THE HUMANE SOCIETY OF THE UNITED STATES

HUMANE SOCIETY INTERNATIONAL

HUMANE SOCIETY LEGISLATIVE FUND

September 21, 2021

Ms. Mary Cogliano
Chief, Branch of Permits
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041
mary_cogliano@fws.gov

Re: Imports of African Lion Trophies from Zimbabwe

Dear Chief Cogliano,

On November 20, 2017, the Humane Society of the United States (HSUS), Humane Society International (HSI), and Humane Society Legislative Fund (HSLF) (hereinafter "we") submitted a letter (attached) to the U.S. Fish and Wildlife Service ("FWS") detailing why the positive enhancement finding for African lion trophies from Zimbabwe issued by the FWS on October 11, 2017, was not based on the best available science and that the conclusions made in the finding were not supported by the information relied on by the agency in making that enhancement finding. We strongly urged the FWS to rescind the enhancement finding for Zimbabwean lions, as it could not demonstrate that trophy hunting of lions in Zimbabwe affirmatively benefits the conservation of the species. We explained that issuing any import permits for lion trophies from Zimbabwe in reliance on this finding would violate the Endangered Species Act ("ESA").

On March 1, 2018, the FWS withdrew the 2017 ESA enhancement finding for lions taken in Zimbabwe, stating that this, and other findings, were "no longer effective for making individual permit determinations for imports of those sport-hunted ESA-listed species. However, the Service intends to use the information cited in these findings and contained in its files as appropriate, in addition to the information it receives and has available when it receives each application, to evaluate individual permit applications." (FWS 2018)

According to information we have obtained from lion import permit application documents published by FWS in its online "FOIA Reading Room" (https://www.fws.gov/irm/bpim/foiareadingroom.html), the FWS issued 7 permits to import lion trophies from Zimbabwe in 2018 and 16 in 2020 (no permits were issued in 2019 and 2021 to date). Of these 23 permits, 11 were for lions from Save Valley Conservancy, 10 were for lions from Bubye Valley Conservancy, one was for a lion from the Hwange National Park area, and one was for a lion from the Hurungwe Safari Area.

The most recent enhancement findings regarding the importation of lion trophies from Zimbabwe that we were able to locate on the FWS website are from August 2020. Eleven of these pertain to lions killed at Save Valley Conservancy (PRT-22129D, PRT-02727D, PRT-16345D, PRT-78386C, PRT-74840C, PRT-33696D, PRT-02727D, PRT-78387C, PRT-99564C, PRT-12867D, and PRT-15067D) and five to lions killed at Bubye Valley Conservancy (PRT-27002D, PRT-66783C, PRT-75286C, PRT-08061D, and PRT-15066D). The August 2020 findings are nearly identical and state in the first full paragraph, "After evaluating the available information submitted with the application, information provided by the Government of Zimbabwe, other information available to the U.S. Fish & Wildlife Service (Service), and comments received from interested parties, the Service has determined that the importation of the sport-hunted trophy meets the requirements for making a positive enhancement finding pursuant to 50 CFR 17.40(r) and 50 CFR 17.32(a)." The enhancement findings consider information on the management of lions in Zimbabwe as a whole and the management of lions at the Save Valley Conservancy and Bubye Valley Conservancy where the hunts took place in 2018. The Save Valley Conservancy enhancement findings are identical to one another except for the hunter's names; and the same applies to the Bubye Valley Conservancy enhancement findings. The Save findings differ from the Bubye findings only regarding the specific details about

each conservancy's size and history, as well as a few sentences about on what activities each conservancy spends hunting revenue.

The August 2020 enhancement findings rely primarily on the same now-woefully-outdated Zimbabwe Parks and Wildlife Management Authority (ZPWMA) documents that the FWS relied upon for its October 11, 2017, enhancement finding (i.e. the *Conservation Strategy and Action Plan for the Lion* dating from 2006, *Conservation Status of the African Lion* (Panthera leo) from 2014, and *Enhancement and Non-Detriment Findings for* Panthera leo *in Zimbabwe* from 2016). Indeed, the August 2020 enhancement findings rely almost entirely on the same publications cited in the 2017 enhancement finding; only one additional lion-specific scientific paper was cited in the August 2020 findings, Riggio et al. (2013), and its conclusions regarding Zimbabwe lion population sizes were disputed by the FWS.

Furthermore, in making its August 2020 enhancement findings, FWS did not consider four recent, relevant scientific papers cited in our 2017 letter to FWS:

- Harrison, E., L. Stringer, and A. Dougill. 2014. The importance of the sub-district level for community-based natural resource management in rural Zimbabwe. Centre for Climate Change Economics and Policy Working Paper No. 183, Sustainability Research Institute Paper No. 69.

- Loveridge, A.J., M. Valeix, G. Chapron, Z. Davidson, G. Mtare, and D.W. Macdonald. 2016. Conservation of large predator populations: demographic and spatial responses of African lions to the intensity of trophy hunting. Biological Conservation 204: 247-254.

- Loveridge, A.J., M. Valeix, N.B. Elliot, and D.W. Macdonald. 2017. The landscape of anthropogenic mortality: how African lions respond to spatial variation in risk. Journal of Applied Ecology 54(3): 815-825.

- Mupfiga, P. and Chirimumimba, M., 2015. Challenges to the implementation of IT Governance in Zimbabwean Parastatals. The International Journal of Engineering and Science 14(12): 1-6. ISSN (e): 2319 – 1813.

The August 2020 enhancement findings also did not include these recent relevant scientific papers:

- Jeke, A., Chanyandura, A., Muposhi, V. K., Madhlamoto, D., and Gandiwa, E. (2019). Trophy hunting and possible source-sink dynamics in protected areas: insights from trophy size and offtake patterns in Southeast Zimbabwe. International Journal of Zoology 1313927:9 pages.
    - Although not specific to lions, this study demonstrates the existence of poor trophy hunting management and poor enforcement of wildlife laws in Zimbabwe. The study documented that illegal trophy hunting in a buffer zone on the outskirts of Gonarezhou National Park was permitted to occur, and reduced trophy sizes were due to excessive pressure from trophy hunting. The authors recommended: "(1) the need for more scientifically robust, adaptable, and participatory quota setting process, (2) enhanced adherence to good practice in terms of ethical hunting conduct, and (3) development of a robust hunting monitoring system on trophy hunting for adaptive wildlife management."

- van der Meer, E. and Dullemont, H., 2021. Human-carnivore coexistence: factors influencing stakeholder attitudes towards large carnivores and conservation in Zimbabwe. Environmental Conservation: 48(1):48-57.
    - This nationwide study found that Zimbabwe's CAMPFIRE program, designed to promote human-wildlife coexistence and the sustainable use of natural resources on communal land, mainly through trophy hunting, failed to improve attitudes of their target group, namely subsistence farmers who experience human-carnivore conflict and whose attitudes toward carnivores,

including lions, remains negative. This finding undermines the credibility of the argument that trophy hunting in Zimbabwe provides financial benefits to local communities that makes people living in those communities have positive attitudes toward wildlife.

- Dube, N., 2019. Voices from the village on trophy hunting in Hwange district, Zimbabwe. Ecological Economics 159:335-343.
    - The study, conducted in Hwange district (Matabeleland north province, Zimbabwe) within communal wards located in and bordering national protected wildlife areas (i.e. CAMPFIRE areas), found that villagers had negative attitudes toward wildlife due to its negative impact on local livelihoods (livestock and crops). Villagers did not receive cash proceeds from trophy hunting but had to deal with the negative impacts. This result undermines the claim that trophy hunting / CAMPFIRE promote a positive attitude toward wildlife and habitat conservation based on the benefits derived.

- Western, G., Macdonald, D.W., Loveridge, A.J. and Dickman, A.J., 2019. Creating Landscapes of Coexistence. Conservation & Society 17(2): 204-217.
    - This paper examines local attitudes toward maintaining lions in and around Zimbabwe's Hwange National Park and Kenya's southern Maasailand. In Maasailand, Kenya, where personal benefits from conservation were greatest and there is no trophy hunting, 88% of the respondents expressed a desire to see current lion populations maintained. In contrast, in Hwange, where trophy hunting is allowed and local people are supposed to benefit from it, only 5% of the respondents expressed this desire. This study demonstrates the failure of trophy hunting / CAMPFIRE in Zimbabwe as economic incentives for conservation, and the success of photographic tourism in Kenya as an economic incentive for conservation.

- Sibanda, L., Van der Meer, E., Hughes, C., Macdonald, E.A., Hunt, J.E., Parry, R.H., Dlodlo, B., Macdonald, D.W. and Loveridge, A.J., 2020. Exploring perceptions of subsistence farmers in northwestern Zimbabwe towards the African lion (*Panthera leo*) in the context of local conservation actions. African Journal of Wildlife Research 50(1):102-118.
    - This study examined local perceptions about lions in three CAMPFIRE communities in the Hwange-Matetsi Protected Area Complex (HMPAC) in Zimbabwe where lions are commonly killed by subsistence farmers in retaliation for livestock loss. Attitudes toward lions were negative; 82% of farmers interviews indicated they would like the CAMPFIRE program to end due to damage caused by wildlife and lack of benefits at the farmstead level.

Given that the August 2020 enhancement findings are not substantially different than the 2017 enhancement finding, these shortcomings we identified in the 2017 finding, detailed in the attached latter, remain pertinent:

- Zimbabwe's lion hunting quotas are not science-based, and age restrictions are poorly implemented and do not apply to all lion hunting areas in the country.
- Zimbabwe's 11-year-old lion management plan still has not been substantially implemented.
- Zimbabwe Parks and Wildlife Management Authority lacks funding to enforce existing laws.
- There is no evidence that revenue from American lion hunting enhances the survival of lions.
- Unfenced lion populations in Zimbabwe have declined over the past decade and today fewer than 300 truly wild adult male lions remain in the country.

Of particular concern is the continuing trophy hunting of male lions in the Hwange National Park area. Trophy hunting of lions in areas on the periphery of Hwange caused the lion population in the Park to decline (Loveridge et al. 2007). Human offtake of lions in the Hwange area, for trophy hunting and retaliation for human-wildlife conflict included, is not sustainable (Sibanda et al. 2020 referring to Loveridge et al. 2010). On August 13, 2021, an article published by *Africa Geographic*, a private travel and conservation club based in South Africa, reported that a trophy hunter had killed a breeding pride male, Mopane, on the same property on the periphery of Hwange where Cecil

the breeding pride male was killed in 2015. Mopane was reportedly baited out of the National Park and shot by a bowhunter, reportedly an American, who hired the same guide who participated in the Cecil hunt. According to the article, Mopane was advertised, by name, as a trophy on December 5, 2020, by Big Game Safaris International. Photographic tour operators in Hwange, who know and can identify individual lions who live there, and whose livelihoods are dependent on these lions, are deeply concerned that trophy hunting operators are now selecting their next target.

In conclusion, the August 2020 enhancement findings for the importation of lion trophies from Zimbabwe were not based on the best available science and that the conclusions made in the finding were not supported by the information relied on by the agency in making its enhancement finding. The FWS has not demonstrated that trophy hunting of lions in Zimbabwe affirmatively benefits the conservation of the species. Issuing any future import permits for lion trophies from Zimbabwe in reliance on similar findings would violate the Endangered Species Act ("ESA").

Respectfully,

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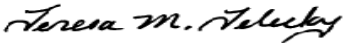

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Enclosure

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FWS. 2018. Memorandum from Principal Deputy Director, U.S. Fish and Wildlife Service to Assistant Director, International Affairs, U.S. Fish and Wildlife Service, dated March 1, 2018, regarding Withdrawal of Certain Findings for ESA-listed Species Taken as Sport-hunted Trophies. https://www.fws.gov/international/pdf/memo-withdrawal-of-certain-findings-ESA-listed-species-sport-hunted-trophies.pdf (viewed September 10, 2021).

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ZPWMA (Zimbabwe Parks and Wildlife Management Authority). 2016. *Enhancement and Non-Detrimental Findings for* Panthera leo *in Zimbabwe*. October 2016.

November 20, 2017

Mr. Timothy Van Norman
Chief, Branch of Permits
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5275 Leesburg Pike
Falls Church, VA 22041

Re: Imports of African Lion Trophies from Zimbabwe

Dear Chief Van Norman:

On October 11, 2017, the U.S. Fish and Wildlife Service ("FWS" or "the Service") issued a positive enhancement finding for African lion trophies from Zimbabwe. That finding is not based on the best available science and the conclusions made in the finding are not supported by the information relied on by the agency. On behalf of The Humane Society of the United States ("HSUS"), Humane Society International ("HSI"), and Humane Society Legislative Fund ("HSLF"), we write to strongly urge the U.S. Fish and Wildlife Service ("FWS" or "the Service") to rescind the enhancement finding for Zimbabwean lions, as it cannot be demonstrated that trophy hunting of lions in Zimbabwe affirmatively benefits the conservation of the species. Issuing any import permits for lion trophies from Zimbabwe in reliance on this finding would violate the Endangered Species Act ("ESA").

ESA Requirements for Lion Trophy Imports

The Endangered Species Act (ESA) listings for *Panthera leo leo*[1] and *Panthera leo melanochaita* went into effect on January 22, 2016 (80 Fed. Reg. 79999 (Dec. 23, 2015)). Pursuant to the Section 4(d) regulation for *Panthera leo melanochaita* (50 C.F.R. § 17.40(r)), the Service can only issue a permit to import a lion trophy from east or southern Africa if the best available science supports a finding that trophy hunting enhances the survival of this subspecies. Pursuant to the plain language of this statutory term (16 U.S.C. § 1539(a)(1)), "enhancement" permits may only be issued for

[1] HSUS, HSI, and HSLF fully expect that no permits will be issued to import trophies of endangered *Panthera leo leo*, as this subspecies is on the brink of extinction and cannot sustain recreational offtake. As the U.S. Fish and Wildlife Service (FWS) acknowledged in the lion listing rule, in western and central Africa, "[m]anagement programs do not appear to be sufficient to deter unsustainable offtakes" and "experts agree that there is no level of offtake that would be sustainable for *P. l. leo* populations…" 80 Fed. Reg. 79999, 80040 (Dec. 23, 2015).

activities that *positively benefit* the species in the wild. *See also* FWS, *Ensuring the Future of the Black Rhino* (Nov. 25, 2014), *at* http://www.fws.gov/news/blog/index.cfm/2014/11/25/Ensuring-the-Future-of-the-Black-Rhino (acknowledging that the ESA enhancement standard is more stringent than the CITES non-detriment standard); U.S. Fish and Wildlife Service Handbook for Endangered and Threatened Species Permits (1996) (making clear that an enhancement activity "must go beyond having a neutral effect and actually have a positive effect"). It is critical that FWS apply the precautionary principle and strictly scrutinize the impacts that trophy hunting has on African lions – indeed, as recently published in *Nature*, overutilization, including trophy hunting, is the biggest threat to biodiversity.[2]

HSUS, HSI, and HSLF agree with the standard that FWS established in the 4(d) Rule for *Panthera leo melanochaita*, requiring that,

> "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival of *P. l. melanochaita*, the Service will examine the overall conservation and management of the subspecies in the country where the specimen originated and whether that management of the subspecies addresses the threats to the subspecies (i.e., that it is based on sound scientific principles and that the management program is actively addressing the current and longer term threats to the subspecies). In that review, we will evaluate whether the import contributes to the overall conservation of the species by considering whether the biological, social, and economic aspects of a program from which the specimen was obtained provide a net benefit to the subspecies and its ecosystem" (emphasis added).

HSUS, HSI, and HSLF also agree that FWS must consider the following factors when making an enhancement finding for importation of hunting trophies of *P. l. melanochaita*:

> "(a) Biological sustainability: The hunting program cannot contribute to the long-term decline of the hunted species. It should not alter natural selection and ecological function of the hunted species or any other species that share the habitat. The program should not inadvertently facilitate poaching or illegal trade in wildlife by acting as a cover for such illegal activities. The hunting program should also not manipulate the ecosystem or its component elements in a way that alters the native biodiversity.
>
> (b) Net Conservation Benefit: The biologically sustainable hunting program should be based on laws, regulations, and scientifically based quotas, established with local input, that are transparent and periodically reviewed. The program should produce income, employment, and other benefits to create incentives for reducing the pressure on the target species. The program should create benefits for local residents to co-exist with the target species and other species. It is also imperative that the program is part of a legally recognized governance system that supports conservation.
>
> (c) Socio-Economic-Cultural Benefit: A well-managed hunting program can serve as a conservation tool when it respects the local cultural values and practices. It should be accepted

[2] Sean L. Maxwell et al., *Biodiversity: The Ravages of Guns, Nets, and Bulldozers*, Nature Vol. 536, 143-145 (Aug. 11, 2016), *at* http://www.nature.com/news/biodiversity-the-ravages-of-guns-nets-and-bulldozers-1.20381.

by most members of the community, involving and benefiting local residents in an equitable manner. The program should also adopt business practices that promote long-term economic sustainability.

(d) Adaptive Management: Planning, Monitoring, and Reporting: Hunting can enhance the species when it is based on appropriate resource assessments and monitoring (e.g., population counts, trend data), upon which specific science-based quotas and hunting programs can be established. Resource assessments should be objective, well documented, and use the best science available. Adaptive management of quotas and programs based on the results of resource assessments and monitoring is essential. The program should monitor hunting activities to ensure that quotas and sex/age restrictions of harvested animals are met. The program should also generate reliable documentation of its biological sustainability and conservation benefits.

(e) Accountable and Effective Governance: A biologically sustainable trophy-hunting program should be subject to a governance structure that clearly allocates management responsibilities. The program should account for revenues in a transparent manner and distribute net revenues to conservation and community beneficiaries according to properly agreed decisions. All necessary steps to eliminate corruption should be taken and to ensure compliance with all relevant national and international requirements and regulations by relevant bodies such as administrators, regulators and hunters."

Evidence is Insufficient to Support Claims that Lion Trophy Hunting in Zimbabwe Enhances the Survival of the Subspecies

(1) Unfenced lion populations in Zimbabwe have declined over the past decade and today fewer than 300 truly wild adult male lions remain in the country

As acknowledged in the Service's October 2017 enhancement finding (USFWS 2017), it is critical that lion management, quotas, and assessments should be based on sound science and it is "vital" to have data on population numbers and trends. Specifically, the finding states that: "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival of *P. l. melanochaita*, the Service examines the overall conservation and management of the subspecies in the country where the specimen originated and whether that management of the subspecies addresses the threats to the subspecies (i.e., that it is based on sound scientific principles and that the management program is actively addressing the current and longer term threats to the subspecies)" (p. 3, emphasis added); hunting should be based on "appropriate resource assessments and monitoring (e.g., population counts, trend data), upon which specific science-based quotas and hunting programs can be established. Resource assessments should be objective, well documented, and use the best science available" (p. 4, emphasis added); and "to manage any population to ensure an appropriate population level and determine whether sport hunting is having

a positive effect, it is vital to have sufficient data on population numbers and population trends on which to base management decisions" (p. 9, emphasis added).

The Zimbabwe enhancement and non-detriment finding document (ZPWMA 2016) provides a table with "estimated minimum" population sizes by subpopulation, and gives a total estimated minimum population size in Zimbabwe of 1,917 lions (p. 6) (Figure 1, below). The source of the data is said to have been "compiled from a variety of reports" (p. 6). As ZPWMA did not provide the source of the data contained in the table, or the methodology employed to obtain the estimates, or the year in which the data were collected, the data cannot be considered by the Service to be objective, well-documented or to be made using the best science available. Later in the Zimbabwe document it is stated that population estimates are determined through "carnivore spoor surveys, systematic lion collaring and call-up surveys" and also "patrol reports, field observations by ZPWMA rangers and other sightings by tour operators and tourists" and in Safari Areas, "resident safari operators, including those operating in CAMPFIRE areas" (p. 15). While the "carnivore spoor surveys, systematic lion collaring and call-up surveys" may be made using the best science available (although the document itself does not make that clear), the other sources of population estimates listed are not. Random, unplanned sightings by patrols, rangers, tour operators and tourists cannot meaningfully contribute to population estimates.

REGION	AREA	AREA (km²)	Estimated Number of Lions	Percentage
Western	Hwange NP	14,900	559	38%
	Matetsi Units 1-5	1,934	59	
	Matetsi Units 6-7 and Zambezi NP	1,585	67	
	Kazuma Pan NP	313	20	
	Kazuma Forest	240		
	Panda Masuie Forest	355		
	Matetsi ECA	1,556	15	
	Ngamo and Sikumi Forest	1,386	6	
	Gwaai Conservancy	927	22	
	Hwange Communal Land	392	2	
	Tsholotsho buffer adjacent HNP	1,275	7	
Subtotal		**24,863**	**737**	
Central	Chizarira NP	1,948	31	4%
	Chirisa SA	1,713		
	Omay	1,865	10	
	Matusadona NP	1,427	31	
Subtotal		**6,953**	**72**	
Northern	Chewore North and South	1,648	45	11%
	Dande	1,155	21	
	Hurungwe (Nyakasanga and Rifa)	1,709	32	
	Charara/Mukuti	1,692	20	
	Mana Pools	1,287	94	
Subtotal		**7,491**	**212**	
Southern	Gonarezhou National Park	5,053	125	48%
	Malilangwe	400	37	
	Bubye Valley Conservancy	3,440	450	
	Save	3,442	284	
Subtotal		**12,335**	**896**	
Overall Total		**51,642**	**1,917**	

Figure 1. Enhancement and Non-Detrimental Findings for Panthera leo in Zimbabwe (ZPWMA 2016, Table 2, p. 6)

The ZPWMA (2016) national lion population size estimate of 1,917 is much higher than other published estimates, including studies cited in the Service's 2015 final rule listing lions under the ESA. Bauer and Van Der Merwe (2004) estimated a national population size of 987; Chardonnet (2002) estimated 1,686; and Bauer et al. (2016, IUCN Red List assessment) estimated 703 in five well-studied populations (Bubye, Gonarezhou, Hwange, Malilangwe, and Save Valley) in 2014.

ZPWMA (2016) provides information indicating that several of the population estimates come from scientific studies that used appropriate methodologies; these are populations of Gonarezhou National Park, Save Valley Conservancy, Bubye Valley Conservancy, Mana Pools National Park,

Hwange National Park, Zambezi National Park, Units 6 and 7 of the Matetsi Safari Area, and Chizarira National Park and Chirisa / Sengwa Safari Area.

Assuming the population estimates for these areas given in the table are accurate, when added together they total 1,610 which is 307 (16%) fewer lions than the 1,917 estimate. As there appears to be no scientific basis for the existence of these 307 lions, the Service cannot consider the number to be objective, well-documented or to have been made using the best science available. Therefore, it is arbitrary and capricious for the Service to conclude that the national population of lions in Zimbabwe is any greater than 1,610. According to Loveridge et al. (2007), "Almost all lion populations show a bias towards females and have an adult population sex ratio of 1:2;" given this, there are, at most, 536 adult male lions in all of Zimbabwe.

Most of Zimbabwe's lion population sizes have decreased in the past decade (Table 1). The only exceptions are those in Save Valley Conservancy and Bubye Valley Conservancy, which are fenced and have increased, and Hwange, which has stayed the same. Comparing the population sizes estimated by Chardonnet (2002) to those estimated by ZPWMA (2016), there is a 32% decrease in Gonarezhou, an 81% decrease in Mana Pools, and a 55% decrease in Zambezi National Park and Units 6 and 7 of the Matetsi Safari Area. Comparing the Chizarira National Park and Chirisa / Sengwa Safari Area population size estimated by Bauer and Van der Merwe (2004) to that estimated by ZPWMA (2016), there is a 69% decrease; this decrease is acknowledged in Zimbabwe's "enhancement and non-detriment" finding (ZPWMA 2016), but was not acknowledged by USFWS (2017). USFWS (2017) did not acknowledge any lion population decreases in Zimbabwe, contrary to the information before the agency at the time of its finding.

Table 1: Zimbabwe lion population size trends.

Population	Chardonnet 2002	Bauer and Van Der Merwe 2004	ZPWMA 2016	Trend
Gonarezhou National Park	183	130	125	32% decrease
Save Valley Conservancy		-	284	100% increase
Bubye Valley Conservancy	-	-	450	100% increase
Mana Pools National Park	495	97	94	81% decrease
Hwange National Park	543	120	559	same
Zambezi National Park and Units 6 and 7 of the Matetsi Safari Area	150	85	67	55.5% decrease
Chizarira National Park and Chirisa / Sengwa Safari Area	-	100	31	69% decrease

Returning to Bubye Valley Conservancy and Save Valley Conservancy, as noted in ZPWMA (2016), these are fenced areas that were formerly used for cattle, where the owners decided to pursue a new business model based on raising wildlife to sell them to trophy hunters. Both Conservancies are multi-million dollar a year businesses that plow revenue back into the management of the Conservancies; this is not surprising, as these are businesses that must take necessary measures to ensure that their investment is protected. These lion populations started with the introduction of a small number of lions and the populations have grown exponentially. As noted above, this contrasts starkly with the populations in the National Parks which are mostly decreasing.

The contribution of fenced lion populations to the conservation status of lions is highly questionable, particularly when they are not part of a metapopulation management program that mimics, to the extent possible, natural genetic exhange. Indeed, according to Bauer et al. (2015), "Fenced reserves in Kenya and southern Africa are very effective, but these reserves include many small populations that require metapopulation management, euthanasia, and contraception and only make limited contributions to ecosystem functionality and conservation outcomes" (p. 14897). Instead of implementing the management protocols noted by Bauer et al. (2015), these conservancies have allowed the lion population density to increase to abnormal levels, presumably in order to be able to sell more lions to hunters. The population density in Save Valley Conservancy is 11.7 lions/100km² and that of Bubye Valley Conservancy is 19 lions/ 100km^2, which is much higher than the average population density estimate of 9.6 lions/100km² for some other lion populations (Kruger, Hwange, Selous and Serengeti) (du Preez et al. 2015). This high lion density negatively impacts other species, not only their prey species, but also competitors such as leopard, cheetah, and wild dog (du Preez et al. 2015). It is also likely that the lions on these conservancies are highly inbred as they started from a small number of lions. And while the Conservancies reportedly provide benefits to people in the local communities (including meat, jobs, schools, and community projects), since the lions are fenced in, this does not offset livestock loss to Conservancy lions and make people more tolerant of lions; thus, the management of these lion populations cannot be said to benefit the conservation of the species.

The Service has committed to using the IUCN Species Survival Commission (SSC) Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incenties when making enhancement findings. The first of these principles is "biological sustainability" including that "it should not alter natural selection and ecological function of the hunted species or any other species that share the habitat" and "the hunting program should also not manipulate the ecosystem or its component elements in a way that alters the native biodiversity." (USFWS enhancement finding, p. 4). Clearly, Bubye Valley Conservancy and Save Valley Conservancy have violated these principles. Accordingly, the Service must conclude that lion hunting on these Conservancies is not enhancing the survival of the species, contrary to the positive finding it made in October 2017.

With regard to Hwange National Park, Loveridge et al. (2016) estimated to the total number of lions to be approximately 120 in 2012 (Figure 2F). By comparison, Zimbabwe estimates the current population to be "over 550" (ZPWMA 2016, p. 18). It would seem impossible for the Hwange lion population to have nearly quadrupled in four years. Even the lion population at Bubye Valley Conservancy only doubled over a four year period between 2008 and 2012 (du Preez et al. 2016, Figure 7). The document from Zimbabwe does not provide any details on the source of the "over 550" figure. If the true population size is much lower, it would mean that the population has decreased as compared to the population figure of Chardonnet (2002).

In summary, although the current national lion population size estimate, based on studies that use appropriate scientific methodology, is similar to that in 2002 (Chardonnet 2002), wild lion populations in Zimbabwe have decreased over approximately the past decade, while two fenced populations have increased over this time. Truly wild (not fenced in) lions in Zimbabwe number only 876 and, given a typical female:male ratio of 2:1, this means there are only 292 truly wild male lions in Zimbabwe, far less lions that assumed in the Service's enhancement finding.

(2) Zimbabwe's lion hunting quotas are not science-based, and age restrictions are poorly implemented and do not apply to all lion hunting areas in the country

Another one of the IUCN Species Survival Commission (SSC) Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incenties principles is "Net Conservation Benefit: The biologically sustainable hunting program should be based on laws, regulations, and scientifically based quotas, established with local input, that are transparent and periodically reviewed" (USFWS 2017, p. 4, emphasis added).

According to ZPWMA (2016), a new system for quota setting, the "points system for adaptively managing lion quotas", commenced in 2015 (ZPWMA 2016, p. 37). This new system, based on a study that modelled the impact of age-based lion hunting restrictions on a Tanzania lion population (Whitman et al. 2004), aims to ensure that only male lions five years of age and older are hunted. The system "rewards operators with increased quotas if they hunt animals of six years and older, but it does not penalize them if they hunt animals of five years. Neither are they penalised if they do not shoot a lion that they have on quota, however, the quotas will be reduced if they hunt animals younger than five years or if they failed to complete hunt returns" (ZPWMA, p. 40).

However, there are several major flaws with this quota setting system.

First, as pointed out by Loveridge et al. (2007), who studied lions and lion hunting in Hwange National Park, because male lions in Zimbabwe mature later than their counterparts in Tanzania, the 5 year age limit is not appropriate there. The authors said, "Measures of maturity of males in HNP (mane size, testicle size) suggest that lions in this population reach physical maturity at around 6–7 years old. These data accord with those from Kruger National Park, South Africa, showing that testicle weight, seminiferous tubule diameter, body weight and size peak between 5

and 9 years (Smuts et al., 1978b) and mean age of pride males was 6.5 (range 5–9) years (Smuts, 1978). It appears that male lions in southern Africa mature later than conspecifics in East Africa (Tanzania), where male lions reach maturity at 4 years (West and Packer, 2002; Whitman et al., 2004). If an age threshold is used to determine harvests of male lions then the 6 year minimum that Whitman et al. (2004) suggest may need to be reviewed and adjusted to take into account what is apparently later maturation of males in southern Africa. Off-take of males aged between 7 and 8 years might be more appropriate" (p. 553).

Second, the starting point for establishing quotas under this new system was the previously existing quotas (ZPWMA 2016, p. 37); however, the scientific basis for the previously existing quotas is not provided by ZPWMA (2016). ZPWMA states, "Zimbabwe implements an adaptive quota setting quota system that uses inputs from monitoring data and input from a variety of stakeholders including ZPWMA field and research staff, local communities, hunting operators, and independent biologists. Quotas are set based on population estimates or trend analyses, monitoring data, hunt return data, research work and indices as may be reflected in various reports by field personnel" (ZPWMA 2016, p. 56). It seems from this statement that some science may inform the setting of quotas but this does not mean the final outcome is science-based. Indeed, the Service concedes in its finding that quotas are not science based in some situations: "In CAMPFIRE areas, incidences of human-lion conflict are also taken into consideration where survey information is not readily available, when determining quotas for those areas (ZPWMA 2014). The quota setting process involves all stakeholders, including the ZPWMA, landowners, safari operators, and CAMPFIRE managers and their representatives. During the annual quota-setting workshop, presentations are made by the proponents who then make proposals for quotas. Where it is felt that not enough information has been presented, however, a precautionary quota will still be issued (ZPWMA 2014). The Service is not aware of how precautionary quotas are treated after they are issued, or if there is a protocol for obtaining necessary information when a precautionary quota is put in place" (USFWS 2017, p. 13).

Third, quotas do not take into account all forms of lion mortality including retaliatory killing and snaring. Indeed, the number of lions killed as a result of human-lion conflict exceeds the number killed by trophy hunters: ZPWMA states, "The exact number of lions killed in this way is difficult to assess, but may number over 50/year" (ZPWMA 2016, p. 44). Loveridge et al. (2007), who studied lion mortality in Hwange 1999-2004, found that, in addition to hunting, the population "also experienced mortality from other anthropogenic sources, including illegal snaring and killing. Lions are often inadvertently caught in snares set for other wildlife. While this only accounted for 11.8% of all mortality of [62] marked animals, we know of at least seven additional unmarked lions killed in snares during the study. It is possible that this source of mortality is under-represented as this is difficult to measure because evidence of illegal killing is often concealed. Conflict mortality needs to be taken into account when setting hunting quotas, as this mortality is additive and it is possible that even conservative hunting off-takes coupled with high levels of illegal killing could make a population vulnerable to decline" (p. 555). ZPWMA (2016) states that

21 lions were killed illegally 2013-2015, although this is likely an underestimate because the full scope of illegal activities are usually not known to government authorities.

Another form of lion mortality that may not be adequately accounted for in the quota setting process is official Problem Animal Control. Groom et al. (2014), who studied lions in Gonarhezou, said "Another important cause of lion mortality in Gonarezhou was the destruction of lions considered to be problem animals. Problem animal control incidences are poorly recorded and the responsibility is often handed over to hunting operators, with apparently little record-keeping (RJG, pers. obs.). However, we acquired records of at least 18 lions being shot as problem animals between 1993 and 2009 around the southern half of Gonarezhou. In many cases the sex of the lion killed was not recorded but at least five of them were females and one was a cub. This is likely to affect the population negatively, as regular removal of even small numbers of reproductive females can expose a population to decline (Van Vuuren et al., 2005). Moreover, as reproductive success is closely related to pride size, and prides of three or more adult females are significantly more successful at rearing cubs than smaller prides (Packer et al., 1988), removal of adult females may result in lower cub survival. Since 2009 there has been virtually no lethal problem animal control for lions around Gonarezhou, although lions are still reported to be killing livestock and there is evidence that communities poison them. Exact figures are unknown but presumed to be higher than recorded" (p. 6).

Fourth, CAMPFIRE areas are exempt from age-based quotas. ZPWMA (2016) states "the CAMPFIRE areas in which lions occur are currently exempted from the age restrictions. This approach was adopted as a means of ensuring that impoverished communities obtain the opportunity to benefit from the presence of lions, recognising the potential negative impacts the species has on the livelihoods of livestock farmers" (p. 41). This exemption is acknowledged by the Service (USFWS 2017, p. 14) but later in the document the Service arbitrarily states, "The adaptive quota management system for lion hunting based on the ages of lions hunted has been accepted and embraced by all stakeholders" (USFWS 2017, p. 17). The Service downplays the importance of this exemption by stating, "While hunting is allowed in CAMPFIRE areas, it is unclear if American sport hunters conduct lion hunts in these areas; if so, the Service is not aware if sport hunters are exempted from the age restriction in this case, and how this exemption in CAMPFIRE areas is taken into consideration when setting quotas for other portions of the country" (p. 14). It is unclear why the Service would think that American trophy hunters would not be exempt from the age restrictions if they hunted lions in CAMPFIRE areas, and it is unreasonable for the Service to make an enhancement finding based on such a presumption.

As to the question of whether American trophy hunters hunt lions in CAMPFIRE areas, the Service repeatedly argues later in the document that American hunters do hunt lions in CAMPFIRE areas and that this is an important source of income. For example, the Service states, "Across all CAMPFIRE districts, from 2010 to 2015, there was a total quota of 140 lions, with actual offtake equaling 45 animals. During this same period, U.S. trophy hunters apparently accounted for 51% of Zimbabwe's trophy hunting clients; trophy fees represented 74% of CAMPFIRE income, of

which lions play a small role" (USFWS 2017, p. 17). Using these figures, it can be hypothesized that of the approximately eight lions killed annually from 2010-2015, four were killed by Americans. The fact that Zimbabwe is willing to forgo age-restrictions for lions hunted in CAMPFIRE areas, means that hunting in these areas is potentially detrimental to the lion populations therein because younger lions will be killed. Consequently, it would violate the Endangered Species Act for the Service to issue import permits for lions killed in CAMPFIRE areas based on the October 2017 finding and without evidence that they were at least five years old when killed.

Fifth, the age restrictions are poorly implemented. According to du Preez et al. (2016), in 2015, 16% of lions hunted were under 5 years of age; this means that, of the 49 lions hunted that year (ZPWMA 2016, p. 38), seven were under age. Furthermore, the implementation of the restrictions varied between the three main lion-hunting areas in 2015: In Zambezi Valley, about 50% of lions hunted were less than 5 years old, compared to about 20% in Lowveld and about 5% in Matland North (Du Preez et al. 2016, Table 6, p. 11); thus, certain areas of the country is more prone to violating the age restrictions. Hunting of lions under the age of 5 is detrimental of lion populations. Consequently, the Service cannot lawfully issue import permits for lions from Zimbabwe hunted in areas that are prone to violating the age restrictions.

In summary, although the current national lion population size estimate, based on scientific surveys, is similar to that in 2002 (Chardonnet 2002), wild lion populations in Zimbabwe have decreased over approximately the past decade, while two fenced populations have increased over this time. Truly wild (not fenced in) lions in Zimbabwe number only 876 and, given a typical female:male ratio of 2:1, this means there are only 292 truly wild male lions in Zimbabwe. Given that the 2016 hunting quota was 81 male lions (ZPWMA 2016, p. 38), and subtracting the 15 lion quota for Bubye (du Preez et al. 2016, p. 13) and 10 lion quota for Save (du Preez et al. 2016, p. 18), the 56 wild lions remaining on quota represent 19 percent of the wild male population. This exceeds the recommendation of Loveridge et al. (2007, p. 556) that quotas should be reduced "to realistic levels (no more than 10% of adult males) based on robust population estimates would ease excessive off-takes of male lions." Therefore, the Service's positive enhancement finding is not in accordance with law and import permits cannot lawfully be issued pursuant to this finding.

(3) Zimbabwe's 11-year-old lion management plan still has not been substantially implemented

The Service states, "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival of *P. I. melanochaita*, the Service examines the overall conservation and management of the subspecies in the country where the specimen originated and whether that management of the subspecies addresses the threats to the subspecies (i.e., that it is based on sound scientific principles and that the management program is actively addressing the current and longer term threats to the subspecies)" (USFWS 2017, p. 2)

The Service further states, "When evaluating whether the importation of a trophy of *P. I. melanochaita* would be authorized pursuant to 50 CFR 17.32, in accordance with our threatened species issuance criteria, we will examine how a country's management program for lions addresses the three main threats that have led to the decline of the subspecies: habitat loss, loss of prey base, and human-lion conflict. When examining a management program and whether trophies taken as part of that program meet the issuance criteria, we study a number of factors. Some of the factors we consider include whether the program is based on sound scientific information and identifies mechanisms that would arrest the loss of habitat or increase available habitat (i.e., by establishing protected areas and ensuring adequate protection from human encroachment). We consider whether the management program actively addresses the loss of the lion's prey base by addressing poaching or unsustainable offtake within the country. A component of a management plan from which trophy imports would meet the issuance criteria would be whether there are government incentives in place that encourage habitat protection by private landowners and communities and incentives to local communities to reduce the incursion of livestock into protected areas or to actively manage livestock to reduce conflicts with lions. We examine if the hunting component of the management program supports all of these efforts by looking at whether hunting concessions/tracts are managed to ensure the long-term survival of the lion, its prey base, and habitat" (USFWS 2017, p. 5).

Finally, the Services states, "Management programs for *P. I. melanochaita* are expected to address, but are not limited to, evaluating population levels and trends; the biological needs of the species; quotas; management practices; legal protection; local community involvement; and use of hunting fees for conservation. In evaluating these factors, we will work closely with the range countries and interested parties to obtain the information. By allowing entry into the United States of *P. I. melanochaita* trophies from range countries that have science-based management programs, we anticipate that other range countries would be encouraged to adopt and financially support the sustainable management of lions that benefits both the species and local communities. In addition to addressing the biological needs of the subspecies, a scientifically based management program would provide economic incentives for local communities to protect and expand *P. I. melanochaita* habitat" (USFWS 2017, p. 5).

The Service has previously stated, "We evaluate whether a country has a valid national or regional management plan and if the country has the resources and political will to enact the plan. If there is a plan, what government entities implement the plan and how often is it reviewed and updated? Does the plan have clear, achievable objectives? Are the objectives measurable and are they being achieved? Is there an adaptive management approach within the plan so that enacting agencies can quickly respond to changing environmental or social issues?" (USFWS 2015, p. 1-2).

The Service concedes that the most recent lion management plan for Zimbabwe is the 2006 Conservation Strategy and Action Plan for the Lion (*Panthera leo*) in Zimbabwe (USFWS 2017). The plan aims to: ensure the persistence of key lion populations and other important populations including those of doubtful viability; reduce human and livestock loss; and optimize wildlife

conservation-related net benefits to local communities. The plan contains seven objectives, each with several targets; each target has activities to be conducted to achieve the target. If fully implemented, the plan could address the three main threats that have led to the decline of the subspecies: habitat loss, loss of prey base, and human-lion conflict. However, data in the Service's possession reveals that the plan has not been fully implemented.

ZPWMA (2016) provided an update on implementation of the plan (Table 2, below). According to the information provided by ZPWMA (2016), after eleven years, none of the seven identified outputs in the plan have been completed. Of the 24 identified targets in the plan, only one, Target 1.4 (develop and implement a national lion captive breeding management policy), is completed, but this is irrelevant to the Service's finding regarding enhancement based on hunting of wild lions in Zimbabwe. Of the 108 activities in the plan, evidence presented by ZPWMA (2016) indicates that only 26 have been completed. Therefore, Zimbabwe has not made substantial progress on implementation of the plan over the past eleven years and it is arbitrary and capricious for the Service to issue an enhancement finding based on this outdated plan.

Instead of conducting a thorough analysis of whether or not the plan has been implemented over the past eleven years, using the information provided by ZPWMA (2016) – as we have in Table 2 below – the Service instead examined implementation of only three outputs which the Service states "are most relevant to determining if the implementation of the strategy enhances the propagation or survival of the species, as required by the ESA for the issuance of import permits" (USFWS 2017, p. 10); these are Output 1 (lion populations, their habitats and wild prey effectively conserved and managed in collaboration with local stakeholders), Output 3 (human-lion related conflicts minimized and, where possible, eliminated), and Output 4 (the costs and benefits of long-term lion management equitably distributed). However, even the Service's analysis of these outputs is flawed.

For each Output, the Service (USFWS 2017) copied and pasted information provided by ZPWMA (2016) about the output's targets with no analysis. Furthermore, the Service failed to analyze whether or not the activities in plan to meet the targets had been undertaken or completed. Our analysis of Outputs 1, 3 and 4 (Table 2) indicate that these outputs have not been completed. Specifically, for Output 1, only one of the six targets have been completed (on captive breeding management), and only 12 of 28 activities have been completed (and six of these relate to captive lions). Yet, the Service finds that "ZPWMA is actively working toward meeting the target areas for this output" (USFWS 2017, p. 11). For Output 3, none of the six targets have been completed, and only 2 of 21 activities have been completed. Yet, the Service finds that "information submitted in the ZPWMA update suggests that they have met one target, and are in the process of implementing the remaining two" (USFWS 2017, p. 11). For Output 4, three of the four targets have not been completed and the remaining target has been partially completed, and only 3 of 18 activities have been completed. Yet, the Service finds that "ZPWMA has made progress toward this output's targets" (USFWS 2017, p. 11).

In summary, the information provided by ZPWMA and adopted without independent analysis by the Service, clearly demonstrates a lack of progress toward meeting the stated targets and undertaking the stated activities in the plan. Without such evidence, principally this is a plan on paper only, and it is entirely arbitrary and capricious for the Service to have made a positive enhancement finding based on this information.

Table 2. Implementation status of the 2006 Conservation Strategy and Action Plan for the Lion (*Panthera leo*) in Zimbabwe.			
Outputs and Targets	**Information Provided in ZPWMA (2016) Regarding Target Completion**	**Analysis of Progress on Completing Targets and Activities** (underscored text)	
		Targets (targets cannot be considered "completed" unless all activities are completed)	**Activities** (activities cannot be considered "completed" unless they are thoroughly completed; partial completion is not considered to be completed)
Output 1. Lion Management - Lion populations, their habitats and wild prey effectively conserved and managed in collaboration with local stakeholders			
Target 1.1 Establish a baseline survey and monitoring programme for identified lion populations and their range inside and outside the Parks & Wildlife Estate	Baseline surveys have been completed for the Parks Estate using monitoring protocols for key variables (populations, habitats, prey). Selected surveys undertaken of areas outside National Parks in conservancies and some communal land and forest areas.	Not completed.	1) Undertake baseline surveys, and where necessary, identify populations outside Parks & Wildlife Estate. Not completed (only partially completed). 2) Design, develop and set up simple but robust monitoring protocols for key variables (populations, habitats, prey). No details provided to substantiate this has been concluded. 3) Set up systems for carrying out collaborative surveys and monitoring across boundaries with shared lion populations (National Park, Safari Area, Forest Area, Communal Land, Large/Small Scale Commercial Farming and/or International). No information provided.
Target 1.2 Maintain and strengthen capacity for lion conservation, management, monitoring and research	Carnivore research programmes undertaken by NGOs (Mana, Matusadona, Gonarezhou, Zambezi and Hwange NPs,	Not completed.	1) Undertake training needs assessment. No information provided. 2) Identify and secure funding resources. No information provided.

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within PWMA and amongst other key stakeholders	Matetsi, Chirisa SA) and research institutions (Bubye and Save Conservancies) in various parts of the country. Personnel trained in data collection and capture, management, lion aging and analysis.		3) Provide training and capacity strengthening within PWMA and amongst other key stakeholders e.g. RDCs. No information provided. 4) Train personnel in data capture, management and analysis. No details provided to substantiate this has been concluded.
Target 1.3 Identify and implement best management standards and practice for all trophy hunted lion populations, ensuring their viability and sustainable, equitable and adaptively managed trophy quotas	Quota setting methodology reviewed and annual quotas and offtakes analysed considering population changes, trophy quality and levels of PAC over time. Trophy hunting database in place and in process of being refined to provide cost-effective system for collation, entry, analysis, reporting and feedback to key stakeholders in the wildlife industry (ZPWMA, RDCs, SOAZ, ZPHGA, conservation NGOs, Researchers etc.). System of fixed and optional quotas reviewed and age- based	Not completed.	1) Implement Quota Setting Methodology rigorously and consistently across all hunting areas. No information provided to address rigorousness or consistency across all hunting areas. 2) Review and analyse annual quotas and offtakes to ensure these are adaptive and responsive to population changes, trophy quality and levels of PAC over time. Insufficient details provided to substantiate this has been concluded.. 3) Allocate quotas at a scale reflective of lion ecological and biological functionality which invariably differs

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	criteria for male trophy animals in place and functioning.		across different land unit sizes or land uses. No information provided. 4) Refine and update the hunt return form [TR2] and the trophy hunting database and review annually thereafter. Annual review, and TR2 not addressed in information provided. 5) Ensure centralised database and cost-effective system for data collection from hunting areas and subsequent collation, entry, analysis, reporting and feedback to key stakeholders in the wildlife industry (PWMA, RDCs, SOAZ, conservation NGOs, Researchers etc). Apparently in progress. 6) Replicate Matetsi Safari Area hunt data collection system in all Parks and non-Parks hunting areas and train PWMA, RDC and other relevant field staff to gather and collate hunting data as per the Matetsi system. No information provided.

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			7) Train PWMA, RDC and other relevant field staff in the Quota Setting Methodology. No information provided. 8) Review system of fixed and optional quotas (and auctioned hunts) to improve incentives to hunt trophy male lion only, including quota-based incentives/disincentives. Reportedly completed. 9) Review trophy fees to maximise benefit and generate additional revenue. No information provided. 10) Review and put in place criteria for age-based identification of male trophy animals. Reportedly completed.
Target 1.4 Develop and implement a national lion captive breeding management policy	Policy in place.	Reportedly completed; policy is available.	1) Identify captive breeding enterprises and establish purpose 2) Consult with stakeholders including breeders, ZNSPCA, IUCN Captive Breeding Specialist Group, and others e.g. Tikki Hywood Trust (THT) 3) Establish destination and role of captive bred lions upon reaching maturity

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			4) Relate captive bred lions to existing captive breeding policies for crocodiles, ostriches and operations for other captive bred wild species, e.g. Lion & Cheetah Park, Chipangali 5) Review existing policies and/or guidelines 6) Appoint Working Group to develop captive lion breeding policy as appropriate or necessary e.g. WWF-SARPO, NSPCA, THT, Captive Breeders, Wildlife Veterinary Unit.
Target 1.5 Develop and implement co-management frameworks for wildlife management	Collaborative national lion action plans to co-management lion populations in place for NW Matabeleland and SE Lowveld, including three conservancies (Bubye Valley, Save and Malilangwe).	Not completed.	1) Develop a national lion action plan that articulates collaborative co-management of lion populations amongst different land categories and users in the four major wildlife areas of the country: NW Matabeleland, Sebungwe Region, Zambezi Valley and SE Lowveld. Partially completed. 2) Ensure adoption and implementation of co-managements plans by stakeholders

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			including conservancies. No information provided. 3) Develop and implement participatory monitoring of implementation of plans. No information provided.
Target 1.6 The geographic distribution range of the lion population expanded	Conservancies and neighbouring communities are working together to maintain existing geographic distribution of lion populations. Zimbabwe proactive in the KAZA and GLTFCA programmes.	Not completed. Information provided relates to maintaining existing geographic distribution, rather than expanding the distribution.	1) Conservancies and neighbouring communities to work together and incorporate neighbouring communal lands into conservancies where possible. Reportedly completed, but lack of details makes it impossible to evaluate. 2) TFCAs to develop programmes to increase jointly managed lion populations. No information provided on all programs.
Output 2. Lion Research - Information for effective and adaptive lion conservation management generated			
Target 2.1 Initiate targeted research on lion ecology, management and mitigation of conflict	Extensive research programmes focussing on lion ecology and biology undertaken in Hwange, Bubye, Save, Malilangwe, Matusadona, Chizarira and Chirisa. ZPWMA have cooperated with NGOs, such as Panthera, to	Not completed.	1) Identify gaps in knowledge of lion ecology and biology that require research. No information provided. 2) Identify areas where collaborative (including cross boundary/border) research is required. No information provided.

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	develop cost-effective age determination methods for lions. Key threats to lion populations, with focus on human-lion conflict, snaring and poisoning, undertaken and continually monitored.		3) Standardise methodology where collaborative research is required. No information provided. 4) Develop cost-effective age determination methods for lions. Reportedly completed. 5) Identify population ecology research questions in key lion populations. No information provided. 6) Explore predator-prey relationships. No information provided. 7) Identify socio-ecological research needs. No information provided. 8) Assess the impact of key threats to lion populations in Zimbabwe at present, with particular focus on human-lion conflict, snaring (both direct mortality of lions in snares and depletion of prey populations), and the sustainability of hunting quotas. Reportedly completed.

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Output 3. Mitigation - Human-lion related conflicts minimized and, where possible, eliminated			
Target 3.1 Develop and establish databases on lion/human conflict	Data on Problem Animal Control (PAC) reports on lion related problems collated.	Not completed.	1) Collect PAC (Problem Animal Control) reports on lion related problems. Reportedly completed, although whether this is national or more limited in scope is not clear. 2) Analyse reports & produce evaluation matrix. No information provided. 3) Produce report with recommendations on appropriate PAC monitoring system, e.g. MOMS Oriented Monitoring Systems). No information provided. 4) Undertake community training on MOMS. No information provided.
Target 3.2 Identify and implement methods to reduce and mitigate livestock losses and lion attacks on humans	Approaches to mitigate livestock losses and lion attacks on humans being tested and implemented in Hwange. Methods to mitigate lion attacks on livestock being implemented as appropriate at selected sites (e.g. Tsholotsho).	Not completed.	1) Undertake participatory planning on how to mitigate livestock losses and lion attacks on humans. No information provided. 2) Undertake field work to identify weakness in livestock husbandry in relation to mitigation. No information provided. 3) Review literature, capitalise on experiences and lessons learned

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			elsewhere, e.g. Namibia, and undertake community leadership exchange visits. No information provided. 4) Examine and design appropriate farmer-based compensation schemes, e.g. HACSIS, Namibia. No information provided. 5) Provide training on lion mitigation methods. Limited efforts underway in a few places, according to information provided. 6) Implement mitigation methods as appropriate at selected sites. Reportedly completed.
Target 3.3 Trained and properly staffed PAC Units established to conduct rapid response, restrained and precisely targeted problem animal control	PAC Units at ZPWMA field station and/or RDC levels partially established.	Not completed.	1) Undertake needs assessment and capacity for managing PAC Units at PWMA field station and/or RDC levels. No information provided. 2) Define the role and responsibility of Units. No information provided. 3) Train and equip Units. No information provided. 4) Training and capacity building for PAC to be delegated to the responsible

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			appropriate authority (RDC) and sub-district levels. No information provided. 5) Collaborative and effective PAC techniques developed and implemented within 5 years. No information provided.
Target 3.4 Incidents of human-lion conflict reduced by at least 30% in 5 years while also reducing retaliatory killing	Specific awareness and education package on lion conservation and management developed and implemented in Matusadona, Hwange and Gonarezhou regions.	Not completed. Answer does not address target percent reduction or timeline.	1) Specific awareness and education package on lion conservation and management developed and implemented within 5 years. Partially implemented, according to information provided. 2) Mechanisms developed with the livestock sector to reduce livestock predation by lions by at least 35% from the current level within 5 years. No information provided.
Target 3.5 Number of lions killed through indiscriminate killings reduced by at least 30% in 5 years after baseline established.		Not completed. Target missing from ZPWMA (2016).	1) Country specific awareness and education package on lion conservation and management developed and implemented within 5 years. No information provided. 2) Develop incentives for communities to use legal PAC in identified 3 hotspots within 5 years. No information provided.

Table 2. Implementation status of the 2006 Conservation Strategy and Action Plan for the Lion (*Panthera leo*) in Zimbabwe.			
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Target 3.6 Incidences of lion attacks on humans reduced by at least 30% from the current levels in 5 years		Not completed. Target missing from ZPWMA (2016).	1) Develop and implement collaborative and effective PAC techniques. No information provided. 2) Develop appropriate educational and awareness programmes to promote avoidance of potentially lethal encounters between humans and lions. No information provided.
Output 4. Socio- Economic - The costs and benefits of long-term lion management equitably distributed			
Target 4.1 Complete an inventory of stakeholders directly affected by lion conservation	Stakeholder groups (e.g. local communities, CAMPFIRE RDC representatives, commercial safari hunting operators (SOAZ, ZPHGA), tourism operators (ZATSO) identified. Financial impacts of lion conservation and extent and magnitude of socio-economic impacts on each stakeholder group completed.	Partially completed.	1) Identify stakeholder groups (e.g. local communities, CAMPFIRE RDC representatives, commercial safari hunting operators (SOAZ, ZPH&GA), tourism operators ZATSO) at the appropriate scale. Reportedly completed. 2) Identify the financial impacts of lion conservation on each stakeholder group. Reportedly completed. 3) Determine extent and magnitude of socio-economic impacts on each stakeholder group. Reportedly completed.

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			4) Prioritise groups for intervention based on extent and magnitude of socio-economic impacts. No information provided.
Target 4.2 Deliver appropriate training and capacity building to prioritised stakeholders	Representative stakeholder groups in some regions identified (Hwange, Matusadona, Gonarezhou). Limited training undertaken. Implement adaptive programme across four wildlife regions	Not completed.	1. Identify representative stakeholders groups per wildlife region. Partially completed according to information provided. 2. Identify training needs in consultation with identified stakeholders. No information provided. 3. Develop training materials and implement training programmes. No information provided. 4. Review effectiveness of training material and programme in consultation with identified stakeholders. No information provided. 5. Implement adaptive programme across 4 wildlife regions. No information provided.
Target 4.3 Agree and implement collaboratively	In progress. Hwange NP Management Plan approved.	Not completed.	1) Consult identified stakeholders. No information provided.

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developed area-specific lion management plans with identified stakeholder groups in each wildlife region within 5 years			2) Determine the scope and scale of the key activities of the management plan. No information provided, although reportedly a management plan for one area, Hwange NP, is approved. 3) Identify and integrate 'best practices', making provisions for: • Ownership issues • Zoning for wildlife • Mutually binding agreement • Verifiable compliance • Suitable wildlife utilization plan (e.g. tourism, trophy hunting) • Income flows and cost distribution (including rainy-day funds to anticipate uncertainties in tourist revenues) • Appropriate husbandry techniques • Conflict-mitigation measures • Regulation of human immigration • Adequate wildlife and conflict monitoring • Annual environmental audits No information provided.

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			4) Implement management plan. No information provided. 5) Review plan annually and amend where necessary. No information provided.
Target 4.4 Implement transparent mechanisms to equitably distribute lion-related/generated income to identified stakeholders (groups and/or communities)	Scale of income generated from lion conservation reviewed and use of funds to encourage protection of lion populations reach local stakeholders undertaken (see CAMPFIRE generated revenues)	Not completed.	1) Identify income generated from lion conservation (see CAMPFIRE generated revenues). No detailed information provided. 2) Ensure that benefits of protecting lion populations reach local stakeholders. No information provided. Zimbabwe document does not provide enough details to evaluate if this activity occurred and its scope (national or local). 3) Distribute generated income according to intensity of lion impact (Apply CAMPFIRE Producer Community/Ward principles). No information provided. 4) Provide appropriate incentives, e.g. implementation of mitigation measures

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			and/or local re-location of people in high-conflict areas to low-conflict areas. No information provided. 5) Provide appropriate incentives e.g. participatory land use planning, to discourage immigration into lion and other wildlife range. No information provided.
Output 5. Regulations - Effective regulation of consumptive lion utilisation ensured			
Target 5.1 Implement approved policy and practice at national and local levels regarding problem animal control (PAC) of lions within 2 years	Current policy and practice regarding problem animal control of lion reviewed, at national and local levels. PAC offtakes reconciled with trophy hunting quota offtake to ensure that the overall offtake (i.e. total quota) is sustainable.	Not completed. ZPWMA (2016) did not address timeline in target.	1) Review, and revise where necessary, current policy and practice at national and local levels regarding problem animal control of lions (PAC). Reportedly completed. 2) Identify key responsibilities of the Appropriate Authority (AA), i.e. the land occupier in respect of problem animal control of lions, given the vulnerable status of lions and recent changes in land tenure. No information provided. 3) Incorporate PAC offtakes with trophy hunting quota offtake to ensure that the

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			overall offtake (i.e. total quota) is sustainable. Reportedly completed, but lack of details makes it impossible to analyze. 4) Determine need for regulation of PAC, including the provision of incentives/disincentives. No information provided. 5) Establish database for lion PAC (see Targets 1.5 & 3.1 above). Reportedly completed. 6) Ensure PAC policy and practice conforms to the appropriate scale of lion ecological functionality, temporally and spatially, and that this is recognised as an AA responsibility with respect to hunting and PAC offtakes. No information provided.
Output 6. Communication, Awareness and Information Dissemination			
Target 6.1 To carry out awareness programmes in 50% of the districts in	Awareness programmes initiated at a national level, with professional hunters, communities and NGO community. Awareness	Not completed. ZPWMA (2016) did not address percentage and	1) Identify target groups that need awareness. Reportedly completed.

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Zimbabwe within the next three 3 years	campaigns being carried out by the Extension and Interpretation Unit in all the regions.	timelines in the target.	2) Identify awareness needs for different target groups e.g. hunters, politicians, farmers. No information provided. 3) Develop and package awareness materials for different target groups, e.g. multi-media tools, TV, internet, radio. No information provided. 4) Implement awareness programmes. Information provided indicates that awareness programs have been 'initiated,' but no information is provided on whether this reached 50% of districts in three years, as per the target. 5) Create feedback mechanisms for target groups. No information provided. 6) Provide extension, information and interpretative services to surrounding communities. Reportedly completed.
Target 6.2 Create lion conservation and management information units within one year	Databases established at some key research centres using dedicated external research programmes (e.g. WILDCRU).	Not completed. ZPWMA (2016) did not address target of	1) Facilitate flow of information from various sources. No information provided.

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		establishing lion conservation and management units in one year.	2) Document and process information from various sources. No information provided. 3) Create information database. Reportedly completed. 4) Use Mushandike Natural Resources College as a training centre. No information provided. 5) Define personnel needs and resource requirements. No information provided. 6) Training, M&E, Research. No information provided.
Output 7. Regional and Trans-Boundary Collaboration			
Target 7.1 Undertake an inventory of national strategies for lion management	Done.	Not completed. Reportedly "done"; however, no information is provided on activities for this target.	1) Make a presentation at the AWCF Meeting in November 2006. Reportedly completed, but outcome not reported. 2) Develop a budgeted proposal seeking funds to undertake the inventory. No information provided. 3) Appoint 1/. a consultant or 2/. design questionnaire or 3/. use TFCA Conservation Committee or a combination of 2 & 3. No information provided.

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Target 7.2 Encourage the development of national lion conservation strategies where these are missing &/ or incomplete	National lion conservation strategies discussed at AWCF (meeting held under auspices of KAZA).	Not completed. ZPWMA (2016) did not report on outcome of activities for this target.	1) Seek consensus from the AWCF for the development & implementation of national lion conservation strategies. No information provided on outcome. 2) Contact counterparts before the AWCF Meeting. No information provided. 3) Present national lion strategies where applicable and/or available. No information provided on whether presentations were made. 4) Obtain support from neighbouring countries for the development of national lion conservation strategies. No information provided. 5) Persuade neighbours to develop national lion conservation strategies. No information provided.
Target 7.3 Develop an integrated and harmonised lion management strategy for Transfrontier Conservation Areas (TFCAs)	Lion conservation strategies for SADC discussed at AWCF meeting held under auspices of KAZA.	Not completed. ZPWMA (2016) did not report on activities for this target.	1) Within 2-3 years (medium term) develop the SADC strategy for lion conservation and management. No information provided; no information on outcome or whether time-frame in activity was met.

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		Targets (targets cannot be considered "completed" unless all activities are completed)	**Activities** (activities cannot be considered "completed" unless they are thoroughly completed; partial completion is not considered to be completed)
			2) Develop appropriate framework: − Develop National strategies − Seek consensus through AWCF Incorporate into TFCA Treaties − Develop SADC strategy No information provided on outcome of discussions held at meetings.
Target 7.4 Implement lion conservation strategy and management plan	Strategy under review.	Not completed. ZPWMA (2016) did not report on activities for this target.	1) Incorporate strategy into TFCA Conservation Committee workplans [& other stakeholder workplans]. No information provided. 2) Seek funding as required. No information provided. 3) Carry out half-yearly compliance reviews. No information provided. 4) Report back annually to all stakeholders especially those not involved in implementation. No information provided.

(4) ZPWMA lacks funding to enforce existing laws

As noted by the Service, "only revenues generated through sport-hunting conducted on state and private lands are used to finance ZPWMA; to our knowledge, no other government funding is provided, and only limited outside funding from NGOs or other governments appears to be available" (USFWS 2015, p. 8). ZPWMA (2016) confirmed this remains the case, and stated that it is unable to generate adequate revenue to cover both the capital and operating requirements (p. 26). In 2015, ZPWMA incurred a loss of US$5.4 million including depreciation (ZPWMA 2016, p. 26). The Service has expressed concerns about "the ability of ZPWMA to generate sufficient funds to support adequately their stated mission" and "if Zimbabwe has adequate resources to enforce existing laws and regulations" (USFWS 2015, p. 10-11). According to ZPWMA itself "no amount is budgeted for conservation in the national budget,"[3] leading to inadequate enforcement and implementation of laws and regulatory mechanisms. Lack of government funding also leaves the ZPWMA to rely on trophy hunting, even when unsustainable, to pay its bills, creating an inherent conflict of interest for the wildlife management agency. Therefore, the Service's concern – expressed in its 2015 finding concluding that Zimbabwe does not sustainably manage its elephant populations – that there is a lack of a national mechanism to sustain wildlife conservation efforts in Zimbabwe (USFWS 2015) remains valid.

ZPWMA (2016) noted that enforcement efforts have been hampered by lack of funding:

- "The current remuneration levels have remained low with the lowest paid worker receiving a gross salary of $375 per month. The last salary increase of 23% was in January, 2014. A comparison with other Parastatals within the same parent ministry, shows that the Authority has the lowest salary scales" (p. 20).
- "Only 70% of the Authority's vehicle fleet are in "sound condition" and, of three aircraft owned by the Authority, only one is in operation (p. 20).
- At the end of 2015, there were only 67% of rangers in post (1,448 out of 2,146), and only 1,004 of these were deployable for anti-poaching operations (p. 20).
- "Commercial wildlife poaching involving both local and foreign nationals continues to plague Zimbabwe, especially with respect to elephant and rhino located in the Zambezi Valley, Sebungwe, North-West Matabeleland, South-East Lowveld" (p. 21) "Note that 21 lions were killed illegal between 2013 – 2015, with 6 animals killed through snaring in the area adjacent to Hwange National Park in 2015." (p. 21).

In its October 2017 finding, the Service acknowledged the lower number of rangers in post, but ignored these other enforcement problems (USFWS 2017, p. 7).

[3] http://zimparks.org/zimbabwe-parks-and-widlife-management-authority-zimparks-successfully-exports-35-african-elephants-to-china/ (viewed 5 October 2017)

Lack of funding for ZPWMA has limited anti-poaching efforts and this has had negative effect on wildlife conservation. Mana Pools National Park and neighboring safari areas, which are located in the mid-Zambezi area, is one of the areas hardest hit by poaching. At a 2015 workshop held by ZPWMA to develop an anti-poaching strategy for the Park,[4] the Area Manager for the Park, Marvellous Mbikiyana, was quoted in a workshop report as having stated, "While the ideal staffing level for rangers is 110 for the Park, 75 have been approved, and only 38 are on site. Of the 38 on site, only 13 are deployable at any one time, due to a number of other commitments, such as driving duties, serving in the front office, and so on." The workshop report noted that the effectiveness of enforcement was negatively affected by low manpower.

Furthermore, according to the 2016 report on the Elephant Trade Information System (ETIS) at CITES CoP17 Doc. 57.6 (Rev. 1),[5] "Zimbabwe is the country that pulls the rule of law score down, indicating far greater governance challenges exist in that country" (p. 16). The World Justice Project (WJP) Rule of Law Index 2016 ranked Zimbabwe at 108 out of 113 countries and jurisdictions, meaning that Zimbabwe has the sixth worst rule of law.[6] According to WJP, "Effective rule of law reduces corruption, combats poverty and disease, and protects people from injustices large and small. It is the foundation for communities of peace, opportunity, and equity—underpinning development, accountable government, and respect for fundamental rights."[7]

Indeed, instead of effectively implementing and enforcing wildlife laws and regulations, ZPWMA personnel have been implicated in the illegal wildlife trade. In 2015, three ZPWMA staff members were arrested for involvement in the theft of ivory from a government stockpile held at Hwange National Park.[8] The arrests came after a shipment of 62 tusks on its way to China was seized at the international airport in Harare. Serial numbers on the tusks were traced to the Hwange government stockpile. An alleged Chinese smuggler, who claimed he represented the Chinese government, had obtained export permit signed by the most senior of the three ZPWMA people arrested. All three were released from custody, the senior ZPWMA person after paying a $600 bail; none appeared in court again. Allegedly, the investigation was stopped after senior ZPWMA officials in Harare intervened in order to cover the involvement of other ZPWMA officials in the smuggling. The investigation seemed implicate senior parks and Ministry of Environment, Water and Climate officials. Allegedly, the ZPWMA trio had been exporting ivory from the stockpile since 2012.

[4] http://www.zamsoc.org/wp-content/uploads/2016/04/MPNP-Anti-Poaching-Workshop-Summary-Report-15-April-2015.pdf
[5] https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-06-R1.pdf (viewed 5 October 2017)
[6] https://worldjusticeproject.org/sites/default/files/documents/ROLIndex_2016_Zimbabwe_en.pdf (viewed 5 October 2017)
[7] https://worldjusticeproject.org/sites/default/files/documents/ROLIndex_2016_Zimbabwe_en.pdf (viewed 5 October 2017)
[8] https://oxpeckers.org/2016/04/how-to-steal-an-ivory-stockpile/ (viewed 5 October 2017)

They had the assistance of ZPWMA security personnel and police units who guarded the trucks carrying the ivory over the 880 km from Hwange to the airport.

Corrupt government officials allegedly have been involved in both poaching of elephants and illegal export of ivory tusks, and involvement in a transnational syndicate.[9] Edson Chidziya, the former Director General, Zimbabwe Parks and Wildlife Management Authority, and one-time regional representative for Africa on the Animals Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),[10] and who has supported Safari Club International's lawsuit against the U.S. Department of the Interior regarding the prohibition of elephant trophies from Zimbabwe,[11] was fired in May 2017 for his alleged involvement in the disappearance of rhino horns worth $3 million two years before.[12]

Of further concern is that the ZPWMA operates without a board which, as noted by Mupfiga and Chirimumimba (2015), creates "a leadership vacuum and also legal constraints for the validation of policy decisions and approval or authorization of programmes" and it is "worrying for State entities to operate without boards for long periods because management are then left to operate without accountability, a situation which may compromise the efficiency and effectiveness of an entity due mainly to the absence of an effective oversight function" (p. 4).

Politics and corruption also play roles in trophy hunting in Zimbabwe. A 2012 news article explained how officials from Zimbabwe's ruling party since 1980 sought to cash in on trophy hunting by taking over hunting concessions.[13] A 2015 news article quoted Mary-Jane Ncube of a Zimbabwe NGO that monitors corruption, Transparency in Zimbabwe, as stating "In the area of conservation, I think it [the government] has behaved like a predatory state, going after big investments, giving them to cronies, family, and really not having any concern for communities that are dependent on that land …"[14] Furthermore, she was quoted as saying, "National Parks was the authority in charge of concessions and licensing, but because of the corruption … concessions and licenses are now given according to who you are and who you can pay the highest dollar to." A June 2017 news article described how the Tsholotsho Rural District Council sold permits to a safari hunting company, Lodzi Hunters, to hunt 50 elephants in order to get money to fund the construction of a football stadium. This reportedly came about after Higher and Tertiary Education, Science and Technology Development Minister Professor Jonathan Moyo, who is the MP for the

[9] http://globaljournalist.org/2017/02/zimbabwe-journalist-fights-charges-poaching-report/ (viewed 10 August 2017)
[10] https://cites.org/sites/default/files/eng/com/ac/22/E22-05-01.pdf (viewed 5 October 2017)
[11] https://www.courtlistener.com/docket/4212662/safari-club-international-v-jewell/ (viewed 5 October 2017)
[12] http://www.thezimbabwean.co/2017/05/zim-wildlife-boss-fired-3m-rhino-horn-goes-missing-report/ (viewed 5 October 2017)
[13] https://mg.co.za/article/2012-09-07-00-big-bucks-trigger-zimbabwe-scramble (viewed 5 October 2017)
[14] https://mg.co.za/article/2015-10-22-hunters-feed-corrupt-zim-officials (viewed 5 October 2017)

area, made a deal with then Minister of Water, Climate and Environment, Saviour Kasukuwere, who then issued the hunting quota of 50 to the Council. Of relevance, according to Transparency International, in 2016 Zimbabwe was the 22nd most corrupt country, ranking 154 of 176.[15]

Thus, the Service's concern – expressed in its negative enhancement finding for Zimbabwe elephants in 2015 – that Zimbabwe's wildlife laws and regulatory mechanisms are inadequately implemented and enforced (USFWS 2015) remains valid.

(5) There is no evidence that revenue from lion hunting enhances the survival of lions

The Service states "Hunting, if properly conducted and well managed, can generate significant economic benefits that may contribute to the conservation of lions. In looking at whether we are able to authorize the import of a trophy under the issuance criteria of 50 CFR 17.32, we will examine if the trophy hunting provides financial assistance to the wildlife department to carry out elements of the management program and if there is a compensation scheme or other incentives to benefit local communities that may be impacted by lion predation" (USFWS 2017, p. 5). It is clear from this statement that no amount of economic benefit from hunting will offset the detrimental effect on lion populations of unsustainable, poorly managed trophy hunting. Thus, any economic benefit from hunting alone is not sufficient evidence that hunting is enhancing the survival of lions.

As noted previously, Zimbabwe's wild lion populations have declined since 2002 and fewer than 300 truly wild (not fenced in) male lions remain; Zimbabwe's lion hunting quotas are not science-based and age restrictions are poorly implemented; Zimbabwe's lion management plan has not been substantially implemented after eleven years; and the ZPWMA does not receive funding from the Zimbabwe government and consequently has insufficient funds to enforce existing laws. Given this situation, lion hunting in Zimbabwe clearly is not properly conducted or well managed and it is irrelevant that there is economic benefit from such unsustainable hunting.

Yet, the Service ignores the poor management of lion trophy hunting in Zimbabwe and states, "While, over the years, ZPWMA has failed to generate adequate revenue for its operations, U.S. sport hunters play a large role in the hunting industry of Zimbabwe. The Service anticipates that by granting the importation of sport-hunted lion trophies, there would be an increase in funds provided to Zimbabwe's conservation initiatives through this program by U.S. sport hunters" (USFWS 2017, p. 19).

As noted above, the Service states that it will examine "if there is a compensation scheme or other incentives to benefit local communities that may be impacted by lion predation" (USFWS 2017, p. 5). The Service explains, "we recognize that in many parts of the world, wildlife exists outside

[15] https://www.transparency.org/news/feature/corruption_perceptions_index_2016 (viewed 5 October 2017)

of protected areas and must share the same habitat and compete with humans living in these areas for space and resources" and "if communities that share these resources with wildlife do not perceive any benefits from the presence of wildlife, they may be less willing to tolerate the wildlife. However, under certain circumstances, trophy hunting can address this problem by making wildlife more valuable to the local communities anti encourage community support for managing and conserving the hunted species, as well as other species." Further, "A component of a management plan from which trophy imports would meet the issuance criteria would be whether there are government incentives in place that encourage habitat protection by private landowners and communities and incentives to local communities to reduce the incursion of livestock into protected areas or to actively manage livestock to reduce conflicts with lions" (USFWS 2017, p. 5). The Service states, "Co-existence of lions and people is promoted through giving value to lions, through tourism and hunting in CAMPFIRE areas" (USFWS 2017, p. 8).

First, the evidence before the Service demonstrates that the government of Zimbabwe is not actively mitigating human-lion conflict. Although one of the Outputs of Zimbabwe's lion management plan is "Mitigation - Human-lion related conflicts minimized and, where possible, eliminated," and this includes the target of "Incidents of human-lion conflict reduced by at least 30% in 5 years while also reducing retaliatory killing," this output and target have not been met. In its analysis of this output and target, the Service copies and pastes information from ZPWMA's (2016) that "approaches to mitigate livestock losses and lion attacks on humans are in the process of being tested and implemented in Hwange and methods to mitigate lion attacks on livestock are being implemented as appropriate at selected sites (e.g. Tsholotshe)" (USFWS 2017, p. 11; and ZPWMA 2016, p. 12). Further, the Service states, "Additionally, to mitigate human-lion conflict, the "Long Shields Guardian Programme" was initiated whereby communities are notified of movements of collared lions into their areas via cell phone, and then have the opportunity to take appropriate action, such as moving cattle. In 2013 alone, 1,850 warnings were passed to the "Long Shields"" (USFWS 2017, p. 12).

However, as explained in ZPWMA (2016), human-lion conflict mitigation being conducted in the country is limited to an Oxford University WildCru Lion Research project in the Hwange area, which includes the aforementioned Long Shields Guardian Programme and efforts to improve livestock husbandry to avoid lion attacks; this is not a government program and it is not implemented in all lion areas in Zimbabwe. The program is limited to the Hwange area and is the only such program noted in ZPWMA (2016) despite their acknowledgement that "The main source of illegal killing of lions is a result of Human-Lion conflict" (ZPWMA 2016, p. 44). Indeed, as noted previously, the number of lions killed as a result of human-lion conflict exceeds the number killed by trophy hunters. ZPWMA states, "The exact number of lions killed in this way is difficult to assess, but may number over 50/year" (ZPWMA 2016, p. 44); this compares to 49 lions trophy hunted in 2015, and 33 in 2016 (ZPWMA 2016, p. 38).

It must also be noted that the government of Zimbabwe does not compensate farmers for livestock lost to lions. According to a May 2017 news article by Jeffrey Moyo,[16] "Villagers in this Southern African nation say despite the threat the lions pose to their livestock, national parks and wildlife authorities here are doing nothing to help them, as stray lions roam freely, and it takes park officials too much time to round them up. "Our lives are in danger. We can't kill the lions even if we see them attacking our livestock because the law doesn't let us; if you do it they put you in jail," said Ezra Ncube, 37, a local villager. "But if our cows are eaten by lions, no one goes to jail and nobody even bothers to compensate us, yet the lions stray from parks and some private safaris."

One human-lion conflict mitigation effort conducted by a foreign university research team is not evidence that the government of Zimbabwe is making a serious effort to address human-lion conflict.

Second, there is no evidence that there is flow of money from American lion trophy hunting in CAMPFIRE areas. According to ZPWMA (2016), "The potential and real loss of habitat and the fragmentation of range and conflicts with people in the absence of effective incentive mechanisms to maintain such habitat is probably the second greatest threat to lions after retaliatory killings" and "integrating income from lions into rural economies, and demonstrating that lions contribute to the welfare and development of people is regarded as one strategy to mitigate against this" (ZPWMA 2016, p. 44). ZPWMA states that 2010-2015, eight lions were hunted on CAMPFIRE land per year on average, and this generated US$ 40,000 per year (ZPWMA 2016, p. 31). Although it is stated that American hunters contribute 51% of all revenue generated by hunting in CAMPFIRE areas (not lion hunting specifically) (ZPWMA 2016, p. 31), the Service admits "While hunting is allowed in CAMPFIRE areas, it is unclear if American sport hunters conduct lion hunts in these areas" (USFWS 2017, p. 14). Consequently, the Service cannot reasonably conclude that U.S. hunter revenue is contributing to lions or their habitat on CAMPFIRE land.

Third, there is no evidence that financial flow from lion hunting in CAMPFIRE areas has increased people's tolerance of lions and has resulted in enhancement of the survival of lions. ZPWMA asserts that "The involvement and empowerment of rural people in natural resource management through the CAMPFIRE programme that strives to provide economic and financial incentives through sustainable use, is one of the main driving forces behind changes in attitudes towards wildlife in communities where lion-livestock conflicts occur" (ZPWMA 2016, p. 44). The Service similarly claims, citing to ZPWMA, that "co-existence of lions and people is promoted through giving value to lions, through tourism and hunting in CAMPFIRE areas" (USFWS 2017, p. 8). The Service further claims that "the participation of communities in CAMPFIRE has heralded a reversal in wildlife declines on private land. When the benefits of CAMPFIRE were extended to RDCs, it further aided in the equitable distribution of benefits from trophy hunting to local communities, which incentivizes them to conserve the African lion" (USFWS 2017, p. 15).

[16] http://aa.com.tr/en/africa/stray-zimbabwe-lions-pit-villagers-vs-conservationists/818598

Harrison et al. (2014) provided a recent analysis of the CAMPFIRE program. The theory behind CAMPFIRE is to empower community members at a village level to control wildlife and its revenue, and to thus create an economic incentive for communities to conserve wildlife. But, according to Harrison et al., this is not actually happening. According to Harrison et al., although CAMPFIRE had a reputation of success in its early days, over time this perception eroded and by the late 1990s it was criticized for lack of participation, lack of empowerment and lack of participation of local communities in management of natural resources. The main problem with the way that CAMPFIRE was designed is that it established the rural district council, which represents numerous local communities, as the 'local' body in charge of natural resource management, rather than the local communities themselves. Harrison et al. state, "Failure to provide benefits to the local communities and to successfully devolve management are just two of the many common criticisms" (p. 8). Among these criticisms is "insufficient action to tackling problems of elite-capture of resources and wildlife-based tourist revenues within RDCs" (p. 9).

Harrison et al. (2014) studied the CAMPFIRE program in the Binga district, which is part of Sebungwe, and the Chiredzi district, which is part of Gonarhezou; as noted previously, the elephant populations of both Sebungwe and Gonarhezou have experienced dramatic elephant population declines in recent years. The authors found that CAMPFIRE failed as a governance system for community involvement and empowerment and that the "community-based" terminology is merely rhetoric. They warn that new "community-based" natural resource management projects need to "be aware of the disconnect between the local citizens (as their key stakeholders) and what the RDC may believe and be happy to approve" (p. 30). They conclude "The lack of understanding and attention paid to the sub-district governance system for natural resource management has meant that project implementation has negatively affected the system as a whole, including the people within it, as well as the project outcomes" (p. 31). They said, "CAMPFIRE has continued to try and operate in a system it increasingly did not understand and thus its structures did not map appropriately onto those operating at the sub-district level. As a partial result of this, the programme has largely collapsed in many parts of the country" … "including in the four case study villages. The benefits experienced by the communities involved over the projects' lifespans have been negligible" (p. 32).

Two news reports by Debra Patta looked at local perspectives in Zimbabwe on the claim that trophy hunting benefits local communities. One news report quoted Emmanual Fundira, who heads Safari Operators Association of Zimbabwe as saying that although part of the hunting fees paid by trophy hunters is supposed to go to conservation and community projects, in fact it rarely does.[17] In another article, Fundira stated, "If you talk to communities today and say 'Campfire' they don't

[17] http://www.cbsnews.com/news/zimbabwe-corruption-trophy-hunting-cecil-lion-conservation/ (viewed 9 August 2017)

want to hear. They say Campfire is not benefitting them at all and that in itself is a disaster."[18] The article also quoted a CAMPFIRE rural district council CEO named Phindile Ncube as saying that his community earned $158,000 in a year for infrastructure and "feeding schemes." However, the article quoted a villager named Edward Ngwenya who said he hadn't received anything from the RDC. This was confirmed in another report which said that, while money from trophy hunting is promised to poor communities, they are only getting poorer.[19] Another news article quoted a local chief, Victor Nekatambe, commenting on the fact that local rural district councils manage CAMFIRE and that communities do not receive funding: "They are getting nothing, absolutely nothing."[20]

Indeed, most wildlife poachers are from local communities that are receiving financial benefits from trophy hunting. Gandiwa et al. (2014) studied law enforcement in Gonarezhou NP by interviewing law enforcement staff from Feb-May 2011. They found "Nearly all respondents (95%; n = 40) reported that most poachers were residents of villages adjacent to GNP (≤ 20 km); whereas about 5 % (n = 2) reported that only the commercial poachers were those living far away from GNP (> 20 km)" (p. 122-123). The Service ignored these readily available sources of pertinent information in making its October 2017 enhancement finding.

Therefore, it is erroneous for the Service to conclude that revenue generated through trophy hunting of lions actually provides an incentive to local communities to conserve lions. Simply, lion hunting revenue cannot be found to enhance the survival of lions when lion hunting is being poorly managed in Zimbabwe.

Conclusion

The Service's enhancement finding for lions taken as hunting trophies in Zimbabwe during 2016, 2017 and 2018 is the result of a lack of critical analysis of information contained in documents submitted to the Service by the government of Zimbabwe and others (and the Service failed to solicit comment from knowledgeable stakeholders, contrary to its assertion in the October 2017 finding). The Service repeatedly cites to information contained in ZPWMA (2016) and du Preez et al. (2016), often copying and pasting the text from these documents in the finding, although the original documents lack evidence to support the claims made. As a result, the finding is the product of a lack of scientific rigor, in violation of the Endangered Species Act.

[18] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/ (viewed 9 August 2017)
[19] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/ (viewed 9 August 2017)
[20] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/ (viewed 9 August 2017)

Further, there are numerous, inexplicable internal inconsistencies in the Service's finding. For example, the Service concludes that "Based on the information available to the Service, the funds generated by hunting trophies contribute to the ZPWMA's ability to manage the country's lion populations as well as the success of CAMPFIRE" (p. 16, emphasis added); but earlier in the finding, the Service states, "While hunting is allowed in CAMPFIRE areas, it is unclear if American sport hunters conduct lion hunts in these areas" (p. 14). Thus, the facts found by the agency do not match the conclusions drawn and the finding is therefore arbitrary and capricious.

Numerous recent studies in the Service's possession have demonstrated that Zimbabwe has poorly managed lion trophy hunting. For ecample, Groom et al. (2014) found that unsustainably high trophy hunting quotas in the concessions, mostly CAMPFIRE areas, around Gonarezhou in 2009-2010 caused the population to collapse; and, similarly, Loveridge et al. (2016) provided quantitative evidence that uncontrolled trophy hunting of lions in areas around Hwange National Park in 2000-2012 was a cause of population decline. Thus, information provided to the Service from Zimbabwe must be subject to scrutiny and carefully examined for veracity, but the Service failed to do so in issuing its finding.

An objective analysis of this information must lead to conclusions that:

- Unfenced lion populations in Zimbabwe have declined over the past decade and today fewer than 300 truly wild adult male lions remain in the country.
- Zimbabwe's lion hunting quotas are not science-based, and age restrictions are poorly implemented and do not apply to all lion hunting areas in the country.
- Zimbabwe's 11-year-old lion management plan still has not been substantially implemented.
- ZPWMA lacks funding to enforce existing laws.
- There is no evidence that revenue from American lion hunting enhances the survival of lions.

For these reasons, we strongly urge the Service to rescind its determination that the import of lions taken in Zimbabwe in 2016, 2017 and 2018 would meet the issuance criteria under 50 C.F.R. § 17.32. Issuing any import permits for lion trophies from Zimbabwe pursuant to this finding would violate the Endangered Species Act and FWS regulations. This letter serves as formal opposition to any application for an import permit for a lion trophy from Zimbabwe and HSUS, HSI, and HSLF request that FWS provide ten days advance notification (via email, afrostic@humanesociety.org) prior to the issuance of any such permits. *See* 50 C.F.R. §§ 17.22(e), 17.32.[21]

[21] HSUS has previously called on FWS to publish notice in the Federal Register of threatened species permit applications, and we reassert that such action is essential to create transparency in FWS' enhancement analysis for African lion activities, consistent with the intent of ESA Section 10. Similarly, it is arbitrary

Respectfully,

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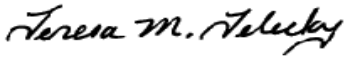

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for the Service to explicitly apply the notification requirements of 50 C.F.R. § 17.22(e) to certain types of threatened species permits (i.e., those for Safe Harbor Agreements and Candidate Conservation Agreements with Assurances) but not to other threatened species permits (i.e., for incidental take and import).

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