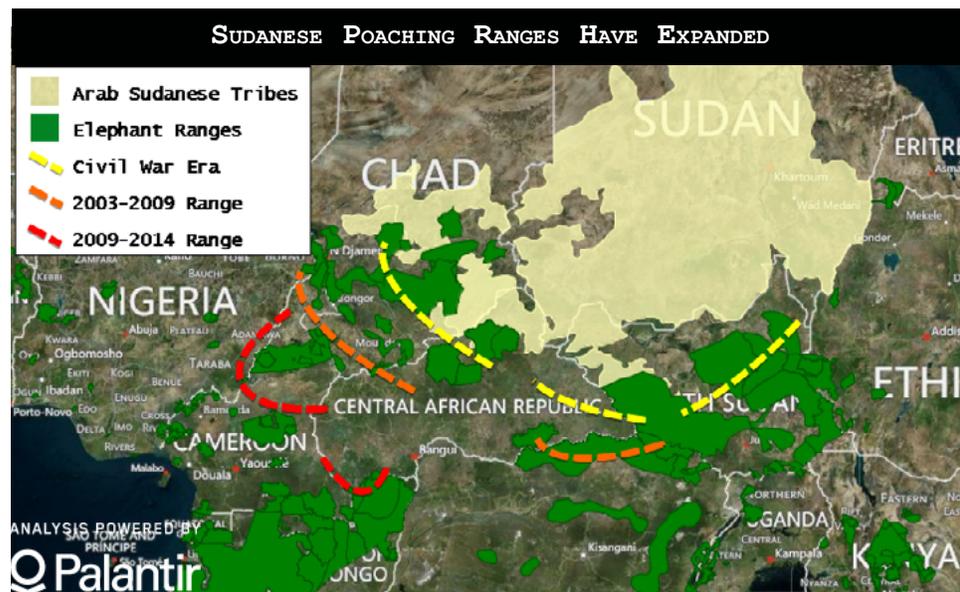
As recently as a few years ago, poaching columns of 100 to 200 men, each equipped with a standard issue AK-47 or equivalent, were regularly seen originating from North Sudan carrying satellite phones, animal medicine, and basic rations to sustain extended expeditions. Convoys today appear smaller, likely because today's payoff is lower, but they still can number up to 30 to 40 men—large by regional standards—that disperse into smaller groups of 3 to 4 each to cover ground and hunt for the entire dry season. These forces are extremely aggressive, even purposely maneuvering to attack wildlife and military forces. In Chad at Zakouma National Park in 2012, 5 rangers were ambushed at dawn and gunned down outside their tents by men linked to the Sudanese army. Separately, in 2010, Ugandan soldiers hunting Joseph Kony in the forests of the eastern CAR ran into a '400-strong' Sudanese ivory caravan. 10 Ugandan soldiers died in the subsequent firefight.⁷

Sudanese poaching formations are large and well organized because of the logistical demands of hunting for what can often be an entire dry season. The ranges these groups travel are vast, and traversing them is difficult. Moreover, poaching caravans are often under time pressure during the window of opportunity presented during the dry season, when elephants leave national parks to seek alternative watering holes, and when major crossing areas are still passable before seasonal flooding.⁸ The trek from the Sudanese border to central Chad alone takes about two weeks, a significant amount of time in hostile territory. Interrogations, as related by park officials, indicate that poachers have excellent local intelligence, and advance knowledge of their intended targets and their local terrain. Poachers often avoid all population centers on the inbound journey, subsisting solely off rations brought with them or hunted along the way. Sudanese poachers will frequently take portions of elephant carcass such as ears, tails, and trunks as trophies, but generally leave the bushmeat, which indicates self-reliance, but also local strategy; such generosity can earn them local allies and willing scouts. In other cases, however, where ivory is not easily available, poachers have been known to turn to looting, rape, and violence in order to defray the costs of an expedition. Sudanese poachers appear to sell their ivory hauls as groups, and not as individuals; this points to control over the group being exercised by an overall commander.

Accurately mapping Sudanese operating areas is complex given the scarcity of documented

and verifiable information, but some broad trends can be seen. Permissive areas generally share religious or ethnic identities, such as northeastern CAR or eastern Chad, whereas Sudanese poachers have never penetrated very deep in the DRC, reaching Garamba National Park in the north, but not any further south where other armed actors control territory and poaching. As elephant herds disappear, poachers are being pushed farther and farther afield, reaching northern Cameroon in 2012, southeastern CAR near the border of Republic of Congo in 2013, and possibly into Southern Cameroon. In addition, some environments that were traditionally easy prey have hardened their resistance. Zakouma National Park, after new management by African Parks, has not lost a single elephant, through a combination of integrated intelligence and rapid-reaction efforts and coordinated patrols with Chadian army brigades.

Sudanese elephant hunters have a long history of traveling afield, but their new range is unprecedented. Long before this century, Sudanese horsemen would cross into the Eastern CAR with their cattle to run down elephant herds. By the 1980s, Libya flooded the region with cheap small arms, while in the early 2000s the government in Khartoum began arming and organizing the Kordofani tribal pastoralists into the Muharaleen, the forerunners to today's Darfuri Janjaweed.⁹ In the Chinko-Mbari drainage area in the Eastern CAR, which is virtually devoid of human populations or infrastructure and was once teeming with wildlife, local conservationist Erik Mararv, one of few continuously engaged in the region, recounts continuous poaching pressure since the 1980s. He estimates a death toll of at least 20,000 elephants in the past 20 years, which he stresses is highly conservative, attributing 90% of this poaching to the Sudanese, with "ammunition fabricated in Sudan."¹⁰

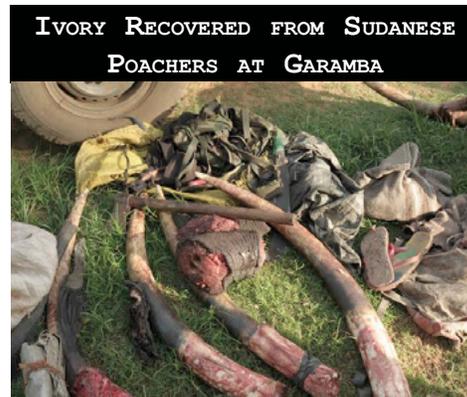


Operational ranges represent analyst estimates. Elephant range layers from AfESG's African Elephant Database.

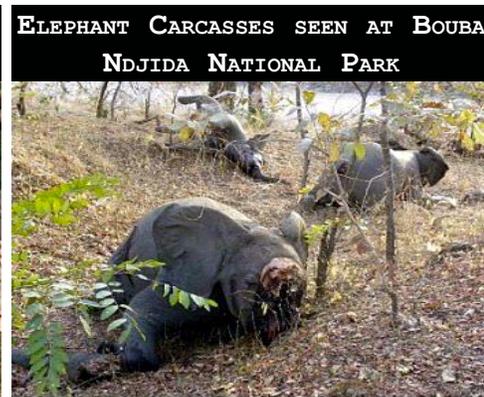
Since the closing years of the Sudanese civil war, there has been a significant expansion in the range of North Sudanese poachers. In Garamba National Park, commercial Sudanese poachers played a critical role in decimating the white rhino population during the 1980s, but the Murahaleen, Khartoum-armed arab militias, did not return until 2003,¹¹ soon after which pack animals transporting large amounts of ivory were seen in the area.¹² Similarly, in Zakouma National Park in Chad, 70% of the park's 3,900 elephants were wiped out between 2005 and 2009,¹³ with Sudanese again identified as the primary perpetrators. At the same time, the Sudanese have continued penetrating deep into the Eastern CAR for its remaining elephants. A single and relatively small survey in 2007 in Northeastern CAR encountered 180 elephant carcasses, and estimated 553 in their area alone, most of which they believed to be perpetrated by the Sudanese.¹⁴

Even far from their core operating areas, militarized Sudanese poachers have been willing

and capable of engaging in combat with local militaries. In early March 2012, a Cameroonian Rapid Intervention Battalion of 600 soldiers with a helicopter and two light aircraft were deployed into Bouba Ndjida in response to the poaching wave. At least one soldier was killed in an overnight firefight, while the poachers would go on to kill at least 20 more elephants in the next two weeks.¹⁵



Source: John Sidle



Source: International Fund for Animal Welfare

Sudan's Military & the Janjaweed

It is difficult to trace Sudanese poachers back to their exact sub-tribes. However, there is ample evidence that many hail from the Northern Arab tribal ecosystem that is closely allied with the government in Khartoum, and from which the Janjaweed were recruited. It is known that the North Sudanese army (Sudan Armed Forces, SAF) was complicit in big game hunting for both bushmeat and ivory during the civil war, and there is evidence that the involvement of at least some Northern soldiers has continued. The intersection between poaching and trafficking through Sudan is less clear, but it is likely that it is highly organized and linked to the government in Khartoum, or to its agents in the militaries. In the words of Esmond Martin, an expert on Sudan: “The trade of ivory in Sudan is so expensive because of the high cost of transport, which means that no individual buyer can afford to transport the tusks from the south to the north and still sell at a profit.” He also notes that “every trader we talked to said the Sudanese national army has been doing the killing.”¹⁶

The government in Khartoum has traditionally used the Arab tribes as auxiliaries, arming and mobilizing them in times of need. Control is exerted through the supply of money, weaponry, and permission to raid and loot, but in recent years financing from Khartoum has grown tight. As North Sudan struggles with international sanctions and decreased oil revenues in the wake of tension with South Sudan, these tribal militias have increasingly turned to criminal activities to make up for the shortfall. To retain control, Khartoum appears to have allowed them a freer reign in enterprises that range from control of gold mines to banditry to wildlife poaching raids far outside Sudan's borders. Leaders of many tribes and sub-tribes maintain vast criminal empires and are deeply complicit in human rights atrocities. Sheikh Musa Hilal, a leader of the Rizeigat Arabs, for example, is a prominent figure implicated in the Darfuri genocide and on international sanctions lists. His tribesmen may also have been those that killed the elephants at Bouba Ndjida in 2012.¹⁷

In an environment of extreme data scarcity, ammunition tracing in addition to other forensic analysis, has been an effective technique linking poaching to the Sudanese. An analysis by C4ADS of ammunition collected from sites visited by Maisha Consulting (a wildlife security NGO), African Parks, and others yields interesting insights. Ammunition collected from multiple elephant kill sites across Cameroon, Chad, the CAR, and the DRC is of the series and types that closely match those in Khartoum's armories. Sudanese ammunition admittedly circulates widely in black markets across the region, but at both Bouba Ndjida and Dzanga Sangha, the two famous massacres in 2012-2013, Iranian ammunition from an

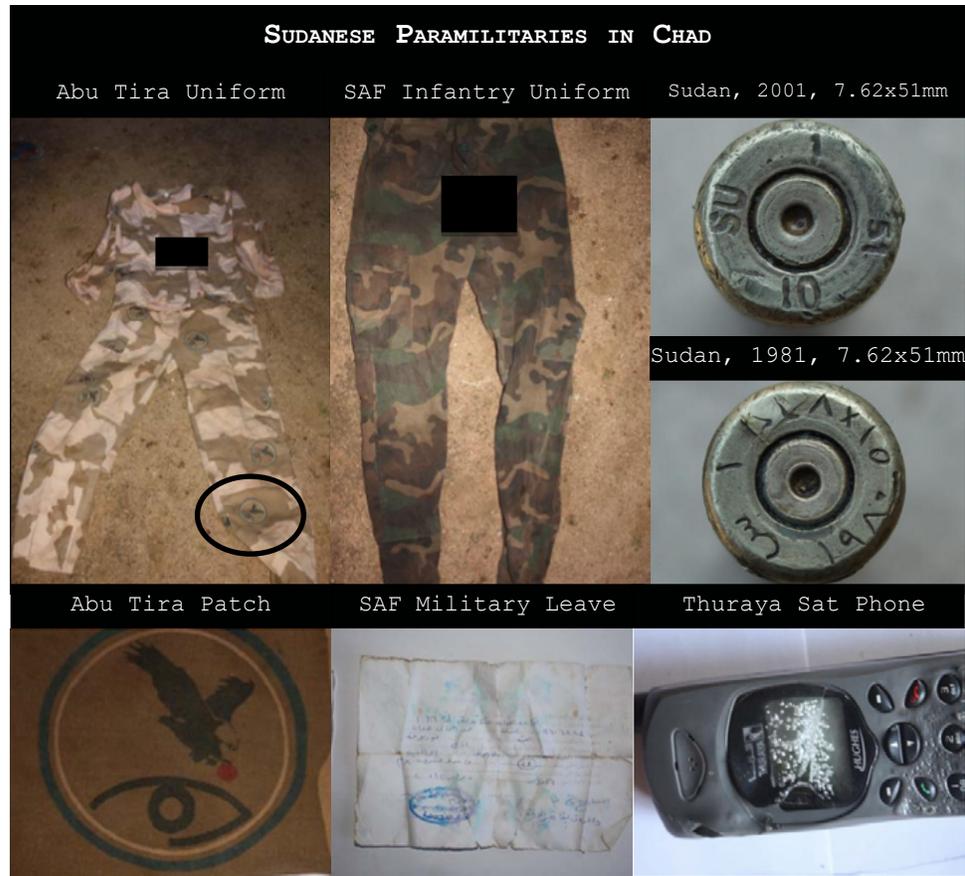
Islamic Revolutionary Guard Corps (IRGC) factory in Tehran, was located. Iranian ammunition is still rare in the region. The primary user is Khartoum; similar rounds have been documented across Sudan, but almost exclusively in the hands of Northern military, paramilitary, and auxiliary forces.¹⁸ The discovery of Iranian ammunition at elephant kill sites is a strong indication that actors closely allied to Khartoum are doing much of the poaching.



Source: Maisha Consulting, African Parks, UN Panel of Experts. Elephant range layers from AfESG's AED.

A range of other documentary and forensic evidence supports this hypothesis. In one notorious incident in Chad, which was covered by several news organizations, including CNN,¹⁹ at least 9 elephants were killed by a four-man poaching party in August 2012 around the Heban area near Zakouma National Park. Scouts raided the poaching camp on 12 August seizing most of their haul. In retaliation, the Sudanese poachers, who included at least one Sudanese army infantryman attached to the al-Qobba Unit, led an ambush on Zakouma's park rangers. Attacking at dawn on September 3rd, five rangers were murdered in their tents and another ranger went missing, since presumed dead. Every piece of evidence from the incident, some of which is included on page 29, points back to Sudan – from uniforms belonging to Khartoum's notorious Abu Tira paramilitary forces to ammunition manufactured in North Sudan to a military leave slip identifying one of the soldiers. To date, there has been no follow up by law enforcement in Sudan.

Chadian authorities, on the other hand, have been among the quickest to respond to elephant poaching. President Deby burnt Chad's ivory stockpiles in 2014 and has committed military resources to aid national park personnel. Chad's robust recognition of poaching as a serious security threat is likely motivated in part by the close links that poaching has with regional conflict. Sudanese poachers originate from the same tribes and areas that have bred nearly every modern Chadian revolt,²⁰ as well as the most serious threat to his regime, when forces associated with the Union of Forces for Democracy and Development blitzed N'Djamena in 2008, and were only barely repelled with French assistance. Stepping up enforcement in national parks therefore serves both a conservation and national security purpose.



Source: African Parks, CNN

The South Sudanese Armed Forces

Soldiers of the Sudan People's Liberation Army (SPLA), today the South Sudan National Army (SSNA) financed their rebellion in the early years in part through the poaching of rhino in neighboring Garamba National Park in the northeastern DRC. Over the ensuing decades, soldiers and militias out of South Sudan, including the former SPLA, have been among the worst perpetrators of ivory and rhino horn poaching, although the scale today is likely much smaller than during the apogee of violence in Sudan. The rhino is long extinct in the area, and elephants are severely diminished, but South Sudanese forces are still seen in poaching incidents inside South Sudan and across the borders in the DRC, and possibly southeastern CAR. Ivory poaching has declined, but commercial bushmeat hunting is still widespread within the South Sudanese army. In what is likely just the tip of a very large iceberg, an SPLA Captain was arrested near Malakal with 14 bags of bushmeat, approximately 212 poached animals, in April 2013.²¹

South Sudanese army forces have been sighted inside Garamba National Park in the DRC on several occasions. These forces appear to be comprised of both active and demobilized soldiers. Garamba Park rangers recovered SPLA army uniforms and equipment in October 2013, but several other groups are also active. One South Sudanese armed group operating inside Garamba in 2013 was led by an ex-SPLA soldier called "Tabani" who led a band of 10 to 25 men active in cross-border poaching, gold mine raiding, and looting.²² In 2012, two GPS-collared giraffes (of the 50-60 remaining in the area) were killed, with the trackers confirming the carcasses crossed the South Sudanese border.²³ In another incident, a group of 15-20 poachers were interrupted by Congolese and Guatemalan peacekeeping troops backed by rangers and security contractors; the poachers fled across the border but were later arrested and identified as members of the South Sudanese army.²⁴ In addition, South



Source: African Parks, UN Panel of Experts

Sudanese forces may also enter northern Uganda to poach. In 2012, a firefight between Sudanese poachers and Ugandan forces left a Ugandan soldier and wildlife ranger dead. The incident was blamed on Toposa tribesmen who often cross the border to graze their cattle and poach, but among recovered items were Kalashnikovs, bows and arrows, smoked buffalo meat, and, most tellingly, an SPLA uniform.²⁵

Elephants inside South Sudan are severely diminished from their historical numbers. There were as many as 130,000 elephants just 25 years ago,²⁶ but fewer than 5,000 remain today. Much of local wildlife was simply consumed by Southern armies and militias during the decades of civil war, but a small number of elephants have survived. A small population exists around Boma National Park in Jonglei State, but the majority are believed to be inside the sparsely populated and virtually intraversable swamplands of the Sudd or Bahr el Jebel that runs from



Source: F Grossman, WCS

central South Sudan to the Ugandan border. The Northern horsemen were unable to ride into the Sudd, but today these last elephant populations are still under severe threat. As early as 2012, Paul Elkan, a prominent conservationist in South Sudan was warning that South Sudan's last elephants could soon be dead within five years.²⁷ Today in 2014, insecurity and violence is significantly worse.

In mid-2013, fighting re-erupted around Boma National Park, when Murle rebels overran the area,²⁸ resulting in the destruction of local tourism facilities and the deaths of three wildlife rangers, two policemen, and the Boma National Park warden and senior Wildlife Ministry official, Brigadier Kolor Pino. The men were all executed, not by rebels but by SPLA soldiers, possibly due to Brig. Pino's Murle tribal ethnicity.²⁹ Meanwhile in the Sudd, renewed fighting in early 2014 has pushed communities into the wetlands. In Panyjar County along the Sudd, over half of houses were reported burnt down, and tens of thousands were reported displaced.³⁰ Many are now living on uninhabited islands inside the Sudd and are highly food insecure.³¹

Ultimately, however, it is unlikely the South Sudanese play a major role in continental ivory poaching except on an opportunistic basis, even if they are prolific bushmeat poachers.

South Sudan is simply too chaotic and too disconnected from international transportation centers for any commercial ivory trade to be profitable, while elephant densities in the region cannot justify large investments of poaching resources. Ivory routed to Juba from the northeastern DRC is just as likely to turn back south to Uganda and out to East Africa as to enter the North Sudanese trafficking channels.

The CAR Crisis, Seleka & the Anti-Balaka

Where Sudan was long the market and gateway for ivory, the Central African Republic has long been the source; a “reservoir of resources” from ivory to meat, diamonds, slaves, gold, and grazing land.³² In the 19th century between 3.3 and 3.4 million elephants were killed,³³ while a century later, in 1982 alone, 150 tons of ivory from an estimated 20,000 elephants were shipped out of Bangui in just the legal trade. Hunting in the CAR became so intense that of an estimated population of 80,000-100,000 elephants in 1976, numbers crashed to as low as 15,000 by the mid-1980s.³⁴ Today as few as 1,000 to 3,000 elephants are left in the CAR,³⁵ the vast majority concentrated in the Dzanga-Ndoki ecosystem in the southwestern corner near the border with the Republic of Congo. Roughly 200 elephants remain in the eastern Chinko region of the CAR.³⁶ These last pockets are under very real danger of extinction from the prevailing state of anarchy across much of the region, and from a variety of armed actors including, for a period, the Seleka and their Sudanese and Chadian allies, and today possibly the anti-balaka forces.

The central government in Bangui has never asserted control over CAR’s remote and under-populated hinterland, and there has always been raiding and strong competition for influence from neighboring countries, including Libya, Chad, and Sudan. As detailed earlier, in previous decades this allowed waves of Sudanese and Chadian poachers to decimate the country’s wildlife deep into the east and north of the country. More recently, the 2013 emergence of the Seleka, a loose collection of majority Muslim rebel factions emanating from the remote northeast, expanded the operating area for northern Sudanese poachers across the entire country. Seleka’s numbers quickly expanded to 20,000 by late 2013 as battlefield advances won them recruits, including Sudanese and Chadian poachers eager to share in the spoils.³⁷ Shortly after Seleka overthrew the government in March 2013, elephant poaching in Dzanga-Sangha was reported to be rising, with elephant meat “flooding” the local market at Bayanga, the main town by the reserve.³⁸ The local Bantu pygmy armed group in the region, the Front for the Liberation and Independence of the Sangha-Mbaere (FLISM) released a statement in April 2013 issuing a call to arms against “Sudanese and Chadian Islamist poachers” who they accused of killing their animals in large numbers.³⁹

The most famous incident involving the Seleka, however, occurred in May 2013. Eighteen Sudanese poachers armed with 18 Kalashnikov rifles entered Bayanga, and made their way to Dzanga Bai (the “Village of Elephants”) where mineral salt licks lead to large elephant congregations. The Sudanese poachers at Dzanga Bai appear to have come from the north and were hosted by the ruling Seleka colonel in Bayanga at the time. The next

CAMERA TRAP, EASTERN CAR



Source: Released to CAADS by the Chinko Project



Source: Maisha Consulting/C4ADS

in 2012.⁴⁰ Colonel Bahit, the replacement Seleka commander, helped prevent follow-on attacks; later in the year, Bahit's forces stopped another Sudanese gang and arrested their scouts, although the poachers themselves backtracked and escaped.⁴¹

More recently, however, the changing situation in the CAR has shifted the threat to Dzanga's elephants. As part of an ongoing Muslim exodus out of the CAR, Seleka forces, including those of Colonel Bahit, have retreated back to their original strongholds. On March 10th, 2014, anti-balaka forces, majority Christian militias who are among the worst perpetrators of violence in the CAR today, entered Bayanga for the first time to loot and burn down Muslim houses.⁴² Anti-balaka forces are still present in the Bayanga area as of March 27th,⁴³ reportedly recruiting, with no international troops or visibility on local conditions. Elephants are among the most valuable commodity in the area, and given the collapse of carefully cultivated protocols with the Seleka, there is a high likelihood of more killing.

In addition to the poaching by armed forces, there is a growing threat to regional wildlife from the huge numbers of displaced people being pushed into forests in proximity to elephant ranges. There are over 600,000 internally displaced persons scattered across the CAR and over 300,000 refugees in neighboring countries as of March 2014, primarily in northern Cameroon and the northern Republic of Congo.⁴⁴ Humanitarian funding is at a fraction of required levels, and most populations are highly food insecure.

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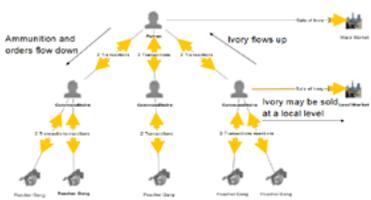
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DRC: Crime-Conflict Nexus & Wildlife Wars

Ivory is part of the conflict and criminal financing system in DRC. Any armed group operating in the vicinity of elephant ranges has strong incentives to engage in ivory poaching.

Ivory is one of many extractable commodities in the northern and eastern Democratic Republic of the Congo (DRC) that are closely intertwined with conflict and resource exploitation. Fifty years ago, more than 100,000 elephants roamed the DRC, but today fewer than 5,000 inhabit the equatorial forests and savannahs of the country.¹ Ivory is a traditional measure of wealth among local communities, but waves of conflict have decimated herds of elephants to a degree far beyond the demands of traditional use. It is estimated that up to 23 tons of ivory have exited just a single national park, the Okapi Faunal Reserve, over the past decade.² Much like gold, coltan, or any other conflict resource in the area, ivory's profits have funded and enabled military and militant operations. Ivory is portable, ideal for insurgents on the run in the bush, and it has a market value that ensures its attraction to high-level military and political criminal networks. The dynamics of sourcing ivory have led to deeply destabilizing alliances - in some cases, generals arming the very militants they are supposed to be fighting - in exchange for the provision of ivory.

**DOMINANT MODEL :
THE MILITARIZED DISTRIBUTOR**

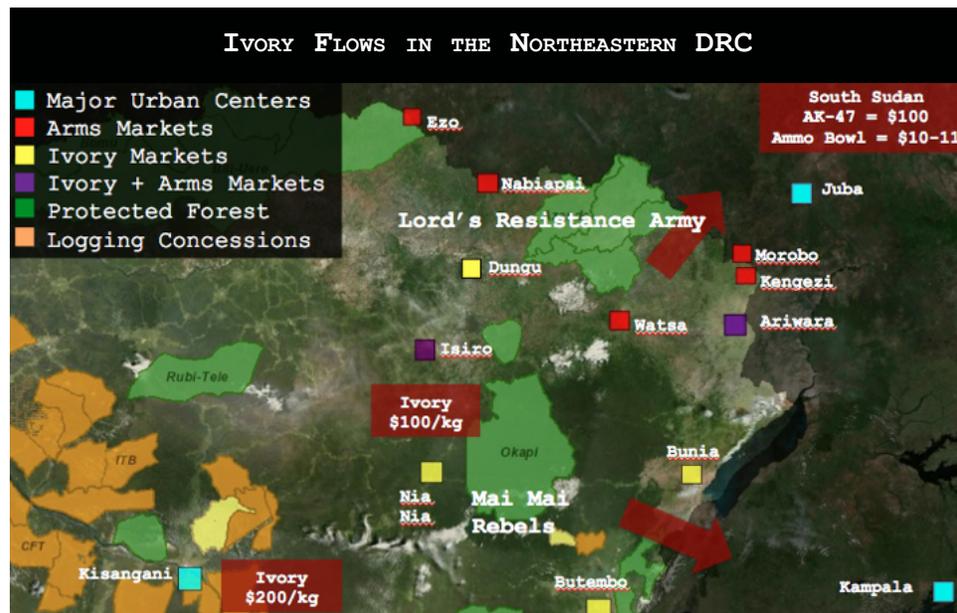


Palantir

The impunity for criminal and conflict actors, institutionalized ivory poaching, and trafficking networks, and wide availability of armed militias has engendered a highly militarized distributor model in the DRC. The role of the patron appears dominated by the military with poaching outsourced to bush militants and heavily armed criminal gangs.

There are six major protected areas with elephants in the DRC – Garamba National Park, Maïko National Park, Okapi Faunal Reserve, Salonga National Park, Lomami National Park, and Virunga National Park – nearly all of which have been areas prone to persistent low-intensity armed violence. Any criminal enterprise operating in the vicinity of an elephant range has a strong incentive to profit from this very lucrative trade, and armed groups are best organized and equipped to dominate local poaching. Ivory also has the beneficial quality of being fungible: it can be sold for profit at virtually any local market, but it can also be used by armed groups to barter for ammunition, equipment, or patronage.

Actual poaching of elephants is difficult to separate from conflict and broader trends of resource extraction. Natural resource exploitation is a major source of local employment and is bringing large numbers of people into resource-rich areas in the forests. However, few of the profits benefit local communities. Large criminal enterprises fueled by corruption and violence dominate extraction; these groups have little incentive to invest in forest communities, as they benefit from insecurity and the absence of the rule of law. Many have diversified into other illicit industries, holding funding portfolios that include poaching, logging, mining, smuggling, extortion, and outright looting. Thus in the DRC it is not useful to conceive of “poaching kingpins” as such, but rather as significant organized crime figures who support poaching as one of several profitable activities. Resource extraction is prominent among these activities, and buffer regions outside national parks are rife with il-



Source: Adapted by C4ADS from Author Interviews, Terese Hart and Small Arms Survey

legal extraction activities.³ Large-scale licit activities too are expanding rapidly, and recently granted oil exploration concessions in Virunga National Park cover 85% of its land area.⁴

Both licit and illicit resource extraction threaten elephants. Expanding transportation infrastructure, including informal roads and trails and the proliferation of cheap motorcycles, has cut deep into elephant habitats. These emerging dynamics have increased accessibility to elephant populations, following tremendous damage already done from decades of violence. Two consecutive civil wars have seen forests stripped to fund military activities, and in their wake, waves of armed groups and refugees have combed over what was left. Maïko National Park is very remote, and barely connected to transport networks, yet it was a major poaching hotspot during the civil wars throughout the 1990s, and is increasingly seeing gold mining operations along its buffer.⁵

Low-Intensity Wildlife Wars

Most elephants in the DRC are located in the northern and the eastern parts of the country, where insecurity and violence have historically been highest. The remote terrain coupled with the anarchic environment makes any comprehensive accounting of poaching impossible. Large swathes of land are protected as national parks or reserves, but these designations often exist only on paper. On the ground, rangers control small pockets of territory, defending it against a myriad of encroaching forces that include well-armed militias, organized poachers, undisciplined national armies, and illicit or artisanal miners. Even today, when security is significantly better than in the past, park rangers in Garamba National Park control only the southern third of the park, and certainly no more than 50% of the total area.⁶ The Lord's Resistance Army (LRA) controls much of the rest, with a free hand to poach. Virunga National Park along the border with Rwanda is similarly carved up amongst a number of armed groups that until recently included the M23 rebels, the FDLR (Forces Democratiques de Liberation de Rwanda, a remnant of Hutu militias from the Rwandan genocide), and segments of the ADF-NALU (Allied Democratic Forces-National Army for



Source: Adapted by C4ADS from ACLED 2014 data. Elephant park/range shapefiles from Protected Planet and AfESG's AED

the Liberation of Uganda, an insurgent group left over from the Idi Amin era, possibly linked to al-Shabaab in Somalia). In 2013 there was renewed insecurity across 90% of Kahuzi-Bienga National Park, which had only recently come back under the control of park staff after many years.⁷

The scale of damage done from decades of violence is difficult to overstate. By the end of 1999, all five of UNESCO World Heritage parks in the DRC were included on its list of World Heritage Sites in Danger. None has been delisted more than a decade later, and recent accounting shows devastating damage. In Garamba, the last aerial survey in 2012 estimated 1,600 elephants - 50% of a 2007 survey and 15% of the 11,000 elephants estimated in 1995.⁸ The situation is the same across other national parks, but poaching levels are very high even in some of the DRC's most remote forests. The Gangu forest, within the 60,000 km² Bili-Uere Reserve, lies north of the Uele River near the border with Central African Republic (CAR), and is extremely remote. It is far from areas of violence, has very low population density, and is unconnected to major transportation arteries or markets, including the commercial bushmeat trade. However, even here, elephant encounter rates fell by more than half between surveys in 2005 and 2013.⁹

Ranger forces, outgunned, outnumbered, and stretched to their limit, have effectively been forced to become soldiers due to limited, absent, or complicit state authorities. One hundred ninety rangers have been killed in the line of duty in the DRC in the last 15 years, a sizable proportion of the global total,¹⁰ and current levels of manpower and resources make achieving mandates impossible by any reasonable standard. Most parks straddle some of the world's largest, most rugged, and least accessible terrain, and rangers must cope with vastly inadequate numbers and equipment. Okapi, for example, in 2011 had 110 rangers¹¹ to cover roughly 1/5th of the Ituri forest, or about 13,720km², amounting to a force-to-space ratio of 0.008.

Even in fulfilling their core mandate of securing the parks against civilian poachers, rangers are confronted with tremendous obstacles. Rangers are poorly supplied and poorly taken care of; they receive \$125 per month, more than the average Congolese wage, but measured against a sizable risk of injury and death to a family's primary breadwinner. Most rangers will see combat. In Virunga, in early 2006, 64 of the 71 animals recorded killed were poached by the Congolese army, while in May 2008, of the 14 elephants recorded killed in a two-week period, 4 were killed by the FDLR rebels, 5 by the Congolese army, 3 by the local Mai Mai (local self defense militias common throughout the eastern DRC), and 2 by local poachers.¹²

Armed actors regroup in national parks and forests and frontlines often shift rapidly, forcing rangers into combat operations. In two days in August 2012, Virunga rangers repelled two separate attacks on their outposts from two separate rebel groups. FDLR rebels attacked a patrol post at Lulimbi that led to an hour-long gunfight that left



Source: Garamba National Park



Source: UNOCHA-Bunia

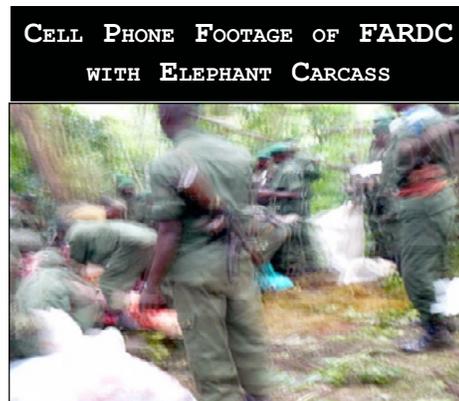
two rangers injured, while a Mai Mai militia attacked a post at Muramba before dawn but could not overrun the prepared defensive trenches.¹³ In addition to the FDLR, (who killed 11 rangers between January 2011 and August 2012), and the Mai Mai, the ADF-NALU also abducted 2 Virunga rangers in 2005, who have not been seen since.¹⁴ Virunga is an extreme example, located in the particularly violent eastern region near Rwanda, but even in parks further from the active warzones a variety of smaller armed actors flourish. Many prey on local communities and are able to easily intimidate conservationist efforts. In the Lomami National Park, the militia of Mai Mai Thoms forced conservationists out of the park in less than a month in 2013 and attacked agents of Congo's premier parks and conservation organization, the Institute Congolaise por la Conservation de la Nature (ICC), three times in order to gain poaching access.¹⁵

Basic attempts to patrol or enforce the writ of park authorities can be met with extreme retaliatory violence. In Garamba, the LRA arrived in October 2005 and occupied the northern sector, but once Ugandan operations, in cooperation with US Special Operations Forces, began to force them out in 2008, they retaliated, attacking Nagero park headquarters on January 2, 2009. This brutal attack killed 10 park employees and destroyed most of the rangers' equipment; in addition, the militants finished by abducting 3 local children before the Congolese army arrived.¹⁶ In the Okapi Reserve, the local Mai Mai rebels have actively maneuvered to force out conservation groups with intimidation tactics and outright assaults. On June 24, 2012, a mixed force of Mai Mai rebels from the Morgan and Simba groups attacked a ranger post at dawn with small arms and two .50 caliber machine guns. They quickly overran the headquarters at Epulu, killing and burning rangers alive, looting and raping, and then press-ganged 56 civilians to carry the loot from their conquest back to their base. Despite eventually releasing many of those captured in the incident, they are still holding at least 11 young girls in slavery.¹⁷ Before departing they also left an unequivocal message to the conservation community – they slaughtered all 14 penned and highly endangered okapi, whose numbers had been carefully nurtured over the years.

The FARDC

Many regional and international observers consider the Congolese Army, (known by its French acronym FARDC—Forces Armées de la République démocratique du Congo), to be the region's worst poacher. Even the usually conservative estimates from CITES attributed 75 percent of poaching in nine out of eleven DRC conservation sites to the FARDC.¹⁸ This is not surprising given the undisciplined, poorly trained, and rarely paid nature of the force. The force's disorganization has been exacerbated by the decision in the mid-2000's to integrate former rebel

militias into its ranks. The FARDC is often deployed into areas with high elephant populations, and often without rations, increasing poaching risk by their mere presence. An increased FARDC presence in a region has often coincided with human rights abuses and the less-recorded devastation of local wildlife and natural resources. FARDC soldiers have also been implicated in virtually all local extractive industries, including the illicit charcoal trade,¹⁹ mining, logging, and poaching, with vast criminal networks believed to be pervasive across the force.



Soldiers Slaughtering an Elephant for Bushmeat

Source: Terese Hart, Flickr

Poaching involving the FARDC most closely follows a distributor model, with patrons dis-

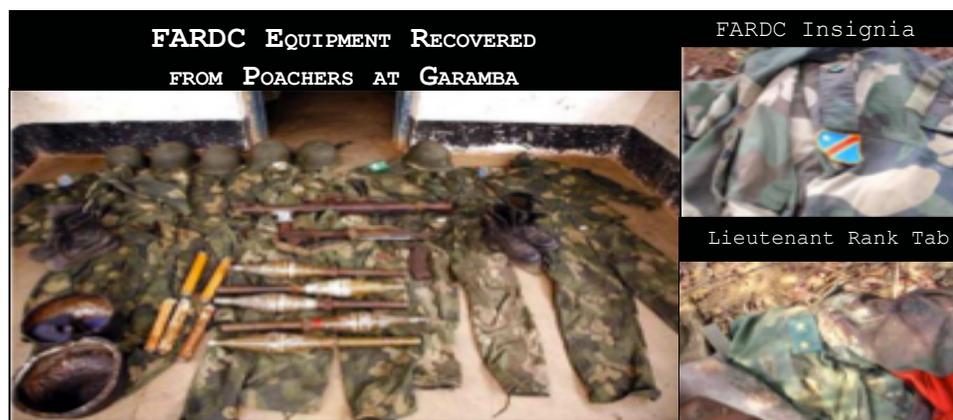
FARDC MILITARY DEPLOYMENTS AROUND NATIONAL PARKS

Reserve	FARDC Region	Commander	Local Areas
Garamba	9th Military Region (HQ Kisangani)	Brig. Gen. Jean-Claude Kifwa	Faradje Dungu
Okapi	9th Military Region (HQ Kisangani)	Brig. Gen. Jean-Claude Kifwa	Bunia Kagaba Bafwasende
Maïko	9th Military Region (HQ Kisangani)	Brig. Gen. Jean-Claude Kifwa	Lubutu Walikale
Salonga	3rd Military Region (HQ Mbakanda)	Brig. Gen. Philemon Yav	Boleko Monkoto Watsikengo
Virunga	8th Military Region (HQ Goma)	Maj Gen. Bahuma Ambamba	Rwindi Beni Butembo

Source: IISS, GlobalSecurity, UNESCO World Heritage List, News Sources

tributing weapons and ammunition to poachers in exchange for ivory or as a means of making up arrears in payment. Sometimes these arrangements parallel military chains of command; often, as discussed below, they directly undermine those structures. The FARDC is involved in poaching at both the individual and the institutional level. Individually, soldiers are often the primary source of small arms used to shoot elephants for food or ivory, but the military also dominates larger criminal poaching and trafficking networks. An investigation by ICCN estimated very large volumes of ivory moving out of the DRC's forests – 17 tons out of just Okapi in the last six months of 2004 – but also found that there were as few as 12 individuals who dominated the trade, all of whom were linked to the military or police.²⁰ Anecdotal information suggests links between the FARDC and poaching; even in very remote areas with small numbers of soldiers such as in Bili-Uere Reserve, the FARDC base at Bili was most likely the culprit for the severe decline in the local elephant population.²¹ Ivory consolidation and trafficking hubs also overlap with several FARDC positions. The city of Kisangani, the headquarters for the 9th Military Region, is most likely the command hub for most of the ivory exiting the Orientale region, but smaller garrisoned towns such as Bunia or Dungu are also trafficking way stations for cross-border movements.

Soldiers often poach out of necessity, and it is unlikely that the average Congolese army soldier makes anything more than pocket change from the trade. In fact, a sizable portion of military poaching at the hunting level is likely incentivized by the need for bushmeat; an



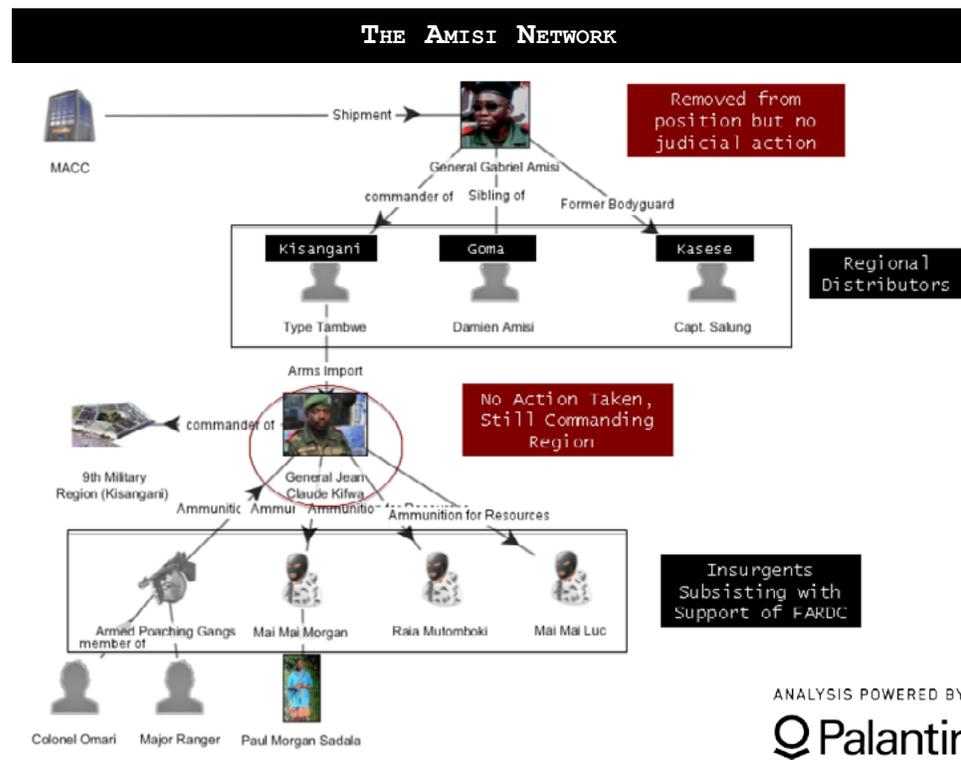
Source: African Parks, UN Panel of Experts

elephant can feed an entire small-unit formation. In 2010, the commander of the FARDC 15th Brigade deployed around Virunga admitted as much, pointing out that his troops would starve without recourse to poaching.²² An often-successful work-around has been for parks to provide rations to military contingents in exchange for assistance patrolling under the supervision of conservationists. In Virunga, this led to such a good working relationship that ICCN awarded then-Colonel Philemon Yav, commander of the 81st Integrated Brigade, a conservation award for his help.²³ Such engagement is important, but it is not entirely free of cost, whether in monetary or reputational terms – Yav helped arm the PARECO rebels.²⁴



Source: Terese Hart, Flickr

Of much more consequence than low-level poachers are the high-level military criminal networks that operate with impunity, looting resources and committing grave crimes against civilians. In late 2012, the UN Panel of Experts in the DRC disclosed a report on the “Amisi Network”, a large-scale military poaching and arms trafficking syndicate whose ultimate beneficiary was no less than General Gabriel Amisi, the Chief of Staff of the FARDC. A pyramidal structure with General Amisi at the top brought hunting ammunition into the country from the French-owned and ROC-based MACC cartridge factory, distributed it down the command chain, and then handed it out to violent insurgent groups in exchange for ivory and gold (in correspondence with the UN, MACC denied any illicit use of their ammunition). These insurgents included one of the Ituri’s most violent militias, the Mai Mai Morgan, (described in detail below). President Joseph Kabila fired General Amisi after the allegations, but he remains free, and still profits from the Omate



Source: UN Panel of Experts

MANUFACTURE D'ARMES ET CARTOUCHES CONGOLAISE (MACC)

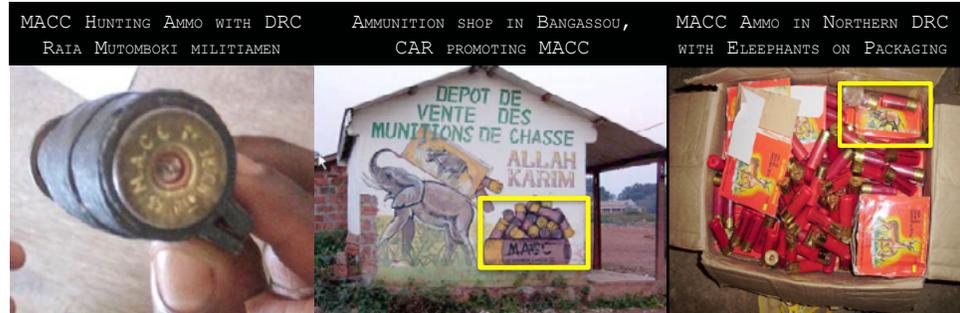
Established in 1963 in the Republic of Congo, based out of Pointe Noire, and likely run by the Laumond family, MACC is one of the most prolific suppliers of hunting ammunition across Central Africa. In 1987, the company recorded 27% in local sales and 73% in export sales while an investigation in the early 2000s by Karl Amman (Dale Peterson, *Eating Apes*) found a small factory that nonetheless shipped 10 million cartridges across a wide range from Gabon to Cameroon, the CAR and the DRC as far south as the border with Zambia. In 2012, MACC was identified as the supplier of ammunition to the "Amisi Network," an ivory poaching network in the DRC run by the Vice Commander of the Congolese Army. MACC ammunition was also found in the hands of militants to whom hunting was outsourced.

MACC insists it only produces 12-gauge ammunition for small game hunting, although its marketing clearly appears geared towards elephant hunting. More professional hunters generally prefer larger caliber .375 or .458 ammunition but in Central Africa, 12-gauge shotguns are also used for elephant hunting, with bullets often melted together and repackaged into the cartridge (Stiles, IUCN). Conservationists repeatedly cite MACC ammunition as a means for wildlife poaching.

Registration Information: M. Michel Laumond (Owner)

Entreprise	Federation	Activite	Responsable	Email	Ville	
M.A.C.C.	INDUSTRIE	Fabrication Cartouches	M. Michel LAUMOND	macc@macc.cg /macc@cg.celtelplus.com	Pointe-Noire	294.06.46/5

Source: Republic of Congo Business Registry



Source: UN Panel of Experts

Source: CITES

Source: Terese Hart, Flickr

gold mine, one of North Kivu's richest.²⁵ Others are similarly unscathed: General Jean Claude Kifwa, cousin of President Kabila and commander of the 9th Military Region-Kisangani, still retains his position despite having overseen the epicenter of the ivory trade. Morgan too is still at large despite having been arrested thrice, released after intervention by "FARDC officials in Kisangani."²⁶

The Mai Mai Militias: Morgan, Thomas & Simba

Across Orientale and Nord Kivu provinces, official peace since 2007 has not prevented a collection of scattered local militias from preying on local populations and exploiting resources. Mai Mai militias often serve in the distributor model as low-level poaching groups tied to an overall patron, to whom they supply ivory in exchange for materiel and freedom to operate. Mai Mai will also, at times, act more autonomously to poach elephants as opportunities present themselves. In Orientale and Nord Kivu, once among the least populated regions of DRC, recent human encroachment has been substantial, and satellite analysis over the past 20 years has shown that the regions adjacent



to the Okapi Reserve have undergone some of the most substantial deforestation in the entire country.²⁷ Ituri forests were frontlines during the civil war and rebel groups twice occupied the Okapi Faunal Reserve, in 1996 and 2002, while Mai Mai Simba rebels have lived inside southwestern Maïko National Park since the assassination of Patrice Lumumba in 1964.²⁸ In the years since, the region has grown into a major hub of regional natural resource exploitation, much of it controlled or co-opted by armed groups including local Mai Mai militias. Proximity to major transport infrastructure leading out of DRC likely means that ivory poaching in the Ituri and Kivu regions is more closely connected to Ugandan commercial ivory networks than those in Garamba, which seem to mainly service Sudanese trafficking channels.

Individual Mai Mai militias, particularly the Mai Mai Morgan, have distinguished themselves through extreme acts of violence against civilians. “Morgan”, whose real name is Paul Sadala, hails from the Bombo community in Ituri²⁹ and goes by the nicknames of “Ekasambaza” (“Keep the loot”) and “Chuck Norris.” Morgan has been poaching elephants in Ituri since 2005, but after 2007, when major fighting in Ituri began to die down, he has reconstituted himself as the leader of a prominent militia in the region connected to FARDC officials in Kisangani, Simba militants in Maïko, and regional gold and ivory traders. Morgan’s militia has been accused of poaching over 2,000 elephants, and it gained prominence when it merged with the Simba, forming the Mai Mai ‘Lumumba’ in a nod to Simba’s roots. However, this tenuous alliance has since soured and Mai Mai Morgan is today likely to number in the tens, and even at its peak likely never numbered over 100 people. Until recently it was organized into three groups: – one under Morgan’s personal command, and others under lieutenants Manu Mboko and “Jesus.” Jesus was killed in December 2013, when he shot himself in a failed attempt to demonstrate his magic.³⁰ As elephant herds have thinned, Morgan appears to have shifted his organization’s focus to local gold mines.

Morgan’s network has close links with senior FARDC officials and appears to have been an important provider for the “Amisi Network.” General Jean Claude Kifwa, commander of the 9th Military Region based out of Kisangani, supplied Morgan’s militias with arms and munitions from the MACC munitions factory in exchange for ivory. General Kifwa is reported to have deputed two of his men, Colonel Jean-Pierre Mulindilwa and Colonel Kakule Kayenga, to manage relationships with Morgan, which included supplying arms, ammunition, uniforms, and communications equipment as per evidence gathered by the UN Panel of Experts.³¹ This has been supported by arrest testimony of one of Morgan’s captured ex-fighters.³² Morgan’s militias may also have supplied other middlemen such as Muhindo Kasabere, a Congolese businessman identified by the UN Panel of Experts as a major financier of militias allied to Morgan.³³ There is no available evidence linking the Mai Mai Simba to elephant kills, but their control over Maïko and incorporation into Morgan’s network make such activity likely.

Despite three arrests, Morgan remains at large as of March 2014, suggesting deep collusion with FARDC authorities. During the Epulu attack in 2012, soldiers from the FARDC 908th Battalion showed up late, just after the militia had withdrawn, and even then only pursued them for 4 km before returning to loot the rest of the structure.³⁴ In January 2013, the police and military raided Morgan’s house in the Kabondo suburb of Kisangani and arrested several people, all of whom were soon released on the orders of FARDC officials from Kisangani.³⁵ An April 2013 visit to Bunia prison where Morgan’s supposed comrades had been imprisoned found only his victims behind bars; those unfortunate individuals press-ganged by his militia into forced labor or sexual slavery and then captured by government troops.³⁶ Despite this extreme impunity, Morgan’s militia is undoubtedly weakened from its peak. Notably, his alliance with the Simba broke down in acrimony; from having mounted joint attacks in 2012, by 2013, Simba militants were offering to hand over Morgan for payment.³⁷

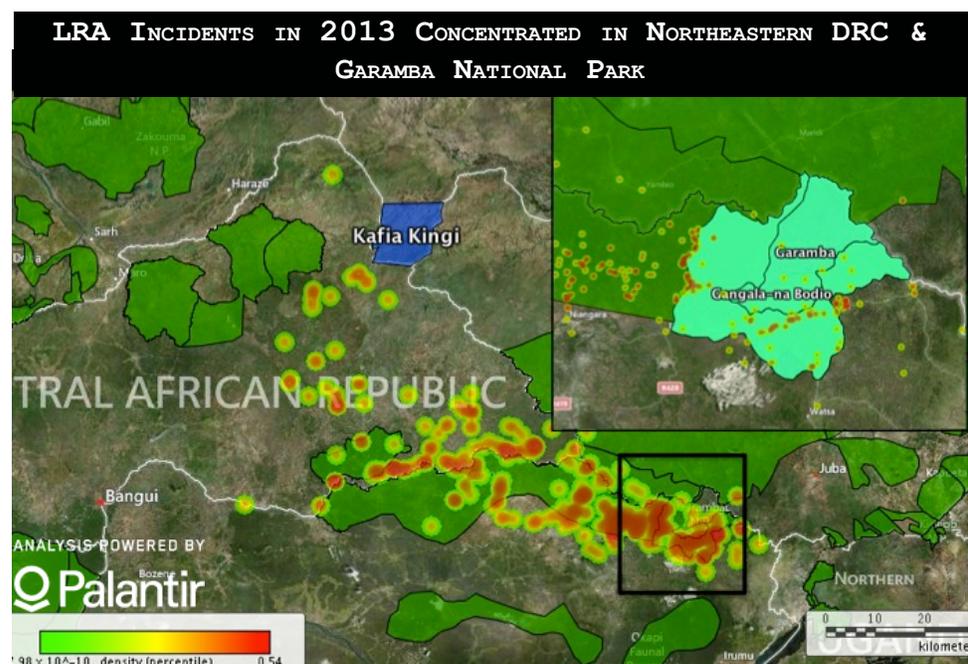
As elephants grow ever scarcer, Morgan may have shifted his attention to looting gold mines, but there are several other groups much like his. Southwest of Okapi, in the brand new Lomami National Park, a small population of elephants still exists in very remote for-

ests. There are few minerals in the region, and bushmeat and ivory are the primary resources available. In this area, the primary threat comes from a smaller but still very violent militia run by Thomas Mesandu, self-appointed “Colonel President” Thomas (alternately “Thoms”), a known major elephant poacher in the region. Mesandu is likely the same Thomas who escaped from prison after being having been arrested in 2007 for having led an attack that resulted in the mass rape of 114-135 women.³⁸ Thomas’ militias have mimicking Morgan’s brutality to intimidate conservation efforts. They beat one park worker to death in June 2013,³⁹ but Thomas has also tried a more nuanced approach. He is reaching out to local populations to leverage local discontent, in order to create legitimacy and operating space for his force.

The Lord’s Resistance Army

As a commodity, ivory is ideally suited to a small-scale insurgency pushed to the margins of state territory, such as the Lord’s Resistance Army (LRA), a rebel militia that began as a resistance movement to the Ugandan army but has since migrated into the DRC and the CAR, becoming very isolated in the process. The LRA has little access to markets and has no ability to build the infrastructure necessary for more complex natural resource exploitation. It has no legitimacy among the local population, is being pursued by Ugandan troops and US Special Operations advisors, and cannot readily enter into industries that require a stable, long-term presence. Ivory, however, presents a unique opportunity for the LRA since it is available and portable. Although the Sudanese likely do not direct LRA poaching operations, the two actors appear to be engaged in a classic distributor relationship, as ivory is bartered by the LRA for arms and ammunition with its patrons in the North Sudanese military. Sudanese soldiers are present near the LRA stronghold in Kafia Kingi, and as such LRA ivory likely flows into the same trafficking channels as that harvested by the Sudanese Arab tribes. Ivory then most likely either flows north to Khartoum and Port Sudan, or south to Eritrean or more likely Kenyan ports.

In mid-2011, according to defector testimony, Joseph Kony issued orders to hunt elephants and transport the ivory back to Kafia Kingi. This was reinforced in December 2013 by more testimony collected by Resolve and the Enough Project; according to one defector, “we had our orders: kill the elephants, and give the tusks to our commanders to give to Kony. Those orders are still standing.”⁴⁰ These dates coincide with testimony by Garamba Park man-



Source: Adapted by C4ADS from data provided by Invisible Children/Resolve. Elephant range from AfESG’s AED.

ager Luis Arranz in 2012 who noted that elephant poaching in the area was a new trend⁴¹ despite the LRA having entered the park as early as 2005. The LRA has been particularly active around and inside the Garamba ecosystem, including Garamba National Park and the surrounding hunting reserves of Azande, Gangala na Bodio, and Mondo Misa, which are home to one of northern DRC's last sizable elephant populations. The LRA has occupied the northern sectors of Garamba for years defending its stronghold against well-trained and equipped forces, even killing 8 Guatemalan Special Forces soldiers sent in by the UN on targeted anti-LRA operations in 2006.⁴² Park rangers, by contrast, as of 2011 struggled to maintain a force of 160 rangers armed with badly-deteriorating AK-47s which needed screws to stay together.

Kony's 2011 order and uptick in poaching coincides with a period in which the capability of the LRA as a fighting force was diminishing. LRA-related abductions and violence have also declined very significantly, down 64% and 94%, respectively, between 2011-2013 as compared to 2008-2010.⁴³ An account by Invisible Children/Resolve of LRA activities in 2013 recorded very serious losses, including the killing, defection, or capture of as much as 1/5th of the LRA's core Ugandan cadre and the deaths of several high-value leaders, including senior loyalist Binani Okumu. Okumu was the commander of LRA forces in DRC, and was believed to have been the point man for the LRA's ivory poaching operations in Garamba.⁴⁴ Today, the LRA is regarded as a severely weakened force that relies heavily on looting and ivory for its few funding opportunities.

Despite weakening, the LRA still maintains a firm foothold in Garamba. Park authorities are struggling to contain the poaching threat, and are barely able to maintain a presence on the fringes of the park around their headquarters at Nagero, certainly a far cry from the network of interior patrol posts and airstrips to the Sudanese border that would be needed to truly secure the reserve's elephant populations. Even as late as 2013, only a single permanent patrol post – PK15, 15km from the Nagero park HQ – existed in the interior of the park,⁴⁵ with rangers only able to maintain a persistent presence in the southern third of the park, between the Dungen and Garamba rivers.⁴⁶ Even survey flights have not extended to the Sudanese border,⁴⁷ although in 2011, two mixed patrols reached the South Sudanese border for the first time since 1997.⁴⁸

At least 65 elephant carcasses were recorded between January 2012 and October 2013, but only in the southern third of the park, where there is monitoring by rangers. Garamba Park authorities have recorded several firefights with LRA contingents, including the dismantling of a 100-man camp inside the southern sector.⁴⁹ In at least one incident in June 2012, rangers engaging in a firefight with the LRA overheard Acholi, a language of Northern Uganda, and upon returning the next day the rangers found elephant carcasses with the tusks missing.⁵⁰ Ugandan forces discovered at least one LRA ivory cache in February 2013,⁵¹ and in late 2012, Okumu was said to have travelled from Garamba to Kafia Kingi with as many as 38 tusks.⁵²

The LRA has also expanded its operational range. It first entered the CAR in 2008, at the time maintaining a logistical supply line to Kafia Kingi, but more recently has moved deeper into the eastern CAR where Seleka presence was weak or nonexistent. The LRA is believed to have reestablished contact with its former allies in the North Sudanese military, and established a base camp near the Sudanese army's Dafak military garrison in South Darfur state. Local conservationists from the eastern CAR point to specific instances where the LRA is known to have participated in elephant poaching or gold mine raiding,⁵³ while an informal bartering trade between the garrison and LRA camps, including wild game from the LRA for food, medicine, and ammunition from the Sudanese, has been reported.⁵⁴ With sanctuary reliant on Sudanese consent, and with the North Sudanese military already implicated in the trade, Kony's move to enter into providing ivory is likely to have been a simple choice. Local conservationists in the eastern CAR now point to concrete instances in the region where the LRA was involved in elephant poaching or gold mine raiding incidents; Given the LRA's links to the Sudanese military, it is likely ivory is handed off directly.

Foreign Armies: The Uganda People's Defense Force

The Uganda People's Defence Force (UPDF) left eastern DRC in 2011. Since then, there has only been one case where there was any evidence linking it to ivory poaching – the killing of 22 elephants at Garamba in March 2012. The elephants were shot on March 15th when one of the GPS-collared elephants stopped moving,⁵⁵ but all of the carcasses were not discovered until May 18th. At least 15 of the elephants were shot through the top of their skulls suggesting a trajectory from above the treeless and hillless terrain. Forensic evidence confirmed AK-47 assault rifles were used in the attack, and while multiple human tracks were found around the kill site, none were found leading away, suggesting an aerial extraction. On April 6th, during an aerial survey of the park in a Cessna 206, park staff observed a Ugandan military helicopter flying at about 500 feet above ground. As the Cessna approached, the helicopter turned abruptly northwest towards South Sudan. The same military helicopter was seen again four days later on April 10th just northeast of Nagero and can be identified from pictures as a Mi-8MTV5 (Mi-17MD) troop transport with tail registration AF-605. The aircraft was attached to anti-LRA operations based out of Nzara airbase in South Sudan. Ugandan authorities confirmed the aircraft was theirs but denied any involvement in ivory poaching.

While it is unlikely that the UPDF is a large scale institutional poacher in the DRC today, it played an important role in resource extraction during its long occupation of the eastern part of the country, and was involved in looting its natural wealth. Many of the old routes by which illicit resources were smuggled through the Upper West Nile still exist today⁵⁶ and the Ugandan capital of Kampala is well positioned as the primary regional trade and transportation hub. A large portion of trafficked Central African ivory is believed to pass through Uganda, much of it crossing from border towns like Ariwara in Orientale into trade hubs like Arua on the Ugandan side. It then travels down to Kampala to be containerized, and is then trafficked across the border into Kenya and on to ports such as Mombasa. Senior Ugandan business, military, and political officials have controlled these routes for years, and are alleged to earn a cut of the proceeds derived from illicit trade traveling along their respective routes. A Congolese businessman named in the UN report as part of the Amisi network was connected to a former UPDF Lt. Col. Dura Mawa Muhindo, now a local district council chairman who helped transport and protect ivory from the border to Kampala.⁵⁷



SAME HELICOPTER SEEN AT UGANDAN AIR BASE



ELEPHANT SKULLS SHOT FROM ABOVE AT GARAMBA PARK



Source: Garamba National Parks

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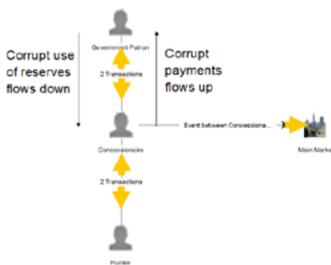
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Zimbabwe: Shadow Trade & Sanctions Evasion

Organized hunting and poaching is a means for ZANU-PF elites to earn scarce foreign currency and circumvent Western sanctions, while deepening business ties with East Asian businessmen and resource exploiters.

Zimbabwe's elephants are beginning to come under threat, although poaching levels appear currently low. There have been some alarming incidents in 2013, notably at Hwange National Park in mid-2013, where about 100 elephants were poisoned when industrial-grade cyanide was dumped into watering holes, and along elephant trails. Similar but smaller incidents have been reported across the country at Gonarezhou, Mana Pools, Zambezi, Charara, and Matsudona national parks.¹ Official government accounts admit to the poaching of at least 1,000 elephants between 2008 and 2012,² which could mask already heavy poaching in Zimbabwe's hinterlands. The truth is difficult to know with certainty; most census reports on Zimbabwean elephant populations are over a decade old.³ Meanwhile, conditions in Zimbabwe – poverty, land redistributions, corruption, and opaque elite ties to Chinese natural resource exploiters – are such that if organized poaching were to worsen, it would do so quickly and with little warning.

DOMINANT MODEL: THE LANDLORD



Palantir

Zimbabwean elites have a high level of influence over wildlife habitats through direct corporate ownership of hunting and safari concessions, but also through often violent coercion that extends even into national parks.

Smaller-level criminal networks are more prone to the distributor model; in the Hwange poisoning of 2013, nearly a ton of cyanide was indiscriminately distributed to villagers.

Estimates vary greatly, even between local sources, but compared to other areas in Africa, Zimbabwe appears to have a relatively healthy elephant population of anywhere between 35,000 to 80,000 elephants.⁴ The majority are concentrated in three areas. The Save Valley Conservancy (a collection of 24 unfenced wildlife reserves) hosts a substantial proportion of Zimbabwe's elephant populations as well as the majority of its rhinos, and along with Chiredzi and Gonarezhou National Parks, is located in the lowveld of Masvingo along the borders with Mozambique and South Africa. In Matabeleland North, along the borders with Botswana and Zambia, is the Hwange National Park – home to the largest Zimbabwean elephant population – while further north in the Zambezi Valley along the border with Zambia is the Mana Pools elephant ecosystem.

Much of Zimbabwe's success in recovering and maintaining a fairly healthy elephant population is owed to a combination of policy and geography. Elephant ranges transect a variety of land use areas. National parks are state-owned and protected, conservancies are privately owned game reserves, and CAMPFIRE hunting areas are community-managed, with revenues from hunting licenses distributed among the local communities. Until recently, Zimbabwe was a leader in conservation and sustainable hunting; CAMPFIRE made it a pioneer in community-based conservation, while until international sanctions hit in the early 2000s, it also had one of the continent's premier safari hunting industries. Moreover, much of the elephant habitat in Zimbabwe was located in areas on the periphery of state control. Local operators were traditionally in a position to control hunting in their areas and funnel profits back into their homesteads, a symbiotic relationship that protected wildlife.

Today, however, incentives are changing. Resettlements around conservancies are on the rise, as are land invasions by 'war veterans' that often result in violent slaughters of wildlife.⁵ CAMPFIRE disbursements to local communities have steadily declined, on the order of 75-80% since 2000.⁶ The hunting industry has suffered under current sanctions, while land seizures by powerful Mugabe regime elites have reached the wildlife conservancies. This appears less ideological than profit-driven: safari and game reserves are today one of the few remaining lucrative sources of income, whether through legitimate hunting operations or the illicit harvesting of elephant ivory.

A State of Impunity

Across Zimbabwe, economic operations on wildlife range areas are being seized by Zimbabwe's political-military elites, including several on the United States sanctions lists. A wave of land seizures since 2008 has coincided with an upsurge in poaching and over-hunting. Zimbabwe, while landlocked, is well connected to important trafficking centers in South Africa and Mozambique and has close economic and strategic ties to China. There are sizable Chinese investments and diasporas inside Zimbabwe, several air cargo routes, and close personal connections between Zimbabwean elites and Chinese natural resource exploiters. Altogether, they make for a worrying combination of incentives, threatening a turn away from traditional sustainable models of conservation towards short-term extraction.

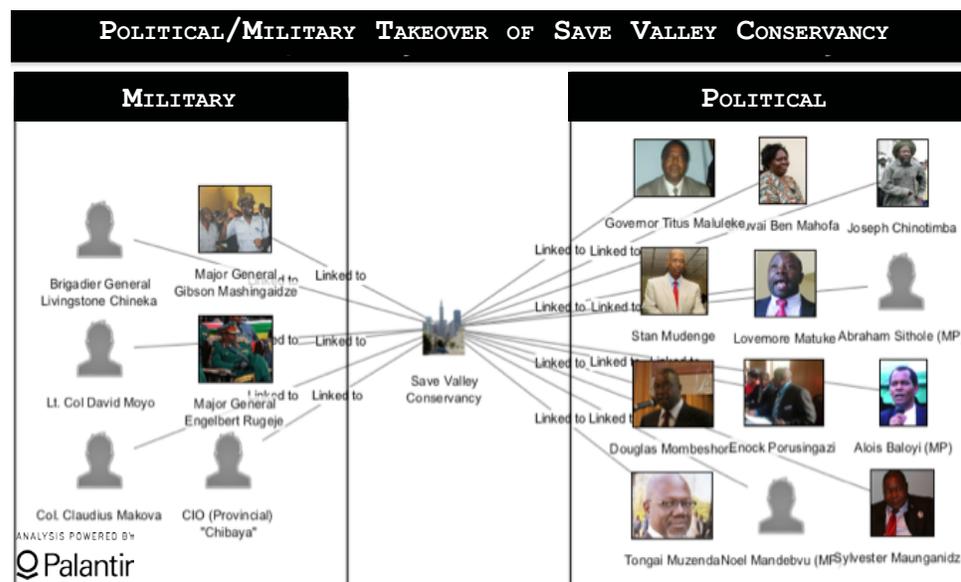
In modern Zimbabwe, a small coterie of Mugabe associates and cronies control nearly 40% of the 14 million hectares of land seized from farms and conservancies,⁷ which has long been a key component of Zimbabwe's patronage machine. While ostensibly aimed at providing poor Zimbabweans with land, in practice senior ZANU-PF officials have benefited the most from this redistribution and many now own multiple tracts of land. However, today many of these same politicians have run their existing landholdings into ruin. Some are now turning to the few remaining profitable safari hunting and tourism companies, a worrying trend given their histories of resource exploitation. The value of these conservancies in ecological terms is incalculable, but even in dollar terms they are significant: \$45 million in revenues was declared in 2013,⁸ which is a fraction of the value that can be captured by abusing hunting quotas or entering the illicit ivory trade. However, even if accurate, the figure represents an important lifeline of scarce foreign exchange as other opportunities have dried up under international sanctions.

Conditions have continued to worsen for the average Zimbabwean. The agricultural sector has traditionally been the backbone of Zimbabwe's economy, but it has never fully recovered from the productivity shocks of the country's land seizures in the last decade, despite putting more land under cultivation. One in three children in Zimbabwe today is malnourished,⁹ and bushmeat constitutes a significant part of many Zimbabweans' diets. Since 2009, the cash-strapped government has allowed elephant meat to be supplied to army barracks to feed hungry soldiers¹⁰ and civilian bushmeat poaching is reported to be similarly widespread.¹¹



Elephant Carcass on a Truck in Harare Suspected to have been Killed to Feed People Attending Independence Celebrations
Source: Johnny Rodrigues

Putting aside hunting motivated by survival needs, widespread poaching is also believed to persist, with powerful patrons creating an environment of impunity. Certainly, the current wave of land seizures is not particularly covert, and the lists of (forcibly imposed) "partners" and beneficiaries of safari companies, hunting concessions, and conservancies today read

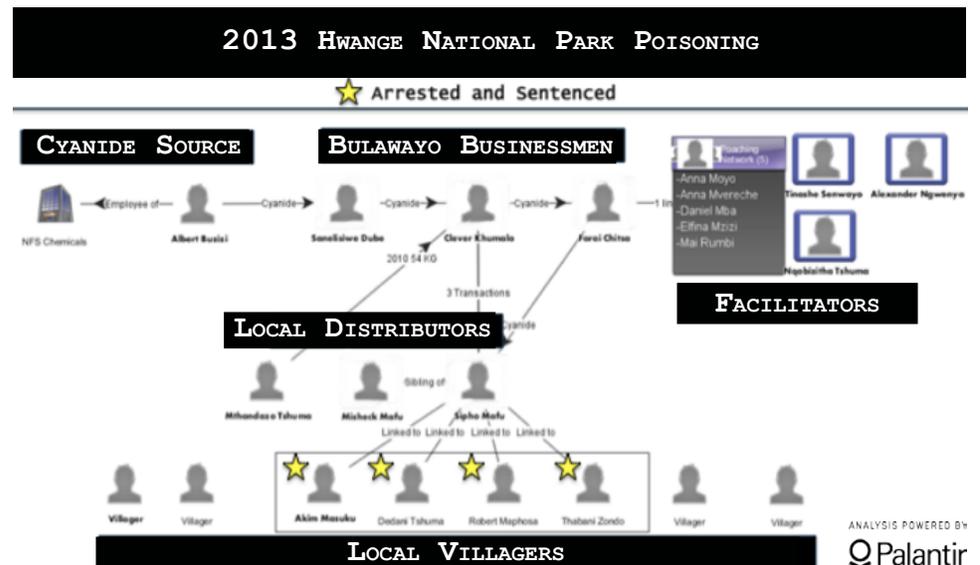


Names are collected from Zimbabwean and foreign reporting. Listing does not imply the violation of any law.

Source: C4ADS Open Source Collection

like a roll call of powerful state officials. This would not necessarily be a cause for concern by itself, were it not played out against a history of ZANU-PF officials plundering national resources for personal profit. Revenues accrued from the wildlife concessions being seized more often than not go straight into personal and foreign bank accounts, and not towards conservation. There is a wealth of anecdotal evidence of abuse on seized lands. Shuvai Mahofa, a former provincial MP is often accused in local newspapers of running hunting and commercial bushmeat operations on protected lands.¹² The general attitude, however, was perhaps best expressed by Masvingo Governor Titus Maluleke, another forcibly imposed beneficiary of Save Valley: “We are not interested in wildlife, we do not want to learn about the business. We want cash.”¹³

Zimbabwe’s elites are able to use their status to escape prosecution for wildlife-related offenses. A particularly notorious example came in July 2009, when a Chinese national was arrested at a police roadblock along the Hwange-Bulawayo Road coming from the direction of the Hwange National Park with six horns, still stained with blood. Upon interrogation, he implicated an unnamed businessman in Kwekwe, who in turn implicated two senior ZANU-PF officials – then-Defense Minister Emmerson Mnangagwa, now Minister of Justice, and a contender to replace Mugabe, and Webster Shamu, the former Minister of Publicity and Information – as leading members of a rhino horn syndicate that later was nicknamed the ‘Crocodile Gang.’¹⁴ The only reason the issue came to light was because a conscientious police officer dutifully logged the allegations in a police docket, which eventually made the news. At this point, the police docket vanished from Attorney General Johannes Tomana’s office, and the police superintendent in charge of the investigation was transferred to a remote rural post.¹⁵ In many ways the police inspector was lucky: Edwin Bhundani Nleya, a Zimbabwean Army Captain based in Hwange was hanged and murdered in 1989 after stumbling upon a military cartel smuggling rhino and elephant ivory,¹⁶ allegedly by then-Major and now Major General Douglas Nyikayaramba.¹⁷ This is hardly an isolated incident. A number of individuals involved in anti-poaching efforts were killed in suspicious circumstances during the 1990s,¹⁸ and intimidation remains widespread.



Names are collected from Zimbabwean and foreign reporting. Listing does not imply the violation of any law.
Source: C4ADS Open Source Collection

Zimbabwe’s police have lagged in prosecuting even low-level poachers. The Hwange cyanide incident in 2013 was unusual in that its visibility and scale garnered international attention, prompting Zimbabwean authorities to act, although so far only ordinary villagers at the bottom of the value chain have been sentenced, with even low-level distributors receiving acquittals despite being apprehended with ivory. For more ordinary poaching cases,

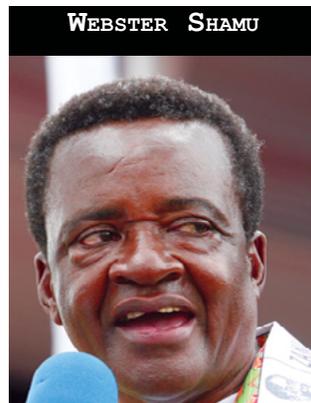
law enforcement remains weak – an assessment of 123 rhino poaching incidents between 2007 and April 2009 found that only 18 resulted in arrests, and of the individuals arrested in those incidents, less than 3% were actually convicted.¹⁹

The current wave of wildlife-related land seizures is centered around the Save Conservancy, home to 80% of Zimbabwe's rhinos²⁰ and the Gwayi conservancy, home to Zimbabwe's "Presidential Herd", and on the buffer of Hwange National Park. Since 2009, the move has accelerated. Under a new "wildlife-based land reform" policy, joint partnership arrangements have been imposed on operators in the Save Valley Conservancy, escalating the threat to one of Zimbabwe's most successful and ambitious conservation projects. Individuals with no connection to conservation or the local community, but with strong political connections, have been arbitrarily handed stakes. Few have shown any inclination to share in the cost of maintaining their new acquisitions, only in securing the revenues. Many have histories of exploitative business practices, muscling into firms, stripping them of all value, and moving on, which creates a high risk of systematic poaching on seized lands. It is unclear whether this is a centrally driven patronage scheme or the result of intra-ZANU-PF factional squabbles. None other than Mugabe himself has condemned the move, labeling it an overreach of authority and calling those who seized land "greedy,"²¹ but little has changed and in 2014, the process continues. There is some concrete evidence that poaching is already beginning: one ZANU-PF MP, Shuvai Mahofa, has already been implicated in poaching, with game meat turning up at a butcher's shop she owned, soon after she gained hunting rights to the Savuli Ranch in Save Valley Conservancy.²²

There may be further dispossession and consolidation ahead in Zimbabwe's wildlife areas, but even today the list of beneficiaries in the wildlife industries includes an array of the upper echelons of Zimbabwe's business, military, and political elites, as well as their family members. This list is far from comprehensive. Establishing direct links is often very complex as individuals attempt to disguise ownership through associates, family, and shell registrations. The list includes individuals from several different regions, backgrounds and political factions (within the ZANU-PF umbrella), but all share some glaring traits.

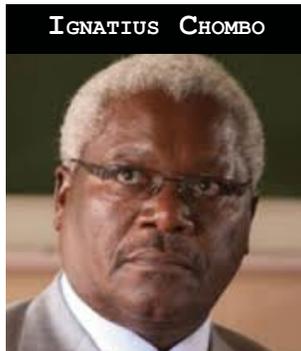
Few have any experience in conservation, wildlife, or tourism, but most have backgrounds of corruption and violence. Several are already on the US Specially Designated Nationals sanctions lists, although few of their wildlife-related assets have been designated. Several of these individuals were named to C4ADS by Zimbabwean sources. We have cross referenced these individuals to the best of our ability using public records, company websites, local and international media, and US sanctions lists. As previously stated, none of the following constitutes an allegation of current involvement in elephant or rhino poaching; rather, the goal is to increase transparency in Zimbabwe's land-ownership and wildlife-management sectors.

ZANU-PF Officials with Wildlife Interests



(*SDN Designated*), Minister of State for Policy Implementation, owns Famba Safaris (*SDN Designated*). Through these companies, he is alleged to control hunting concessions in Chirisa and Chete parks, while his wife Constance Tsomondo once ran a company named Bamakino Safaris.²³ Shamu was prominently named as a beneficiary of the "Crocodile Gang" rhino poaching scandal, although there has been no credible investigation.²⁴

(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



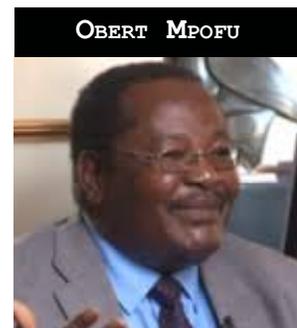
(SDN Designated), Minister of Local Government, Public Works and Urban Development owns hunting concessions and safari lodges in Hwange, Chiredzi, Magunje and Chirundu, as revealed during his divorce with wife Marian, when various Zimbabwean newspapers acquired the list of assets she filed with the High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



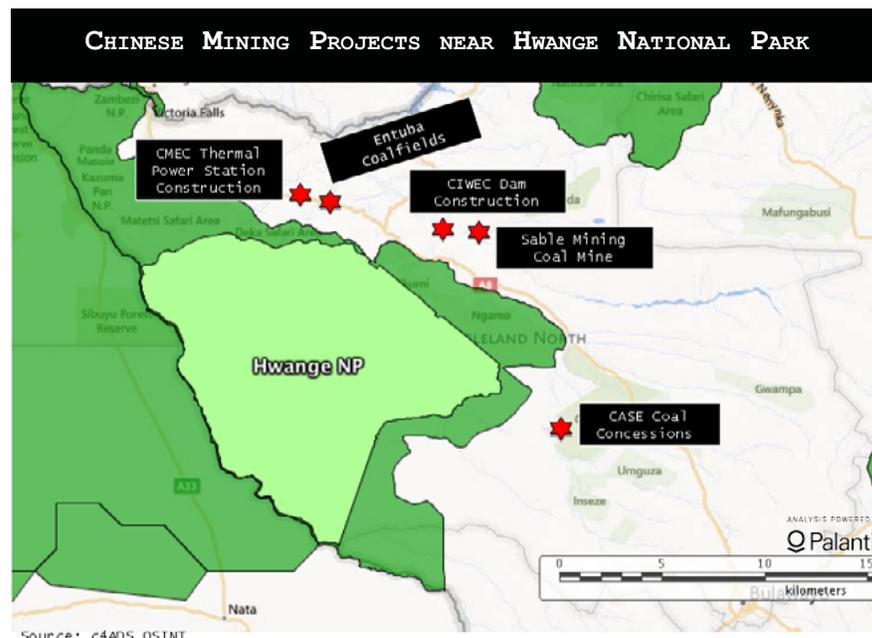
The Chinese Factor

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-



Source: News Media; Mining Contracts. Elephant range layer from AfESG's AED.

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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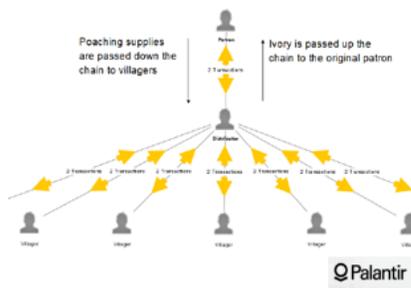
Kenya: Small Arms & Pastoral Conflict

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.

DOMINANT MODEL : THE DISTRIBUTOR

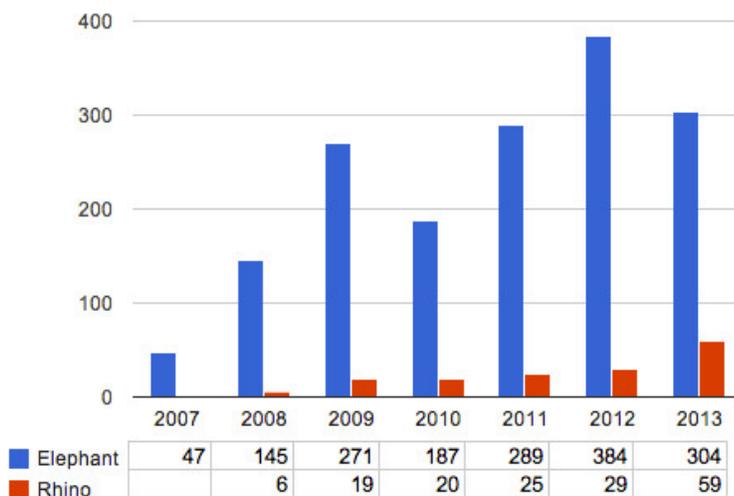


Palantir

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'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.

KENYA ELEPHANT AND RHINO POACHING CASUALTIES, 2007-2013



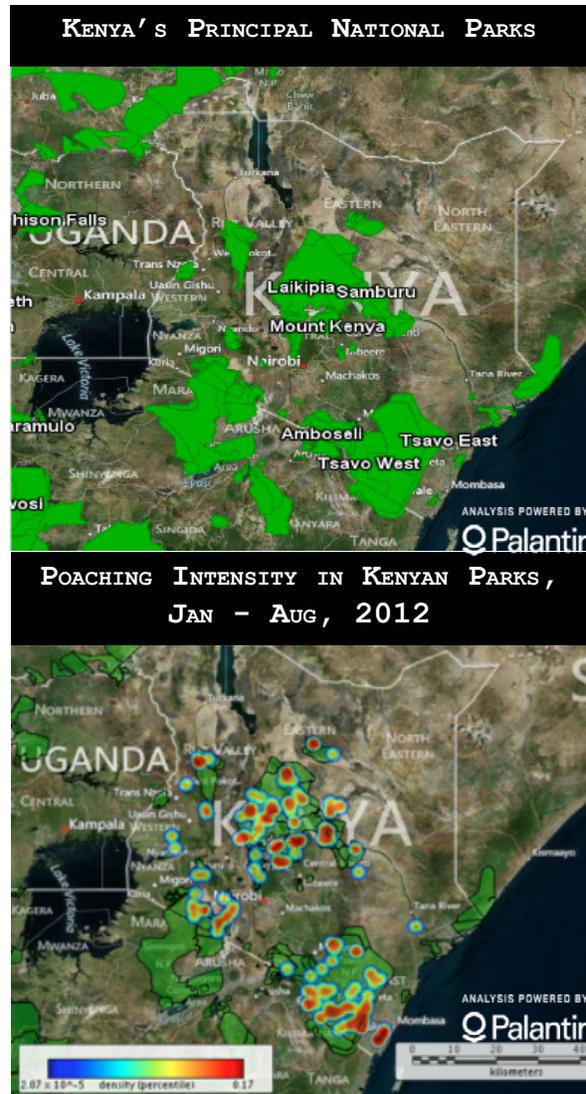
Source: Adapted by C4ADS from KWS Data

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 interviewed 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

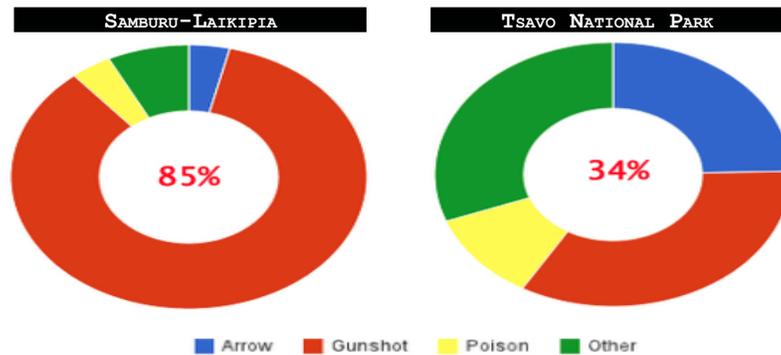
Small Arms Availability

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. Elephant range layer from AfESG's AED.

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

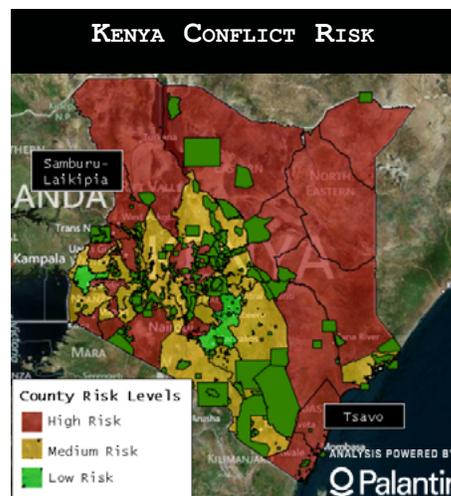


Kenyan Ordnance Factory Round Recovered in Laikipia Poaching Incident

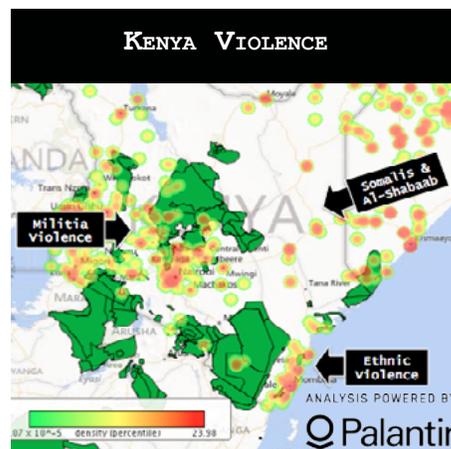
Source: Kibiwott Koross

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: ACLED conflict data; AfESG AED elephant range

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

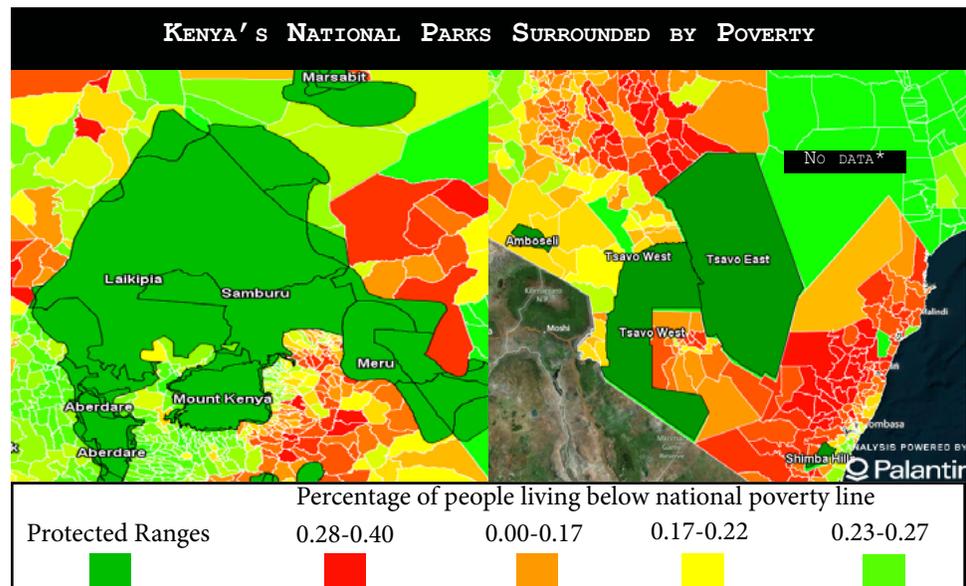
The converging forces of conflict, poverty, small arms proliferation, and marginalization are distorting local cultures and increasing poaching risk. Traditional Samburu culture for example reveres elephants but the *moran* (warrior) culture has changed dramatically under the stresses of the modern Kenyan 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

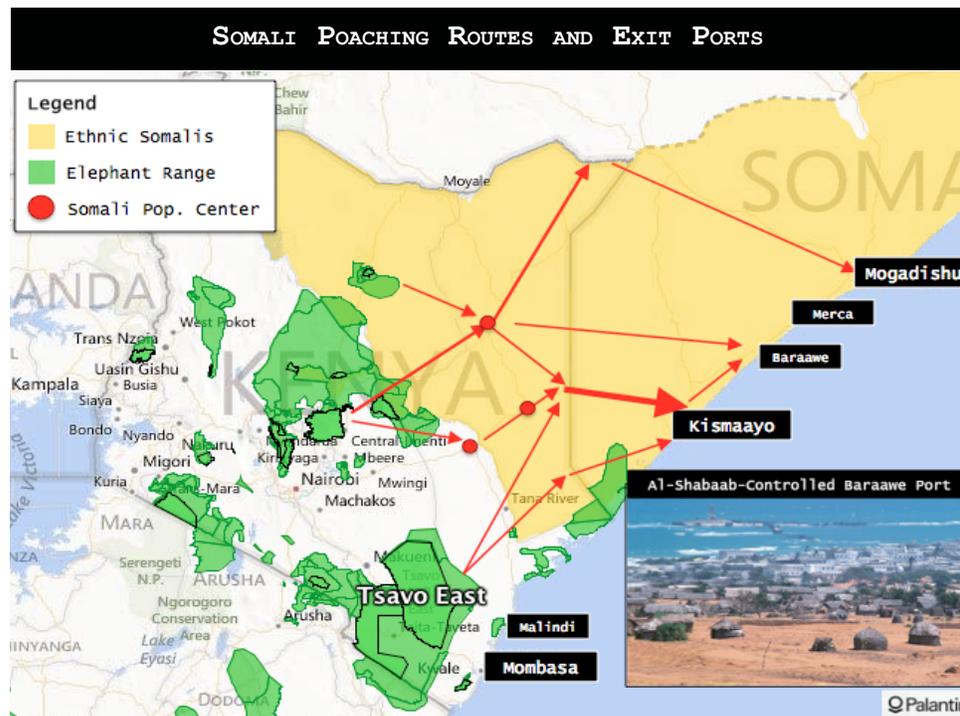
The Somalis & al-Shabaab

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. Elephant range layer from AfESG's AED.

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. Elephant range layer from AfESG's AED.

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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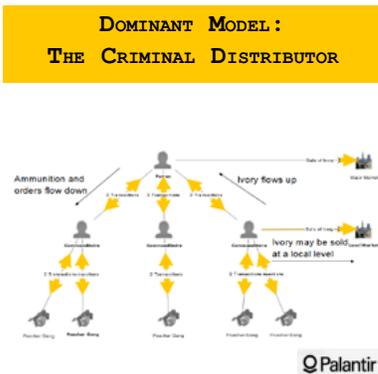
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Mozambique: The Power of Price & Porous Borders

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.

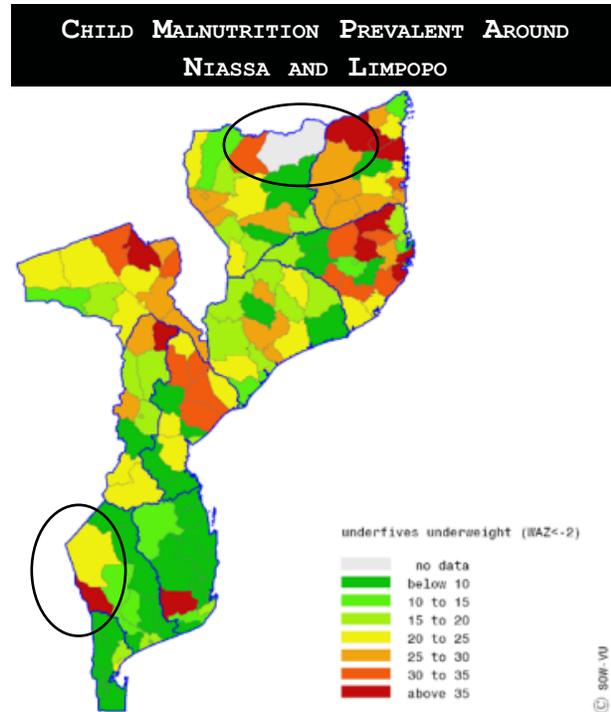
Poverty, Price & Organized Crime

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

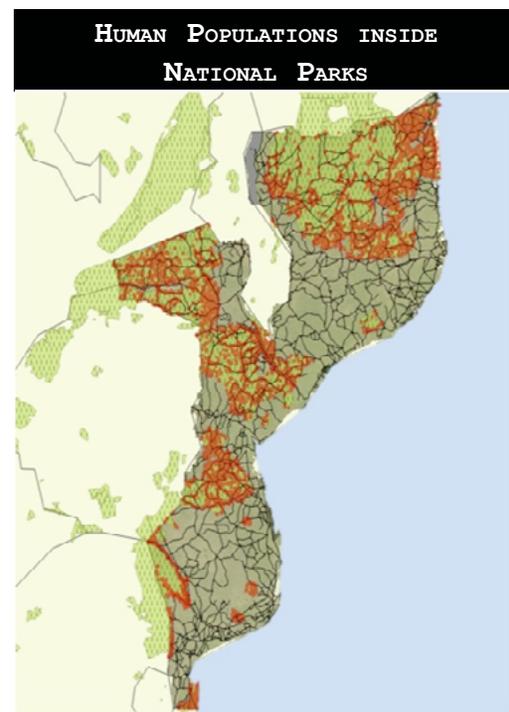
Source: O Pais, South Africa Environmental Ministry

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, Massingir 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 Shingedzi 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

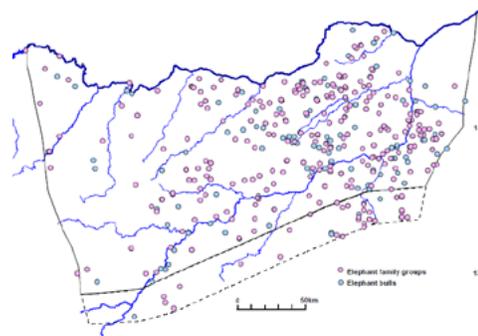
Poachers either stay in the bush for a few hours, conducting shallow hit and run operations from across the border, or spend days inside the parks trying to avoid patrolled and tourist areas. In either case, poachers generally make an immediate beeline back to the border after kills – in best-case scenarios 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.

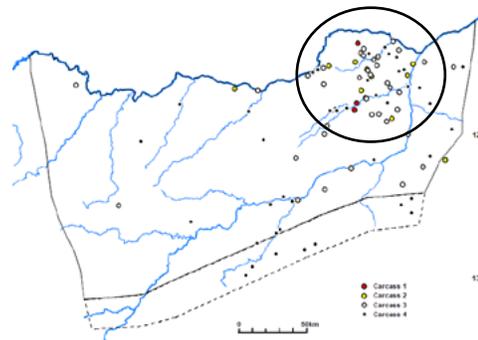
Although ivory seizures and poaching arrests in this region are few, open source research supports the Tanzanian link. Ivory from Niassa most often flows north along the length of the Ruvuma river. The best-established crossing routes are the Unity Bridge on the eastern edge of the reserve, and Unity 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.

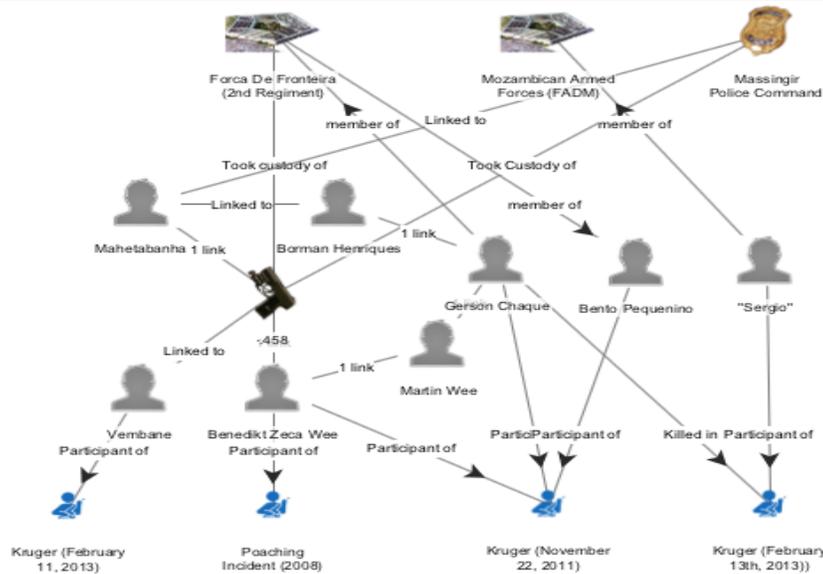
In the case of a 2010 massacre of 12 elephants near the Mbama village in Mecula district, the investigation led to police in Balama, who supplied the poachers with weapons.⁶⁴ Mozambique army uniforms have been discovered at poaching sites,⁶⁵ and in yet another report, a PRM district commander collaborated 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

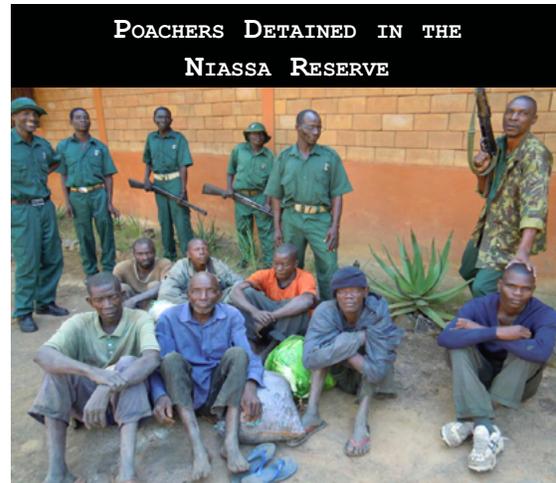
Complicity on the part of Mozambique’s elites is another worrying phenomenon. According to comments made by park rangers, within Niassa there exists a “special” zone near Mec-

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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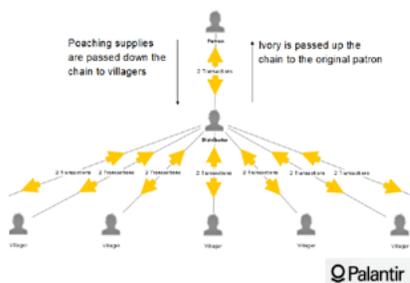
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TRIDOM: Mining, Forestry & the Chinese in Africa

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.

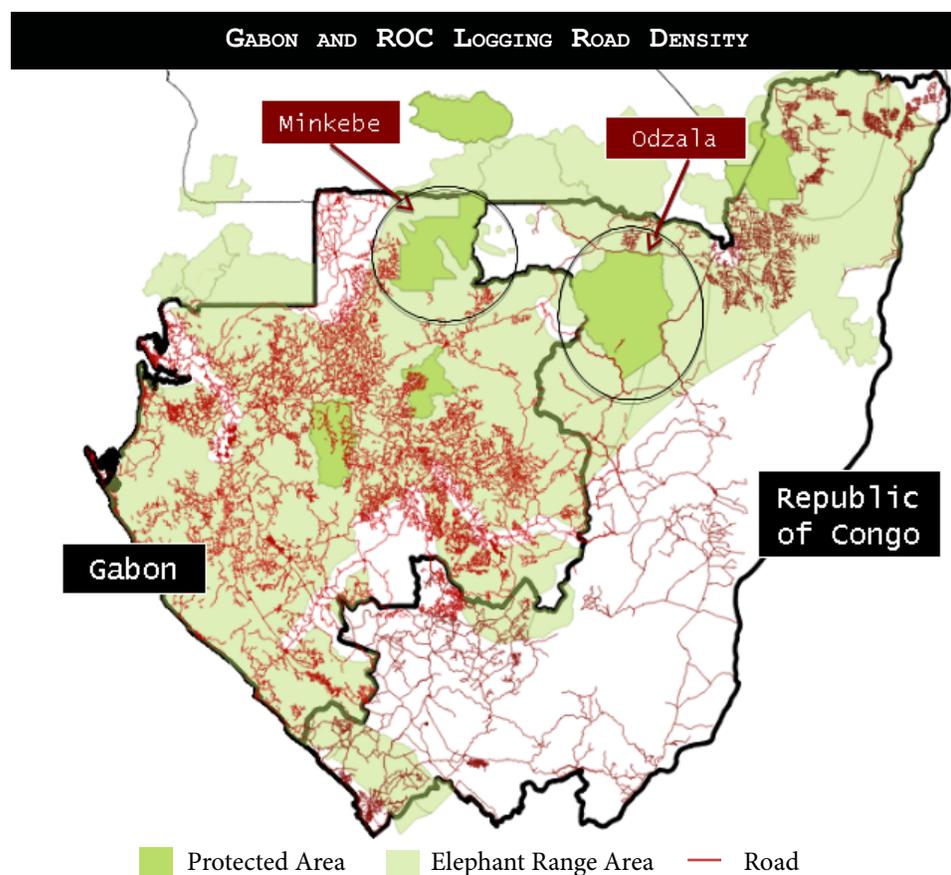
Gabon has taken serious steps to stem poaching, but it is unlikely to succeed on its own. President Bongo has used the substantial oil revenues at his disposal to increase the budget of the Gabon National Park Service from \$1 million in 2009 to \$18 million in 2013, and is raising a specialized 240-strong 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. Elephant range area from AfESG's AED.

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

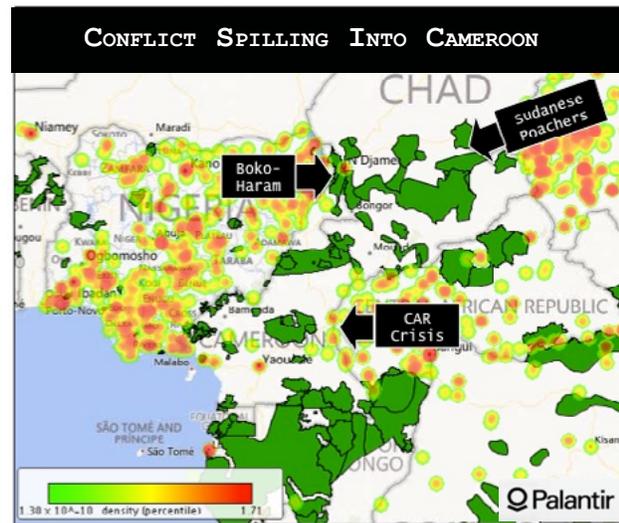


Source: Gustave Mbaza, WWF

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 and AfESG's AED.

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: Infrastructure analysis by C4ADS from Author Interviews. Elephant range layer from AfESG AED

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



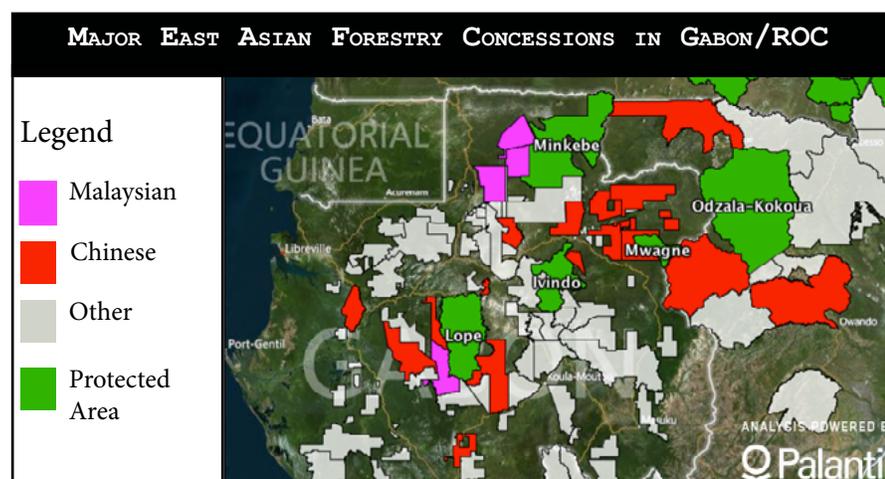
Source: African Parks

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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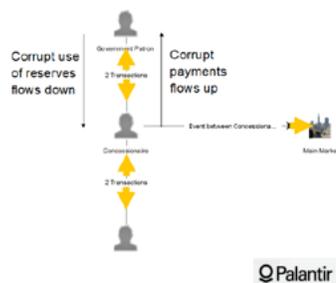
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Tanzania: Elite Capture of Wildlife Areas

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



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.

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



Syria was used as a transit country to ship chimpanzees from Kenya to Italy

Source: Karl Amman, Pax Animalis

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): AfESG African 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

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

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

* Elephant density calculated as number of elephants/range area using latest available site-level survey estimate information in AfESG's AED

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

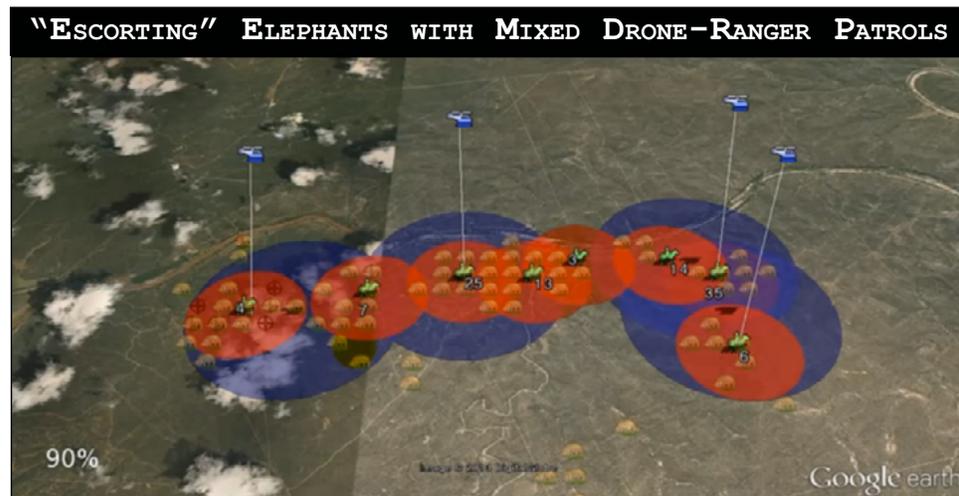
Based on our research, it will be extremely difficult to deter poachers, given the rising price of ivory against local purchasing power. Scale challenges make securing parks equally complex; many national parks are the size of smaller countries, and straddle some of the world's remotest and roughest 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 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.

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