

BENEFITS TO ELEPHANT FROM REGULATED HUNTING

The African elephant is listed as threatened under the Endangered Species Act. It is split-listed under the Convention on International Trade in Endangered Species (CITES). The populations of Botswana, Namibia, South Africa, and Zimbabwe were downlisted to CITES Appendix II with annotations allowing some trade under specific conditions including trade in legal, regulated hunting trophies. All other populations remain on Appendix I. Elephant populations are healthiest and most protected in the countries which incorporate regulated elephant hunting into their wildlife conservation systems because the legal hunting mitigates the primary threats facing the species: loss and fragmentation of habitat due to rapidly expanding human populations, ivory poaching, and retaliation/human-elephant conflict. Elephant do best in the countries that rely on regulated hunting, because the hunting¹ provides and secures habitat, reduces poaching, and improves rural community livelihoods thus increasing the communities' tolerance of conflicts with elephants and other species.

I. HABITAT AND POPULATION

Most of the world's elephant, and most of the world's elephant range, are in the countries that rely on regulated hunting to generate funding and other conservation incentives.

2016 Elephant Range and Population Estimates²

Country	Size of Country	Est. Elephant Range	% of Global Range	Elephant Est. (not incl. +/-)	% of Global Est.
Mozambique	801,590 km ²	320,402 km ²	10.2%	10,884	2.62%
Namibia	825,418 km ²	164,069 km ²	5.24%	22,754	5.48%
South Africa	2,345,410 km ²	30,651 km ²	0.98%	18,841	4.54%
Zambia	752,610 km ²	170,466 km ²	5.44%	21,967	5.29%
Zimbabwe	390,580 km ²	81,228 km ²	2.60%	82,630	19.9%
TOTAL	5,115,608 km²	766,816 km²	24.5%	157,076	37.8%
Tanzania	945,090 km ²	389,921 km ²	12.4%	50,433	12.1%
TOTAL W/ TANZANIA	606,0698 km²	1,156,737 km²	36.9%	207,509	50.0%
Botswana	600,370 km ²	228,073 km ²	7.28%	131,626	31.7%
Kenya	582,650 km ²	130,725 km ²	4.17%	22,809	5.49%
<i>Compare:</i>					
Central Africa		783,085 km ²	25.0%	24,119	5.81%
East Africa		880,648 km ²	28.1%	86,373	
S. Africa		1,325,998 km ²	42.3%	293,447	
West Africa		142,500 km ²	4.55%	11,489	
TOTALS AFESG 2016 REPORT		3,132,231 km²		415,428	

¹ As demonstrated here, the hunting generates funding and incentives that enhance the conservation of elephant.

² AfESG (2016).

II. LOW OFFTAKES, HIGH REVENUES

Elephant hunting quotas are set so as not to have a biologically significant impact on the species. Quotas are normally set between 0.3 and 0.5% of the total estimated population in a given area.³ Actual offtakes are even lower, and represent a quarter of a percent of the total population on average, or less. However, these low offtakes generate significant revenues used by national wildlife authorities for law enforcement and management activities, by hunting operators for anti-poaching patrols, and by rural communities for livelihood improvement projects such as construction of clinics and classrooms, digging of boreholes, and purchase of drought-relief food (among other things).

A. Utilization and Revenue from Elephant Trophy Fees

Country	Offtake Quota	Export Quota	Utilization (Year)	Fee Revenue (Year)
Mozambique ⁴	19 (2017)	19 (2017)		
Namibia ⁵		90 (2013)	69 (2013)	\$917,458 (2013)
South Africa ⁶		150 (2012)	33 (2012)	\$1,194,600 (2012)
Tanzania ⁷	100 (2014) 100 (2015) 100 (2016)	100 (2014) 100 (2015) 100 (2016)	7 (2014) 3 (2015) 0 (2016)	~\$1 million (avg. through 2014); ~2 million with other fees included*
Zambia ⁸	36 (2015) 30 (2016)	80 (2015) 80 (2016)	3 (2015) 12 (2016)	\$30,000 (2015) \$120,000 (2016)
Zimbabwe ⁹	297 (2014) 400 (2016)	500 (2014) 500 (2016)	169 (2014) 150 (2015) (est.)	\$3,486,650 (2014) \$1,676,950 (2015)

*For example, “out of a total of \$15,917,431 (2012/2013), nearly \$2.5 million was generated by elephant hunting”

Regulated hunting generates significant revenues for national wildlife management authorities, hunting operators, and rural communities. Elephant hunting was the source of most hunting revenue in Namibia, Zimbabwe, and Mozambique, and the fourth-highest generator of revenue in Tanzania, prior to the April 2014 suspension of elephant trophy imports by the U.S. Fish and Wildlife Service.¹⁰ These revenues go to anti-poaching and community investment.

B. Revenues from All Hunting and Government Expenditures on Anti-Poaching

As reflected in the chart below, regulated hunting generates revenues for government wildlife authorities that are largely invested in poaching control. Because commercial ivory poaching seriously threatens the global elephant population, every dollar spent on poaching control and law enforcement directly benefits

³ E.g., PWMA (July 20, 2015).

⁴ CITES Export Quotas, <https://cites.org/eng/resources/quotas/index.php>.

⁵ Naidoo et al. (Jan. 8, 2016).

⁶ DiMinin et al. (Jan. 2016).

⁷ MNRT/WD (Jan. 21, 2015); MNRT (Nov. 2016).

⁸ DNPW (2015); DNPW (Mar. 31, 2017).

⁹ PWMA (July 20, 2015); PWMA (Oct. 2016); CAMPFIRE Association (2016).

¹⁰ Lindsay et al. (2012).

the elephant. Poaching is best controlled (lowest numbers of elephant poached) in the Southern African countries that rely on regulated hunting in their enforcement strategy.

Government Hunting Revenues and Enforcement Expenditures

Country	Hunting Fee Revenues (Year)	Government Law Enforcement Expenditures
Mozambique ¹¹	\$1,403,594 (2013) \$1,174,531 (2014) \$1,377,531 (2015; 2014 USD)	Comparable to hunting revenues (100% used for game scout costs and equipment) (2013-2015)
Namibia ¹²	Conservancies: \$3,500,000 (average) Ministry: \$930,000 for park concessions (average) Game Products Trust Fund: \$2,411,423 (2013-Aug. 2016)	Ministry: \$6,748,000 (2013) 8,435,000 (2014) \$12,652,500 + \$8,013,250 (2015 + mid-term budget) GPTF: \$3,367,796 (2012-Aug. 2016)
Tanzania ¹³	\$15,062,219 (2011/2012) \$15,917,431 (2012/2013) (+ 5.4%) \$16,723,425 (2013/2014) (+ 4.8%) \$16,277,373 (2014/2015) (- 2.7%) \$12,971,815 (2015/2016) (- 25.5%)	> \$ 7 million (2012/2013) > \$ 7 million (2013/2014) \$6.8 million (2014/2015)*
Zambia ¹⁴	\$5.24 million (2012)** \$937,552 (2013 – moratorium) \$717,705 (2014 – moratorium) \$2,608,728 (2015; 2014 exchange rate)	Enforcement: \$1.2 million (2013); \$788,000 (2013); \$1.1 million (2014); \$4.3 million (2015) (budgeted) Staff Salaries and Training: 11.0 million (2013); \$10.4 million (2014); \$18.9 million (2015; 2014 exchange rate)
Zimbabwe ¹⁵	\$5,144,579 (2012) \$5,760,339 (2013) \$5,072,493 (2014) \$3,256,698 (2015)	Enforcement in Safari Areas: \$3,164,642 (2014) Staff Salaries: \$17.6 million (2014) Over \$17 million budgeted for staff costs, equipment, rations, fuel, vehicles, and communication (2015)***

* Anti-poaching/law enforcement typically consumes 70% of the wildlife authority's budget; ~80% of these funds come from regulated hunting

** From 2010 to 2012, prior to the national moratorium, hunting fees made up approx. 32% of the wildlife authority's revenues

*** From 2010 to 2015, hunting fees made up 20-22% of the wildlife authority's revenues (these fees are lower than other countries because, under Zimbabwean law, communal and private landholders purposefully receive 100% of the trophy fees rather than the national wildlife authority); almost 70% of the wildlife authority's budget is directed to staff costs

¹¹ ANAC (Nov. 28, 2016).

¹² Ndokosho (Nov. 8-13, 2015); GPTF (Sept. 2016).

¹³ United Republic of Tanzania (Nov. 2015); TAWA et al. (June 2016, updated June 2017).

¹⁴ ZAWA (Nov. 8-13, 2015); DNPW (May 2016); ZAWA (2015).

¹⁵ PWMA (July 20, 2015); PWMA (Oct. 2016).

C. Anti-Poaching Success

The CITES “Monitoring the Illegal Killing of Elephant” (MIKE) program collects data on elephant mortalities and the causes of death to advise range states on appropriate management and enforcement decisions. MIKE evaluates relative poaching levels based on the “Proportion of Illegally Killed Elephant” (PIKE), which is calculated as the number of illegally killed elephants observed divided by the total number of elephant carcasses. A PIKE value of 0.5 or above implies that more elephant die from illegal killing than from natural causes,¹⁶ which implies a declining elephant population.

The PIKE value in Southern Africa has never exceeded the 0.5 sustainability threshold, and the PIKE value in East Africa has been under 0.5 since 2013, when Tanzania realized the extent of poaching in that country and implemented extensive anti-poaching measures. This data indicates that the countries that rely upon regulated hunting to generate anti-poaching and conservation incentives are more successful in poaching control than the countries that do not utilize hunting as a conservation tool.¹⁷

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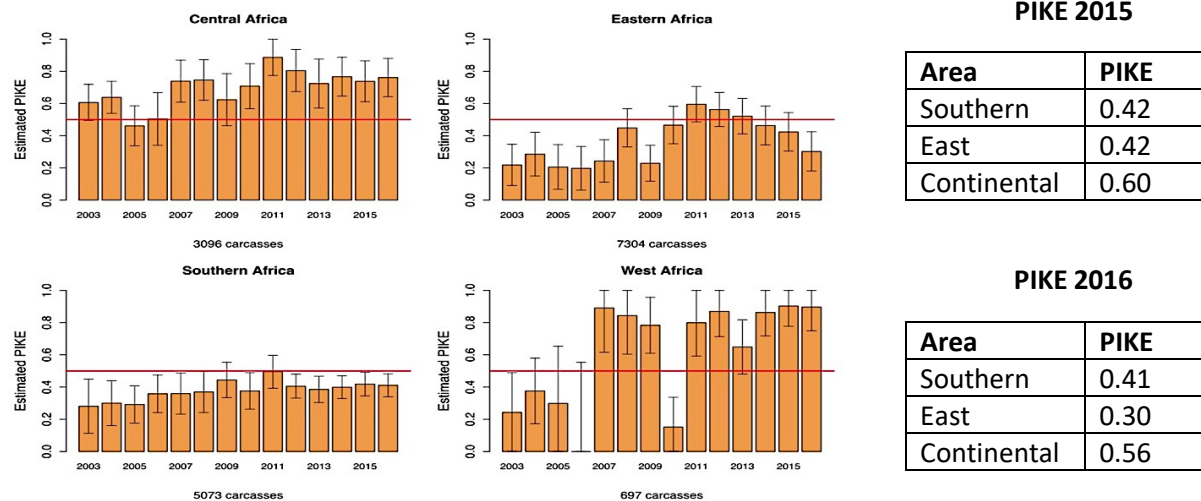


Figure 2. Sub-regional PIKE trends with annual 90 % confidence intervals. The numbers of carcasses on which the graphs are based are shown at the bottom of each graph.

III. OPERATOR ANTI-POACHING CONTRIBUTIONS

The occupancy and surveillance of hunting operators and clients deters poaching, but operators provide more than those benefits. They employ, equip, and deploy game scout teams, putting boots on the ground that reduce poaching. They also donate vehicles, petrol, food, and supplies to government scouts. These contributions increase national enforcement capacity and reach.¹⁹

¹⁶ CITES/Monitoring the Illegal Killing of Elephants (MIKE), <https://cites.org/eng/prog/mike>. It must be noted that PIKE is independent of enforcement efforts at a given site and does not account for the elephant population size in that site.

¹⁷ PIKE in Mozambique has exceeded the sustainability threshold; however, Mozambique has implemented poaching control measures to reduce this proportion. ANAC (2016); ANAC (2017).

¹⁸ CITES Secretariat (Nov. 2017).

¹⁹ E.g., MNRT/WD (Jan. 21, 2015) (noting that anti-poaching contributions of hunting operators reduce government anti-poaching costs); PWMA (Oct. 2016).

Annual Operator Anti-Poaching Expenditures (in addition to government fees paid)

Country	Op. Sample Size (Concession Area)	Total (Year)	Est. Average Annual
Mozambique ²⁰	13	\$1,222,500 (2013-2015)	\$93,846
Tanzania ²¹	13 parent companies, 27 subsidiaries (121,423 km ²)	\$1,683,263 (2013) \$2,724,114 (2014) \$2,309,779 (2015)	\$62,343 (2013) \$100,893 (2014) \$85,547 (2015)
Zambia ²²	4 (10,028 km ²)	\$201,900 (2015)	\$50,475
Zimbabwe ²³	15 (28,729 km ²)	\$1,319,562 (2015)*	\$87,971 (2015)

* Does not include salaries of \$3,601,439 (\$211,849), of which approximately 26% are enforcement staff.

IV. RURAL COMMUNITY PARTICIPATION AND INCENTIVES

Regulated hunting is critical to reducing human encroachment into protected areas and human-elephant conflict and retaliatory killing. Income, participation in decision-making and quota-setting, employment, meat distributions, and other incentives from regulated hunting offset the costs to rural people of living side-by-side with elephant.

A. Scope of Human-Elephant Conflict

Poor rural communities suffer frequent crop destruction, personal injuries, and deaths from elephant, especially during harvest season. They cannot afford such losses. In Namibia's communal conservancies in 2016, there were approximately 775 elephant conflict incidents reported in the Zambezi, Kunene, and Erongo regions.²⁴ In Zambia, from 2012 to 2014 the wildlife authority received over 5,440 reports of crop or property damage and human injury caused by elephant. Twenty-five people were killed.²⁵

In Tanzania, from 2015 through September 2016, 27 people were killed by elephants and over 18,600 acres of crops were damaged or destroyed. The government paid over TZS 248,450,000 (approx. \$109,824) in consolation payment in accordance with the provisions of the Wildlife Conservation (Dangerous Animals Damage Consolation) Regulations of 2011.²⁶

In 2015, Zimbabwe's wildlife authority received 216 reports of elephant crop raiding or threats to human life. Four people were killed and five were injured. This was the highest number of reports for any species, including crocodile; the number of people killed/injured was the highest for any species except crocodile.²⁷ In CAMPFIRE Areas specifically, an estimated 50 people were killed, and more than 7,000 hectares of crops were destroyed by elephants between 2010 and 2015 in ten districts alone. The financial loss of the crops could be as high as \$1 million.²⁸

²⁰ ANAC (Jan. 2017).

²¹ Conservation Force (2016).

²² Conservation Force (2017).

²³ PWMA (Oct. 2016).

²⁴ NACSO (2016).

²⁵ ZAWA (2015).

²⁶ MNRT (Nov. 2016).

²⁷ PWMA (Oct. 2016).

²⁸ CAMPFIRE Association (Nov. 21, 2017).

B. Offsetting Benefits from Regulated Hunting

Those injuries and losses are offset by significant revenues. Communities benefit the most from elephant hunts, which generate the most revenue of any species in Zimbabwe and Namibia—countries with the strongest communal wildlife management programs. In both countries, the full trophy fees go directly to rural residents rather than the government wildlife authority. Every dollar can improve local livelihoods and increase tolerance of elephant conflicts.²⁹

In 2014, most elephant were hunted in Zimbabwe's CAMPFIRE Areas: 55 compared to 49 in government Safari Areas and 19 in private conservancies.³⁰ Sixty to 70% of CAMPFIRE revenue is generated by elephant hunts. (The percentage was higher before the U.S. Fish and Wildlife Service suspension of elephant trophy imports from Zimbabwe in April 2014.)³¹

In the period from 2010 to 2015, elephant trophy fees generated \$7.13 million for CAMPFIRE, 64% of all revenues (averaging \$1.19 million per year). The revenues are used for law enforcement, administration and governance, and to support a variety of social services that benefit approximately 20% of Zimbabwe's population. Over ~800,000 households benefit from CAMPFIRE: ~200,000 directly and ~600,000 through social service benefits. Further, due to the incentives from legal, regulated hunting, illegal ivory poaching in CAMPFIRE Areas is low. Only 38 elephants were poached across the almost 50,000 km² of CAMPFIRE Areas from 2016 to late November 2017.³²

Similarly, 54.9% of the hunting revenues in Namibia's communal conservancies come from elephant hunts alone (\$917,458 in trophy fees). The conservancies secure otherwise unprotected habitat across 165,000 km² and benefit more than 195,000 people. Most of the conservancies depend on regulated hunting to fund operations. Hunting generated N\$ 43 million (approx. \$3,627,050) in fee revenues in 2016; hunted game meat valued at N\$ 10.5 million (approx. \$883,145) was distributed to conservancy residents; and more than 300 people were employed in the 55 conservation hunting concessions.³³ All elephant hunted in Namibia benefit rural residents: the hunting is located in communal conservancies or areas or proceeds from the hunting go back to the resident communities by agreement with the wildlife authority. Hunting revenues were approximately \$3.1 million in 2016 and made up over 60% of the income to conservancies, thereby allowing the conservancies to employ game guards, maintain vehicles, respond to conflicts, and invest in community development activities. Elephant hunts represented approximately 60% of hunting revenues and provided massive amounts of game meat to conservancy residents.³⁴

Before the U.S. suspension of elephant trophy imports from Tanzania, elephant hunts were also important to Tanzania's communal Wildlife Management Areas (WMAs), because by law, a client had to book a 21-

²⁹ Conservation Force, http://docs.wixstatic.com/ugd/87ac64_28ba0201d42f4a9989dd44155c27a5c2.pdf.

³⁰ PWMA (July 20, 2015).

³¹ PWMA (Oct. 2016).

³² PWMA (Oct. 2016); CAMPFIRE Association (Nov. 21, 2017).

³³ Naidoo et al. (Jan. 8, 2016); NACSO (2016).

³⁴ Pers. comm. (March 2018). The projected results of closing elephant hunting includes the reversal of 25 years+ of community-based conservation, as revenues from elephant would decline, reducing community benefits, increasing intolerance, and paving the way for poaching and declining elephant populations.

day elephant safari. WMAs benefited approximately 500,000 people and generated over \$1.3 million in revenues from 2011 to 2014.³⁵

Because it generates the greatest fees, elephant hunting is important to communities in Zambia's Game Management Areas, despite low offtakes. Trophy fees are evenly divided between the wildlife authority and rural communities. During the 2012 hunting season, ZMK 1,820,009 (over \$190,000) was shared with rural communities from 29 hunted elephants. In 2015, only three were harvested, but they generated \$15,000 in revenues for rural communities (\$30,000 total). In 2016, twelve elephant were harvested and generated \$60,000 for communities (\$120,000 total). Distributions to rural communities from all species averaged ZMK 5,721,674 (approx. \$605,295) from 2010-2015.³⁶

In addition to increased tolerance, elephant benefit from additional habitat provided communal areas. Communal areas protect almost 475,000 km² of habitat across Mozambique, Namibia, Tanzania, Zambia, and Zimbabwe.³⁷ The most successful CBNRM programs depend on elephant hunting to generate tolerance incentives. The elephant survive in these communal areas, not by accident, but because of the benefits that the communities receive through regulated hunting.

C. Operator Contributions to Rural Community Livelihoods

Rural communities both participate in and benefit from government fee-sharing programs and voluntary contributions by hunting operators and clients. Some operator contributions are mandated by law (as in Tanzania and Mozambique), or by lease agreements (as in Zimbabwe and Zambia), while others are wholly voluntary. All three build greater tolerance for destructive and dangerous elephant.

Operators also invest by employing local residents. Approximately 5,000 people are employed by hunting operators on a permanent or seasonable basis. These are critical jobs in remote areas with little access to other job opportunities or cash/wages.

Annual Operator Community Investment (in addition to government fees paid)

Country	Op. Sample Size	Total (Year)	Est. Average/Operator
Mozambique ³⁸	13	\$830,000 (2013-2015)	\$63,846 (Avg.)
Tanzania ³⁹	13 parent companies, 27 subsidiaries	\$969,546 (2013) \$1,083,042 (2014) \$1,073,242 (2015)	\$35,909 (2013) \$40,113 (2014) \$39,750 (2015)
Zambia ⁴⁰	4	\$99,900 (2015)	\$24,975 (2015)
Zimbabwe ⁴¹	15	\$525,378 (2015)*	\$35,025 (2015)

* Does not include salaries, but only specific community investment

³⁵ CWMAC (2016); MNRT/WD (Jan. 21, 2015).

³⁶ ZAWA (Mar. 2015, updated July 2015); DNPW (Mar. 31, 2017).

³⁷ IUCN Protected Planet (<https://protectedplanet.net>); DNPW (2016); ANAC (Oct. 2016); NACSO (2016).

³⁸ ANAC (Jan. 2017).

³⁹ Conservation Force (2016).

⁴⁰ Conservation Force (2017).

⁴¹ PWMA (Oct. 2016).

CONCLUSION

Regulated hunting is essential to the survival of most elephant in the wild including those in fully protected areas when they move beyond boundaries. That most elephant inhabit the countries relying on regulated hunting as a conservation tool cannot be ignored. Regulated hunting revenues secure elephant habitat, fund and increase the efficacy of anti-poaching measures, and encourage rural community tolerance of elephant and other dangerous game. Both national wildlife authorities and rural communities depend on the revenues from regulated elephant hunting. Calls to ban elephant hunting or prohibit the import of elephant hunting trophies are ill-informed⁴². They would seriously harm elephant.

⁴² Angula et al. (2018)

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