

Docket No. FWS-R9-ES-2012-0025; 450 003 01 15
Comment on USFWS's 90-Day Finding on a Petition to List the African lion subspecies as Endangered

28 January 2013

Dear Amy,

Since 2004, the Zambia Lion Project (ZLP) has been conducting empirical research, including field studies and laboratory analyses, on the African lion in Zambia. This work has been conducted in partnership with Zambia Wildlife Authority (ZAWA) and with the close cooperation of the Zambian hunting industry. This work is ongoing; data and observations are compiled annually throughout the country with an emphasis on the game management areas (GMAs) where lion hunting occurs. Therefore, while some of these comments pertain to Zambia's wild lions, most are more broadly applicable to lions in other parts of their range, in particular in hunting areas. Because an uplisting of African lion to Endangered Species would ban importation of lion trophies to the USA, it would effectively eliminate Americans, and possibly Europeans from this market. The comments herein focus largely on the complex issue of sport-hunting and describe many existing benefits to lion conservation that sport-hunting imparts, as well as potential benefits that sport-hunting represents to lion conservation for the foreseeable future. These benefits would be lost with an uplisting of the African lion to Endangered status.

Briefly, the benefits that sport-hunting provides to lions, their prey and their habitat include: 1) direct revenues e.g., jobs, meat, as well as pledges provided to rural communities all of which serve to reduce poaching, 2) assignment of monetary value to large dangerous carnivores and thus, increased incentive for rural people to tolerate lions outside of National Parks, 3) increased financial and logistical support for anti-poaching, 4) protection of native prey species through decreased bushmeat poaching, 5) protection of lion habitat against land conversion, 6) protection of lion habitat against unsustainable resource extraction e.g., logging in GMAs, 7) decreased livestock presence, overgrazing and associated desertification in GMAs, 8) decreased exposure of lions and their prey to domestic diseases from livestock, 9) greater ability of foreign regulatory agencies and scientists to provide input to African governments regarding lion management and conservation. Each point serves to reduce existing threats. Further, they can prove instrumental in improving existing or, in some cases restoring historic habitat thereby helping ensure the survival of lions into the foreseeable future.

More information regarding each of these points is given below. Thank you in advance for your consideration of these important issues.

A. Habitat requirements, modifications and loss

Across Africa, habitat is being rapidly modified through human development. This includes large areas of historic and present-day lion range (IUCN 2006a,b). The

rate at which habitat is converted and lost varies by regions. Habitat, current geographic isolation, and genetic differences of lions in West and Central Africa suggests that these animals should be considered as a distinct population segment, with Eastern and Southern Africa comprising its own population segment.

Throughout current lion range, the best quality and largest tracts of intact habitat are located in National Parks (NPs) and game management areas (GMAs) e.g., hunting areas, that together comprise contiguous ecosystems. In Zambia, the GMAs that support lions are approximately equivalent in size to its NPs (www.info.com/ZambiaWildlifeAuthority). Sport-hunting serves to keep lands wild thereby protecting vast tracts of lion habitat. Therefore, where hunting operations are in place, the threat of habitat modification and loss are significantly reduced or eliminated.

In many of Zambia's GMAs, safari hunting operations represent the only form of protection for wildlife and other resources e.g., native trees. In the absence of safari operations and where there are no other sources of income and meat for rural people, encroachment and habitat degradation via deforestation (short-term charcoal production) occurs very quickly i.e., often within a matter of weeks to months (Pers. Obs, ZAWA Unpublished data, Pers. Comm. Professional Hunters Association of Zambia). Initial encroachment for resource extraction (charcoal, poaching) is typically followed by establishment of villages, conversion to agriculture, and introduction of domestic livestock (Pers. Obs.)

With the establishment of hunting and the protection that it provides for the habitat and animals, many short-term effects of habitat modification can be reversed within 1-5 years (relocation of settlements, secondary regeneration of bush). Likewise, although the recovery period is longer (5-10+ years), habitats that have suffered longer-term negative impacts to the environment (severe habitat degradation by overgrazing of goats) can, under proper management, be restored to support lions.

Thus, sport-hunting serves to significantly reduce the rate of habitat degradation and loss, and when established and promoted in already degraded areas can serve to restore habitat for lions and their native prey.

B. Overutilization

Excessive harvest of any species can result in population decline. Hunting of African lions is no exception and, prior to the general recognition of large carnivores as keystone species worthy of conservation, overharvest occurred in some areas including parts of Zambia i.e., Liuwa Plain (Pers. Comm. R.Pope).

Poorly-managed trophy hunting of lions i.e., overharvest, appears to have altered population demographics and negatively impacted lion populations in some areas (Loveridge et al. 2007, Packer et al. 2011). Depletion of native prey through poaching has subsequently hindered the natural ability of lion populations to recover. The world now possesses a refined understanding of the importance of maintaining intact ecosystems that include large predators. As scientists, we are also becoming increasingly well-versed in what constitutes

sustainable lion hunting. Fortunately, given their natural breeding capacity, lions can recover rapidly from even severe perturbations to local populations once management is improved. Moreover, a recent modelling study in Zambia found incidental wire snaring of lions to be having a similar impact as trophy hunting and recommended that a combination of hunting reforms coupled with improved measures to reduce snaring would “substantially improve the...quantity...of male lions” (Becker et al. 2012).

Some recent arguments claiming that sport-hunting has been responsible for overutilization and subsequent population decline in African lion however, are flawed (Packer et al. 2009, LionAid 2012). These include works that rely upon import/export data compiled by CITES and UNEP’s World Conservation Monitoring Centre (WCMC) databases (www.unep-wcmc.org/citestrade).

Interpretation of CITES trade data is difficult for a multitude of reasons. In its Evaluation for Information for a 90-Day Finding on a Petition, USFWS notes that within the CITES database “a specimen could be a whole animal, or multiple products made from one animal” (USFWS 2012). As a result, variable standards in both methods and accuracy in trade reports submitted by different countries suggest that application of CITES trade data is limited, and that the validity of results arising from studies that rely heavily on CITES trade as a source of data must be viewed with extreme caution.

One example is a widely circulated report that ranks Zambia’s conservation status based on a “record number of lion trophies” exported in 2010. This report lists the number of Zambian lion trophy exports in 2010 as 199, noting that most went to Russia (LionAid 2012).

ZLP has direct access to lion hunting data in Zambia including lion quota allocation and utilization for most of the past 10 years. For that reason, it was immediate obvious that the figure of 199 lions exported from Zambia in 2010 was incorrect. ZLP queried WCMC who investigated the original records and confirmed that the listing recorded as “hunting trophy” (line 6921 WCMC report) contained additional remarks “skull, skin, and 103 bones” e.g., a single individual lion (Pers. Comm., Patricia Cremona, Species Programme, UNEP WCMC). A correction to the database regarding this record has since been made (18 January 2013). Nevertheless, this error was widely perpetuated by LionAid as evidence of recent over-harvesting of lions in Zambia.

Other studies have utilized CITES export & import data as direct measures of off-take and to assess long-term population trends (Packer et al. 2009). Unlike LionAid’s internally derived report, these studies are published by experts in scientific peer-reviewed literature, thus carry considerable weight.

However, in addition to problems associated with reporting of “specimens” as noted above, due to the significant amount of time that within-country trophy processing, permitting, and shipping may require, CITES data can suffer from a time-lag between year of actual harvest and year of export. This is illustrated in another example by the CITES data that lists 24 lion trophies originating from Zambia during 2001 (www.unep-wcmc.org/citestrade). In fact, no trophy hunting occurred during 2001 in Zambia. Therefore, the export data of African lion

trophies from Zambia as reported by CITES, and used in Packer et al. 2009, are incorrect.

Additionally, some reduction in off-take is the direct result of decreased allocation of lion on quota, and increased hunter selectivity, and therefore should not be perceived as indicative of population decline, or of the inability of a hunter to find a lion due to dwindling numbers (White in prep, ZAWA Records 2005-2012). Likewise, studies that seek to correlate “hunter effort” (i.e., length of hunt, number of baits) with lion population size fail to consider the multitude of factors at play (weather, timing since last hunt, species of bait animal used, lunar cycle, etc.), all of which influence the effort required and ultimately, the hunt success.

Finally, consideration of lion export data must include a clear distinction between trophies originating from genuinely wild source populations and those from captive-bred facilities, the latter primarily from South Africa. Although the CITES database seeks to do so, the output data is often ambiguous, further muddled by hunting clients who are told that their captive-bred lions were “wild”.

Due to the inherent problems detailed above, information arising from any source that relies on raw CITES export data must be viewed with extreme caution, and it should be emphasized that a decline in number of exports may reflect lowered allocated quotas or changing in the hunting market, rather than population decline.

Hunting closures. In 2001-2002, Zambia implemented a full hunting closure of all species in GMAs countrywide. This decision involved reallocation of hunting leases and did not target individual species or specific GMAs. Thus, any inferences that Zambia’s 2001-2002 hunting closure was the result of a “moratorium on lion hunting” are incorrect.

Zambia has recently (10 Jan 2013) implemented another partial hunting closure for the 2013 season once again associated with reallocation of the hunting leases in 19 GMAs. Concurrently, Zambia has banned the hunting of lions and leopards throughout the country. This decision was made at the discretion of the Honorable Minister of Tourism & Arts in efforts to conduct sweeping reforms of ZAWA and the Zambian hunting industry. These efforts are commendable and ZLP fully supports the Honorable Minister in her mission to implement industry reform that promotes improved livelihoods for indigenous Zambians in conjunction with sustainable wildlife management.

Reforms of lion hunting practices are occurring in other range states as well, beginning with Mozambique’s development of a minimum age system for lion hunting in parts of that country (Begg & Begg 2009). More recently, the Tanzania Wildlife Division adopted and implemented a minimum age (6 year) regulation for trophy lions (Tanzania Wildlife Division Regulations). Reforms are aimed at helping ensure continuity of sport-hunting and survival of wild lion populations into the foreseeable future.

Similarly, Zambia is in the process of developing an age-based trophy lion selection program. A voluntary program has been in operation since 2006 and 75%-90% of all lions taken each year have been examined by ZLP. Mandatory sampling of lion trophies was agreed to in August 2012 by then-Director General

Matokwani. ZLP has provided the same “best practices” lion management recommendations directly to the Ministry for their consideration in continuing with the progress already made towards establishment of a minimum age program for trophy lions in Zambia. In addition to the 6+ year age minimum for trophy lion, “Best Practice” recommendation include allocated quotas based on GMA area size (Packer et al. 2011). There are no female lions on quota in Zambia.

In addition, scientists have worked towards consensus on the best way forward for ensuring that negative impacts of sport-hunting are reduced (Hunter et al. In Press), while consumers (safari operators and professional hunters, hunting clients, and hunting organizations) are taking their own measures to reduce their negative impact of sport-hunting by voluntarily undertaking industry reforms (DSC Press Release 2013, White 2010). Recent and ongoing reforms in sport-hunting can significantly reduce the threat that overutilization may previously have posed to some localized lion populations. In the absence of this threat, recovery of lion populations can occur.

Lion Bone

The presence of safari hunting operators throughout vast tracts of lion habitat reduces the potential problem of lion bone trade. Because any lion bone is valuable, poachers do not preferentially target adult males, but rather indiscriminately kill any and all lions that they can access, often through use of poisons.

The presence of sport hunters in the bush, as well as the money and logistical support that they provide for anti-poaching scouts lowers the threat of lion poaching, and thereby reduces mortality of both sexes and all age classes of lions. Thus, while lion bone trade is recognized as a current threat, it will not cause the extinction or endangerment of lions in the foreseeable future. Moreover, the future threat can be reduced.

In summary, while sport-hunting, poaching, snaring, poisoning, and human-wildlife conflict are all anthropogenic sources of mortality to wild lions, uplisting lions to Endangered does not address any source of mortality other than sport-hunting. In fact, an uplisting to Endangered will effectively reduce protection for the African lion throughout much of its remaining range with the very real chance of inadvertently increasing the levels of mortality from other sources, as outlined above.

It should be further noted that, while an uplisting to Endangered would effectively discourage American (and likely European) hunters, it has no power to stop range states from continuing to sport-hunt their lions. In the absence of the American hunting market, the ability of foreign regulating authorities or scientists to influence management decisions regarding lion hunting will likely be curtailed.

C. Disease

Although wild lions are exposed to a wide variety of diseases and pathogens, disease-caused mortality of lions in the wild is rare (Packer et al. 1999, Hunter et al. 2012). Similarly, FIV infection does not result in increased morbidity or mortality (Roelke et al. 2009) nor does it shorten lifespan (Packer et al. 1999,

Troyer et al. 2004). Thus, while the presence of disease exposure is often cited as cause for dire concern (Abell & Youldon 2013), the relationship between disease exposure and lion mortality has not been demonstrated. In fact, the potential risk factors associated with disease exposure are often overstated (Abell & Youldon 2013), when in fact empirical data that demonstrate absence of effects are available (Hunter et al. 2012, 2013).

Some disease concerns are associated with exposure of lions or their prey to domestic species (Ferreira and Funston 2010), although mortality was coincident with other factors, e.g., weather phenomenon (REF) or exceptionally low levels of genetic diversity due to inbreeding (Trinkel et al. 2011). Nevertheless, by reducing or eliminating encroachment by humans and livestock onto vast tracts of lion habitat, sport-hunting reduces the threat of wild lions to contact diseases of domestic species.

Furthermore, given that documented cases of high exposure prevalence have caused so little overt effects on individual lions, disease does not present a threat to lions throughout a significant portion of their range. Nor does any evidence suggest that lions may go extinct or become endangered in the foreseeable future.

D. Inadequate Regulatory Mechanisms

A number of regulatory mechanisms that protect the African lion are already in place. These include CITES Appendix II status and a system of reporting and export/import permits from countries of origin and destination. In countries where sport-hunting of lions occur, additional regulations apply to off-take. These include allocated quota, procurement of trophy licenses, and specific regulations pertaining to the hunt. Additionally, currently implemented hunting reforms (allocated quotas based on area size, age-based trophy selection) serve to compliment existing regulatory mechanisms.

In Zambia, a Conservation Strategy and Action Plan for the African Lion (ZAWA 2009) has already been finalized by the wildlife authority, the main goal of which is to ensure that existing lion populations in Zambia continue to thrive into the foreseeable future, while restoring lion populations in areas where their numbers are below carrying capacity.

E. Other natural or anthropogenic factors

Human-lion conflict

Zambia's Conservation Strategy and Action Plan has in place a protocol for problem animal control (PAC) that calls for evaluation of the complaint, assessment of the causal factors, and prior and future threat to human life and livelihoods. The protocol stresses logical decisions be made to assess (and reduce) the need for lethal control. Enhanced implementation of the PAC protocol and greater reliance on non-lethal methods to reduce PAC can further reduce the number of lions killed as problems (ZAWA Archives, White unpub data).

As in other places, rural communities in Zambia that receive revenues from sport-hunted lions are far more aware of the value, and therefore show

greater willingness, to coexist with lions and other large carnivores (Lindsey et al. XXX, Frank 1998, White Pers. Obs.). Further, some safari operators in Zambia make efforts to have clients already on a lion hunt take a problem animal as their trophy, while others fund their own compensation schemes and offer villagers financial compensation for livestock killed by lions, providing that the lions are left unmolested (Pers. Comm. Professional Hunters Association of Zambia).

In summary, instances of human wildlife conflict and resultant lion mortalities are lower in GMAs than outside of protected areas, and can be further reduced through education, awareness, enhanced development of PAC protocols, and greater consideration and use of non-lethal alternatives.

Genetic Viability

Genetic distinctness of lions in Eastern and Southern Africa from those occurring elsewhere has previously been demonstrated (Antunes et al. 2008). In particular, the distinctiveness of lion populations in West and Central Africa has been well-described (Bertola et al. 2011). Using microsatellites and mitochondrial DNA, Dubach et al. (In Press) have recently shown existing population structure among sub-Saharan lions. Presented within the framework of “Lion Conservation Units” (IUCN 2006) this work contributes importantly to our understanding of lion conservation by quantifying genetic similarities and measures of genetic diversity among many of the remaining lion populations and their range.

In addition, ZLP has directly documented individual lions moving between Zimbabwe and Zambia, and between Caprivi Strip, Namibia and Zambia. Genetic results have also detected dispersal of young adult males from Botswana into Zambia (Dubach et al. In Press). In-depth genetic analyses of lions throughout Zambia that are currently underway will significantly improve our understanding of smaller-scale lion population dynamics.

Climate Change

Given the African lion’s historic range covering a vast array of habitat types (IUCN 2006a,b), it is clear that as a species the lion is capable of existing in a wide variety of ecological conditions. Thus, while climate change may be causing shifts in some African habitats or landscapes, there is no reason to assume that this will pose a threat to long-term survival of the lion in the foreseeable future either on the population scale, or as a species.

Lastly, it deserves to be noted that the Petitioners, all of whom originate from America and Europe, seek to impose on developing countries their own standards of non-consumptive resource utilization without fully understanding the consequences of these actions. Rather than severely restrict the management options of the lion range states, we should strive to contribute to lion range states by supporting the successes of both their consumptive and non-consumptive tourism industries, assisting them to improve their capacity for wildlife management programs that promote sustainability including hunting industry reforms, and offering expertise in identifying and developing additional sources of

revenue that improve the livelihoods of African people while being parsimonious with long-term conservation of biodiversity.

In summary:

In lion range states where sport-hunting occurs, safari operators play an instrumental role in protecting vast tracts of lion habitat. Many of the lion hunting blocks are adjacent to National Parks and thus, as well as providing employment and meat to local communities serve as buffer zones against human encroachment.

Raw CITES trade data are inaccurate as direct measures of trophy off-take and problematic when used to illustrate population trends due to time lags and non-standardization in trade reports. Actual off-take data must consider 1) deliberate reduction in allocated quotas, and 2) increased selectivity before assuming that a reduction in trade equates to population decline.

Landmark reforms to the sport-hunting of African lions have already begun, including implementation of minimum age standards for trophy lions in Tanzania and parts of Mozambique, and continuing development of age-based trophy selection in other countries. This includes client education programs and efforts in the USA (White 2012, DSC Press Release 2013).

As a result of sport-hunting reforms emphasizing sustainability and increased selectivity, both the allocated quota and the number of trophy lions being harvested in the wild has recently declined.

The lion bone trade is a potential problem. However, an uplisting of African lion to Endangered does not address or curtail this threat. Rather, it may increase the vulnerability of lions to poaching by removing the safari operators and thus, removing the protection that they afford to lions living in GMAs.

Exposure of wild lions to diseases and pathogens does not result in increased morbidity or mortality. Nevertheless, safari hunting actively prevents or discourages expansion of livestock into GMAs thereby helping to protect lion habitat while reducing the potential for contact and disease transfer between domestic and wild species.

Geographic and genetic evidence strongly support the formation of West and Central African lions as a distinct population segment, separate from Eastern and Southern African animals. Genetic and physical connectivity exists among East and Southern African lions, and amongst smaller populations within each clade. Maintenance and enhancement of natural corridors can be implemented to help protect or restore natural genetic biodiversity.

Please feel free to contact me directly for more information or if you have any questions. Thank you for your consideration of the above,

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