UNITED REPUBLIC OF TANZANIA

MINISTRY OF NATURAL RESOURCES AND TOURISM

WILDLIFE DIVISION

TANZANIA WILDLIFE MANAGENENT AUTHORITY (TAWA)

TANZANIA WILDLIFE RESEARCH INSTITUTE (TAWIRI)

REPORT ON DECISION 17.114 REGARDING AFRICAN LEOPARD (*Pantherapardus*) QUOTAS ESTABLISHED UNDER RESOLUTION CONF. 10.14 (REV. COP16)

Dodoma, May 2018

1. Background

At the Twelfth meeting of the Conference of the Parties to CITES, Santiago (Chile), 3-15 November 2002, Tanzania submitted a proposal, in accordance with the guidance provided in Resolution Conf. 9.21, toamend its export quota of African leopard *Panthera pardus* established in Resolution Conf. 10.14, from 250 to 500.CITES was made aware that the Tanzanian quota, as well as the others, was not based on national population surveys, which are difficult to conduct, but if surveys were available, the quotas would have been undoubtedly much higher. A great amount of the population data came from a field questionnaire. To justify the increase of that quota, the following summarized information was provided:

a) 90 per cent of the Tanzanian territory constituted an excellent habitat for the leopard, i.e.850,500 km^2;
b) leopard hunting was limited to tourists and control hunting; and
c) from 1978 to 1983, between 301 and 645 leopards were killed annually to protect lives andproperties, without taking into account killings not made by government people, which were estimated as doubling the official figures, and without any negative effect on the leopard population. On the other hand, there was no evidence of illegal trade.

The review was made aware that the leopard population was roughly estimated slightly above 39,000 (21,600 – 71,600) and the number of leopards harvested annually was 390, while the potential safe harvest was established at 5 per cent, i.e. 1,827 animals. Furthermore, the leopard was much more valuable through sport hunting than it could be through commercial trade and the hunting would aide/lead/enhance to establishment of as an appropriate form of land use in Tanzania's vast non-protected (uninhabited) areas.

The quota was granted on the basis of limited data and information at that time, but obviously because it was recognized then that it was remaining at levels that could in no way be detrimental to the survival of the species in the wild and to its role in the ecosystems. The increase was issued in order to adapt the quota to the development of and potential for hunting activities and increase protected hunting areas.

The CITES Secretariat supported the increase in the framework of Resolution Con.10.14. It was considered to be still very conservative and, as for any quota, it is an upper limit, not an objective that must be met in any circumstances. It was not expected to be reached within the initial 3-5 years, or at least not every year. The quota reflected the potential for the development of tourist hunting in the foreseeable future. In any case, at the national level, quotas are granted on an annual basis and the Wildlife Division, therefore, may react quickly to any difficulties in specific areas, whenever necessary. Finally, considering the efforts necessary to submit a proposal such as this one to the Conference of the Parties, we assume that the new quota would be established for a number of years, as was the quota that was established at CoP4 (60) and subsequently increased at CoP5 (250).

Since the quota was issued in 2002, Tanzania has maintained a quota of 500. However, it continues to be noted by the Secretariat that the quotas granted are generally not fully used, for various reasons.

It must be understood that the CITES export quota is set at a level that is sustainable but may be set higher than offtake levels to account for export lags and marketing, among other things.

2. Leopard status in Tanzania

The first comprehensive assessment of the status of leopards in Tanzania was conducted by the Wildlife Division in 2002 (Games and Severre, 2002). The study found Tanzania leopards were widespread and that up to 90% of the country comprised of suitable habitat for the species. This gave an index of a healthy leopard population. Here we provide an update on subsequent assessments that have been made since that period.

2.1 Distribution

The African leopard is the second largest of Tanzania's large carnivores and perhaps the most widespread (Foley et al. 2014). Leopards are generalists, inhabit all major wilderness habitats and have been recently recorded to continue to coexist with humans well beyond protected area boundaries in Tanzania.

Comprehensive surveys conducted between 2004-2016 indicate that the current range of the leopard to be between 76% and 90% of Tanzania's mainland surface (945.090 km²) i.e. between 672.100 and 850.500 km^2 (Figure 1). These records will further be complemented with results of the planned 2018-2019 surveys. These surveys indicate that leopards are common or abundant in many protected areas and as well as on communal land with low human density (Foley et al. 2014). Furthermore, Tanzania Wildlife Research Institute will conduct nationwide leopard and lion surveys in 2018-2019, which will provide further insight on abundance and trends (Ikanda, pers. comm).

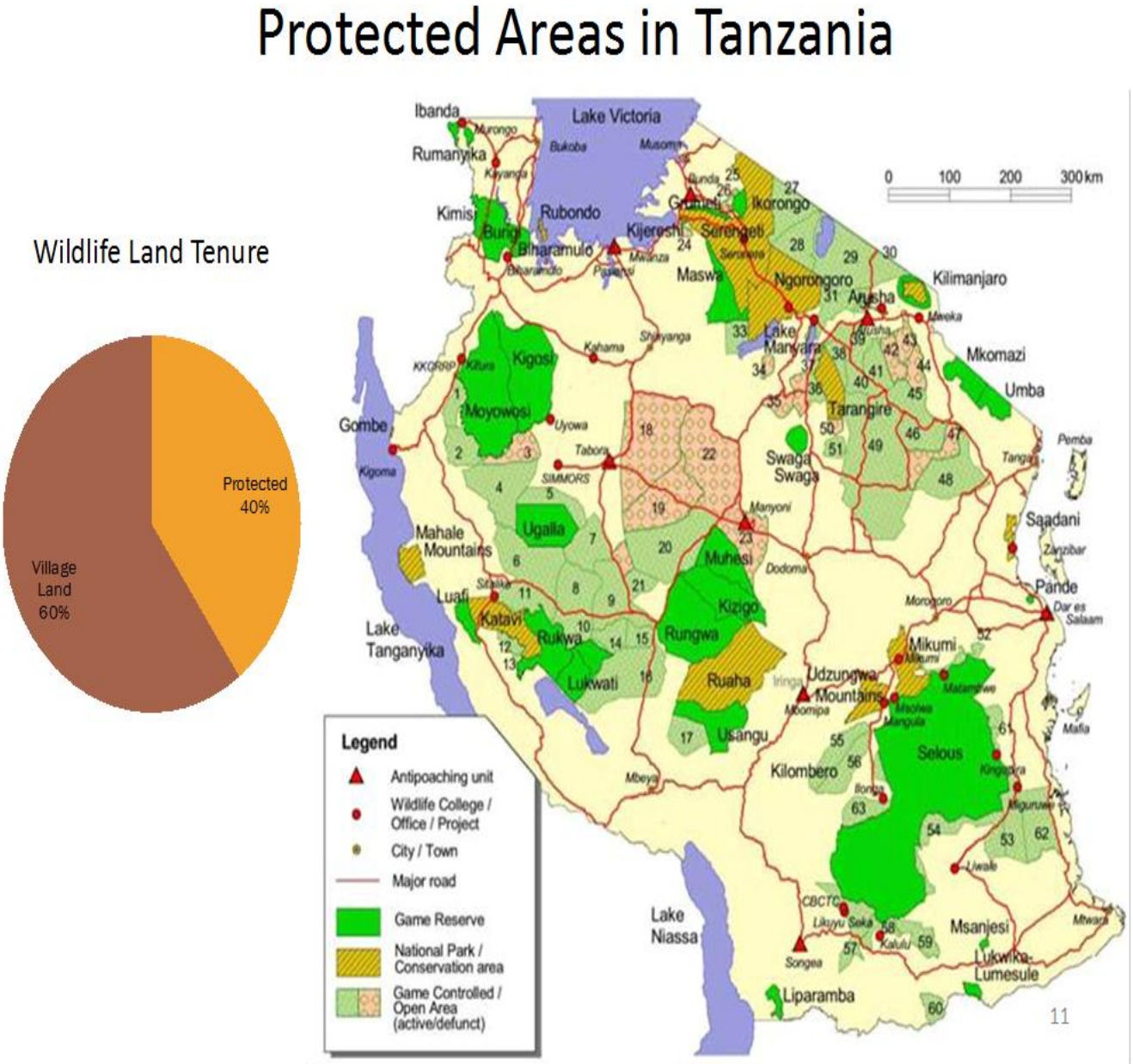

Figure 1: Protected Areas in Tanzania (Source: TAWA)

2.2 Abundance

Surveys conducted by TAWIRI/WCS between 2004-2014 provide a qualitative assessment of the status of leopards in Tanzania in a selection of studied locations. These are summarized in Table 1 below.

Table 1: Qualitative assessment of leopard abundance in selected camera trap study sites of Tanzania. Species index numbers refer to the proportion of photo captures made specifically on *P. Pardus* over sampling period (1000 traps days) (Rovero and Zimmermann, 2016), and here ranked as absent to abundant on a scale of 0.000-100.

Location	Species	# of Animals	Species index	Abundance category
Gelai Forest	Leopard	89	4.890	abundant
Ngorongoro Conservation Area	Leopard	29	2.877	abundant
Mahale National Park	Leopard	16	2.450	abundant
Arusha National Park	Leopard	14	1.305	common
Serengeti National Park (north)	Leopard	15	1.231	common
Maswa Game Reserve	Leopard	15	1.190	common
SwagaSwaga Game Reserve	Leopard	29	1.139	common
Mbarang'andu WMA Selous	Leopard	21	0.996	common
Uvinza Game Reserve	Leopard	18	0.866	common
Tarangire National Park	Leopard	9	0.861	common
Ugalla Game Reserve	Leopard	10	0.704	fairly common
Muhuwesi Forest Reserve	Leopard	8	0.653	fairly common
Ufyome Forest Reserve	Leopard	4	0.380	uncommon
Mbangala Forest Reserve	Leopard	3	0.368	uncommon
Biharamulo Burigi Game Reserve	Leopard	1	0.112	rare
Moyowosi Game Reserve	Leopard	1	0.103	rare
Kilimanjaro National Park	Leopard	1	0.098	rare
Gelai Game Reserve	Leopard	1	0.091	rare
Lukwika Lumesule Game Reserve	Leopard	1	0.090	rare
Minziro Forest Reserve	Leopard	0	-	rare/absent
Saadani National Park	Leopard	0	-	rare/absent
Ukaguru Forest Reserve	Leopard	0	-	rare/absent
Uluguru Forest Reserve	Leopard	0	-	rare/absent

Adapted from Tanzania Mammal Atlas Project, 2014

A number of population assessment studies have been conducted in recent years. These enable meaningful extrapolation on population density for different protected areas management regimes such as National Parks (NP), Game Reserves (GR), Game Controlled Areas (GCA), Wildlife Management Areas (WMA) etc. to be made and summed up in order to obtain a national population estimate. Four such studies were done between 2004-2016. These are summarised as follows:

- Maswa GR Survey (2763 km^2) - 5.22 leopards/100 km^2 (Population of 148) (*Tanzania Carnivore Project, 2004*)
- Selous GR Survey (48,000 km^2)- 3.75 leopard/100 km^2(Population of 1854) (*Crosmary et al, 2018*),
- Maasai Steppe Survey (37,292 km^2) – 2.3 leopards/100 km^2(Population of 858) (*Tanzania Large Carnivore Survey, 2015*)
- Tarangire NP Survey (2850 km^2) - 7.9 leopards/100 km^2 (population of 232 *(Tanzania Mammal Atlas Project, 2012*)

See figure 1 above for geographical locations

Extrapolating average densities of 7.9 leopard/100km^2 for the National Park (including Ngorongoro Conservation Area) system (65,657 km^2), 4.5leopard/100km^2 for Game Reserve systems (114,782 km^2), 2.3 leopard/100km^2 for the communally managed Game Management Areas (GCA/WMAs)

(156,962.3 km^2) gives a total guesstimate of approximately 13,962 leopards inside protected areas. Taking a conservative density figure of 1 leopards/100km^2 outside of the protected areas, or rest of the country (571,100 km^2) gives a total guesstimate of approximately 5,711 leopards. Together the two figures give a conservative country abundance guesstimate of **19,673 leopards**.

2.3 Threats

The IUCN Red list 2016 identified main threat for leopards to generally be habitat loss and reduced prey base, throughout most of its range in Africa. However, the generally do not affect the leopard in Tanzania. Nevertheless, threats to leopard in Tanzania include persecution (poisoning or trapping for killing livestock and accidental capture in snares set for other animals). Others which are not significant may be poaching for illegal trade in skins and other derivatives. There is no known record of trade in bones, nor is leopard trophy hunting regarded as a threat. Therefore, the leopard population in Tanzania is considered neither threatened nor endangered from extinction.

2.3.1 Conflicts with humans

Tanzania's leopard population found within the semi-protected areas GCA/WMA/ Forest reserves range (156,962.3 km^2), as well as outside nominally protected areas range (571,100 km^2), interface with rural communities, majority being traditional pastoralists and farmers. As such, leopards are prone to conflict through livestock depredation and are thus persecuted. Records suggest 4-15 leopards are killed annually in problem-animal control (Wildlife Division Records, 2017).

2.3.2 Poaching

Incidental snaring, and or intentional poaching is worth noting. There are a few cases in which leopards have been found snared, incidentally as by-catch. Though exact figures are not easily obtainable for inclusion into this document, however, however, the source of mortality is worth noting; given the alleged magnitude of bush meat poaching in Tanzania (Foley, 2014).

2.3.3. Prey Abundance

Tanzania has abundant populations of small-medium size ungulate species within PAs and marginal village lands. Their distribution is believed to be the main reason also for the observed wide distribution of leopard in Tanzania. However, areas shown to have rare occurrence of leopard (Table 1) are also of low record numbers of prey (TAWIRI 2014). The extent to which this may affect the number of leopards is a subject for future research. This is especially important for the non-nominally protected portions of the population found in rural Tanzania.

2.3.4 Habitat Loss

The current distribution of the leopard in Tanzania (Fig 1) indicates that the impact of habitat fragmentation and loss is not significant as a threat to their survival. Records indicate that the population is still relatively contiguous throughout the country. Exceptions are in heavily settled village lands around central Tanzania (Stein et al. 2015) and the two National Parks, where they are recorded as locally extinct (Foley et al.2014). The purported decline in village land areas is likely to have come about as result of habitat loss to farming extension, in particular, and, or mining.

The majority of leopard populations in Tanzania occur within protected areas, covering close to 40% of the country's surface area. Therefore, habitat destruction, modification and curtailment likely affect the non-nominal protected population; though exact levels are not known. However, the problem in Tanzania is expected to be more severe in future, with the expanding rural human population and increased livestock movement. These will likely impact leopard distribution of contiguously adjoining populations to National Parks/Game Reserves, e.g. small populations inhabiting village lands.

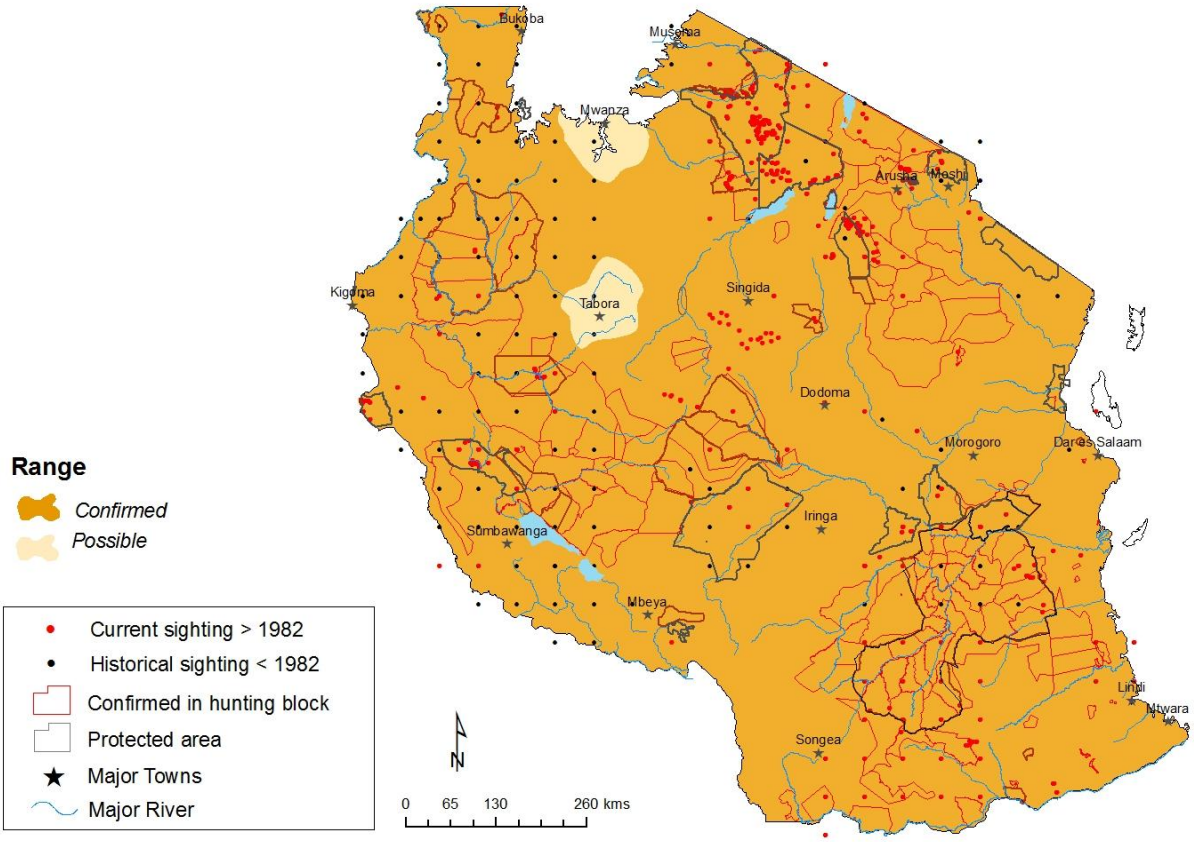

Figure 2: Leopard distribution in Tanzania (Source: TAWIRI, 2014)

3. Leopard trophy huntingin Tanzania

Regulatory framework

In Tanzania, wildlife conservation is at first hand a matter of land use and is guided by the Wildlife Conservation Act No.5 of 2009, the Wildlife Conservation (Tourist Hunting) Regulations of 2015 (Amended in 2017) and the CITES Implementation Regulations of 2005 (Currently under review). This allows leopards to thrive throughout the entire country, unhindered. The effective and adequate regulatory mechanism put in place guarantee healthy populations. This includes quota control system implemented through the following procedures:-

a. Allocating a quota for each licensed hunting operator out the total nationally established export quota;
b. Authorizing hunting of male animals in a quota by hunting permits issued electronically;
c. Hunting of animals is supervised and verified by the game scouts in respective hunting areas;
d. Verified hunted animals are recorded using the register of game killed and then by certificate of ownership;
e. Actual exports are made by using CITES Export Certificates in accordance with approved quota;
f. Recording of all CITES listed species in a quota control sheets before issuance of exports permits. This quota control system applies to all species exported from Tanzania;
g. Export documents are verified by wildlife inspectors at exit points.

Tanzania manages its leopard population in accordance with the Carnivore Action plan published by TAWIRI in 2009.

This was the result of the Tanzanian Lion and Leopard Conservation Action Plan Workshop that was held 20th-22nd February 2006 at the Tanzania Wildlife Research Institute (TAWIRI) headquarters in

Arusha. The workshop brought together stakeholders to assess existing information and set priorities for conservation of lion (*Panthera leo)* and leopard (*Panthera pardus*) in Tanzania. The workshop was attended by 17 participants from TAWIRI, Wildlife Division (WD), Tanzania National Parks (TANAPA), Ngorongoro Conservation Area Authority (NCAA), Forestry and Beekeeping Division (FBD) together with a representative from the hunting community and lion and leopard experts.

The representation of the institutional stakeholders responsible for leopard management is today the same with the exception of the Forestry and Beekeeping Division (FBD) of the Ministry of Natural Resources and Tourism that in 2011 was transformed into the actual Tanzania Forest Services (TFS) Agency. http://www.tfs.go.tz/en. and the Tanzania Wildlife Management Authority (TAWA) is operational since July 2016.

3.1 Tourist Hunting

Regulated and well-managed tourist hunting is the major form of sustainable utilization of the leopard in Tanzania that contributes significantly to conservation of this species and its habitat. It is not considered a threat to the species and it is regulated by a block and quota system as per Wildlife Conservation Act, Wildlife Conservation (Tourist hunting) Regulations of 2015 (Amended in 2017) and CITES Implementation Regulations of 2005 (currently under review). The offtake is through controlled quota system which is set annually by a Committee comprising of experts from the Wildlife Division, Tanzania Wildlife Management Authority (TAWA), Tanzania Wildlife Research Institute (TAWIRI), which is the CITES Scientific Authority in Tanzania and some selected renowned biologist from academic institutions. Quota setting for Leopard is based on available information on species distribution, natural breeding history, recruitment rate and population estimates, which are partly derived from regularly conducted censuses, research work and indices as may be reflected in reports by field personnel. Likewise, hunting success and trophy quality data are used in that effect.

In the past seven years, Tanzania harvested an average of 162 male leopards per year; equivalent to 32.4% of the national quota of 500 individuals as per Resolution Conf 10.14. (Rev. (CoP16). Offtakes levels have decreased in recent years (see Table 2). The average offtake represents only approximately 1 leopard per 2000 km2 and less than 1% of the minimum national population estimate. The offtakes from hunting of leopard in Tanzania are well below sustainable limits and are too low to cause a decline in the national population of the species. These offtakes are not detrimental to the survival of the species in Tanzania. The minimal offtake level results from a number of factors, including implementation of strict control measures on body length requirements. No animals less than 130 cm of body length (tip of the nose to the base of the tail) can be harvested. This size limitation further ensures the sustainability of offtakes.

Table 2: Leopard harvest from trophy hunting over the past sevenyears in Tanzania (source: WD/TAWA)

Hunting season	Quota Issued	Harvested	% of Quota Used
2011/2012	500	200	40
2012/2013	500	178	35.6
2013/2014	500	189	37.8
2014/2015	500	197	39.4
2015/2016	500	139	27.8
2016/2017	500	115	23.0
2017/2018	500	119	23.8

4. Quota justification

Tanzania justifies the continuation of the present quota under CITES Resolution Conf. 10.14. (Rev. (CoP16) due to observed conservation status of leopards in the country (maintenance of large, widely distributed population), Improvement in population monitoring, scientific assessment of the harvest regime, and contribution of the leopard trophy hunting revenue to conservation and local livelihoods.

4.1 Conservation status of the leopard

The presence of leopards in Tanzania continues to be wide spread and largely unaffected by habitat changes that have occurred in the period since the last review (2002-2018). For example, the Games and Severre (2002) assessment indicated a distribution of 90% over the entire country. Subsequent studies that are documented by Foley (2014) indicate a 94% distribution up to 2016. Although there have been undoubtful changes to the landscape in Tanzania, particularly outside of the protected areas network that have affected wildlife, the studies highlight the resilience of the leopard and insignificance of habitat changes as threat (habitat loss) to the persistence of leopards. The conservation status of the leopard in Tanzania can be summarized as follows:(1) the presence of leopard continues to be widespread, (2) leopard are resilient and adaptable, notwithstanding habitat changes, (3) the current conservative guess estimate of the minimum population level (~19,500) is still very high, and (4) the current offtake levels are sustainable. (See below).

4.2 Population monitoring efforts

Tanzania endorsed its first leopard conservation strategy document in 2009, which called for the Tanzania Wildlife Research Institute (TAWIRI) to monitor the country's leopard populations. Under the strategy, TAWIRI has coordinated a number of projects that monitor the countries different, but major leopard populations. Furthermore, some hunting outfitters maintain inventory records of leopards that are camera-trapped at bait stations. The data is to be collated through TAWIRI in supplementation of project monitoring data. A total of 17 initiatives are documented and are presented in table 3 below.

Table 3: Main Leopard monitoring projects in Tanzania. (Source: TAWIRI**)** See Fig 1. for geographical locations.

	Subpopulation	**Survey area**	**Monitoring period**		**Methods**	**Project**
1.	National	Countrywide	2002	2007	Questionnaire	Tanzania Carnivore Project
2.		Countrywide	2008	2014	Questionnaire	Tanzania Mammal Atlas Project
3.	Serengeti	Serengeti	2012	Present	Camera-traps	Snapshot Serengeti Project
4.		Maswa GR	2007	2014	Camera-traps	Hunting outfitter database (TGT)
5.		Ngorongoro CA	2006	2006	Camera-traps	Tanzania Carnivore Project
6.	Maasai Steppe	Tarangire NP	2005	2005	Camera-traps	Tanzania Carnivore Project
7.		Maasai Steppe	2014	2015	Spoor counts	TAWIRI/Wildlife Division
8.		Makame WMA	2017	2020	Camera-traps	Endangered Ecosystems N. Tanzania
9.	Ruaha/Rungwa	Rungwa GR	2010	2012	Call-ups	Arturo Caso, Unpub. report
10.		Rungwa GR	2012	Present	Camera-traps	Hunting Outfitter database (TGT)
11.		Ruaha NP	2007	Present	Spoor counts	Ruaha Carnivore Programme
12.		Ruaha NP	2017	2018	Spoor counts	Paolo Strampelli
13.	Selous	Selous GR	2014	2015	Spoor counts	TAWIRI/Wildlife Division
14.		Selous GR	2012	Present	Camera-traps	Hunting outfitter database (TAWISA**)
15.		Selous GR	2017	Present	Camera-traps	TAWIRI (KWRC)
16.	Katavi	Rukwa GR	2013	Present	Camera-traps	Hunting outfitter database (MMS***)
17.	Moyowosi	Moyowosi GR	2012	Present	Camera-traps	Hunting outfitter database (TGT*)

*Tanzania Game Tracker Safaris, **Tanzania Wildlife Safaris, *** Michel Mantheakis Safaris

The number of study projects highlight the potential for Tanzania to monitor its leopard population; both within and outside of hunting areas. Furthermore, human-wildlife conflict records collected under different antipoaching units (see figure 1) illuminate the presence/persistence of leopards outside of protected areas, as well as monitoring of all non-trophy hunting killings of leopards.

4.3 Scientific assessment on harvesting levels

Tanzania harvests leopards over an estimated range of 304,400 km2 that is designated as tourist hunting areas. This is equivalent to the 77% of the leopard's protected range (Game Reserves, GCAs/WMAs etc.). The remaining 23% which is non-hunting (comprised mainly of National Parks)

serves as an assurance, source population's range that acts as a buffer against potential impacts of over harvesting. It should also be pointed out that the conservation harvest of leopardsin Tanzania is a large part of the justification for this form of land-use in the vast hunting areas.

In these areas, studies by Packer et al (2010) show that Tanzania can sustainably harvest up to 3 leopards per 1000 km^2. This translates to a sustainable annual offtake of close to 913 leopards. But harvest levels have been highly conservative, inparticular over the past 7 years, at an average of 162 male leopards taken per year (0.5/1000 km^2). This indicates that the harvest levels reach only up to 17% of the sustainable harvest threshold level. Also, this offtake amounts to approximately 2% of the estimated harvest population of 8,175 animals (Ikanda pers.comm.). This is much lower than the 4.6% that is predicted by Packer (2010); when assessedon the current population estimates, and it is also below the sustainable offtake index recommended by Caro et al (2009), i.e. 3,6% of the total population. Tanzania's current export quota of 500 leopards over 304,000 km^2 is therefore well below this standard. It represents only 1.6 leopards per 1000 km^2. The quota also represents only 2.5% of the national conservative guess-estimate of the population, which is well within the sustainability threshold.To repeat, the actual offtake is far lower than the quota.

4.4 Impact of trophy hunting on conservation and local livelihoods

4.4.1 Revenue generation

The development of tourism in the United Republic of Tanzania, in particular of hunting safaris, is important for the economy Tanzania, and much more to the benefit of local communities living in or close to areas that are wildlife habitat. The leopard, as one of the 'big five', plays a significant role and the maintenance of the quota will have a positive effect. It will augment the potential offer to hunters, in particular in areas where wildlife-viewing tourism is not practicable, for various reasons, including the nature of the terrain and the lack of infrastructure. For a country like the United Republic of Tanzania, the combination of both forms of tourism is important and perfectly compatible.

As we have seen also, the leopard remains a problem animal in certain regions and either sport hunting or control hunting has to be practised to meet the legitimate requirements of the local communities. Tourist safari hunting has considerably reduced illegal activities, in particular to reduce problem animals. In addition, the association of the local communities in sharing the benefits of wildlife utilization is an additional guarantee that they will ensure the prevention of illegal activities in their regions.

Hunting operators play a significant role as partners in protecting the ranges and habitats for leopards in Tanzania. Contributions from hunting operators in rural community development, anti-poaching and hunting block development are estimated at USD 1,000,000 annually (Wildlife Division Report). Likewise, the industry employs a minimum of 1200 staffs, with multiplier effects to both rural and urban areas bordering protected areas with hunting.

Tourist hunting has created financial incentives for the development and/or retention of wildlife as a land use across an area of 304,400 square kilometres in Tanzania (Figure 1). Hunting blocks allocation agreements in Tanzania requires hunting operators to support anti-poaching operations, hunting block development and community development projects. The United States of America (USA) represents the most important market for trophies hunted in Tanzania; with about 43% of clients having originating from US (Wildlife Division database).

Leopard is among valuable trophy species that attract the majority of trophy hunters to Tanzania and, therefore, the protection of leopard habitats is incentivized by financial returns realized through tourist hunting. Decreased leopard legal and regulated hunting means decreased leopard habitat, poaching control, and management budget revenue.

Funds generated from tourist safari hunting benefit leopard in Tanzania by:

- Paying for conservation programs;
- Paying for anti-poaching programs, personnel, and equipment;

- Providing direct contributions from safari operators to anti-poaching patrols and scouts, and providing early detection and reporting of poaching incidents, all of which benefits the government by shifting these costs to the private sector;
- Increasing habitat and reducing leopard-human conflict by benefiting local communities through Tanzania's growing Wildlife Management Areas (WMAs), including by disbursing 75% of the block fee and 45% of the game fee (among others) to WMAs once it is paid by the concessionaire; and
- Justifying the preservation of most wildlife habitat and helping fund its management.

Safari hunting, including leopard, is the main source of revenues for the Tanzania Wildlife Management Authority (TAWA) and therefore for wildlife conservation in the country (See Table 4)

Table 4: revenue accrued by the Government of URT from tourist hunting 2009/2010 to 2016/2017**.** (Source: TAWA)

Year	Tourist hunting
2009/10	18,444,881
2010/11	23,536,347
2011/12	15,062,218
2012/13	15,917,425
2013/14	16,723,425
2014/15	16,277,373
2015/16	13,091,996
2016/17	13,244,039
Total	**132,297,710**

Tanzania's ability to manage wildlife is being impacted by the US ban on import of Lion and Elephant trophies hunted in Tanzania, anti-hunting campaigns, economic recession in some countries. Comparatively, US ban has largely contributed to the massive return of hunting blocks to Tanzania Wildlife Management Authority (TAWA) by the Safari Operators. This in turn led to insufficient protection of wildlife in abandoned blocks, decrease in revenue collection result into increased pressure on the country's natural resources and create challenges in conserving elephants and management of wildlife in community Wildlife Management Areas. Overall, the ability to provide increased protection for Tanzania's wildlife populations will decrease due to the lack of incentives derived from the sustainable use of wildlife.

4.4.2 Support to rural livelihoods

Tanzania firmly believes that wildlife conservation cannot be achieved without taking into account the human dimension which is attached to it. Poverty remains the first and foremost cause of poaching in Tanzania and in the rest of Africa, where nearly 50% of the population live on slightly more than one US dollar a day. Tanzania recently improved its policy on community benefits sharing in hunting and photo tourism fees and governance of the wildlife sector by local communities to achieve poverty reduction through legal and sustainable wildlife utilization.

Tanzania shares with other countries in the region the view that, community-based initiatives and policies must be given the support they need to deliver incomes to local people through legal, regulated wildlife utilization, incomes that are crucial in alleviating poverty. This support shall include the right for local communities to be consulted as equal partners in wildlife conservation. The consequences of ignoring or failing to encourage such community operations, in social contexts steeped in poverty, is well established. Poaching increases, often with the same local people recruited into poaching gangs, by organized criminal syndicates. Community-based natural resource programs

are one of the most crucial and important part of the solution to the poaching and illegal trade in wildlife.

An exclusively biological focus on the sustainability of wildlife harvesting and trade can never guarantee sustainable use of any species, in fact it tragically refuses a critical tenet of sustainability as a principle, which requires, in its applications, an ecosystem scale of assessment, in which the social systems with their cultural, economic and political dimensions are embedded. The same applies to an exclusive focus on species rather than to the human and social dimensions of conservation.

Tanzania has been implementing Wildlife Management Areas concept since 1998, to varying degrees of effectiveness. The regulations governing WMAs were amended several times, and national Wildlife Conservation Act was ultimately revised to more completely devolve authority to the local communities who live side-by-side with wildlife. Under this Act, these communities are better able to benefit from wildlife use (consumptive or non-consumptive). Part V (and especially Section 31) of the Act provides guidance of the establishment and management of the WMAs, and specifically on the legal requirement for benefits sharing between operators, Tanzania's government and communities through WMAs.

The regulations governing WMAs were revised in 2012 to improve benefits sharing in keeping with the policy objectives of the Wildlife Conservation Act of 2009.

In general WMAs are key aspect in fighting poverty through wildlife utilization. If wildlife is seen as an asset and not a nuisance to rural people of Tanzania, they will greatly contribute to its conservation and not to its destruction. The potential of WMAs is enormous to conserve natural resources outside protected areas through consumptive and non-consumptive tourism or other forms of development. In brief WMAs represent the community-based conservation system of Tanzania and they are seen as a key component of rural development and as one of the best weapons in the fight against illegal utilization.

Table 5 provides an overview of the revenue sharing generated from safari hunting in WMAs. Of the other lesser fees (game fees, observer fees, conservation fees), the WMA gets 45% while the rest is divided between Wildlife Division, Treasury, and District Council.

Table 5: Revenue sharing generated from safari hunting in Wildlife Management Areas (Source: Wildlife Division)

No.	Type of fee	TWPF	WMA	DC	TR
1.	Block fee	25%	75%	0	0
2.	Game fee	25%	45%	15%	15%
3.	Conservation fee	25%	45%	0	30%
4.	Observers fee	25%	45%	0	30
5.	Permit fee	25%	15%	0	60%

TWPF-Tanzania Wildlife Protection Fund, WMA-Wildlife Management Area, DC-District Council, TR-Treasury

5. Conclusion

Tanzania is guided by four main principles in its conservation activities:

- Responsibility principle - Responsibility to use resources in an ecologically sustainable, economically efficient and socially just manner;
- Precautionary principle - The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures;
- Adaptive management principle - Learning-by-doing; and
- Participatory principle - The importance of full stakeholder participation in the formulation and implementation of decisions.

It is against the potential harvest levels predicted by Packer (2010) studies and actual harvest rate that Tanzania wishes to maintain an annual quota of 500, regardless of harvests ranging in 20-40% only. Since the implementation and utilisation of the quota, no discernible negative impacts have been observed by the Tanzania Wildlife Research Institute's (CITES Scientific Authority for Tanzania) that may indicate detrimental effects to the survival of the species in the wild.

At present, Safari hunting has a very insignificant impact on the leopard population and it is not a threat contributing to their potential decline. On the contrary it plays a significant role in maintaining ecosystems, protecting species against illegal activities and providing tangible benefits to Tanzania's economy and the livelihoods of Tanzania's rural people.

In Tanzania, wildlife conservation is at first hand a matter of land use. Proclaimed protected areas gazetted as hunting areas (304,400 km^2) are ca. 5 times larger than protected areas without safari hunting activity (57,838 km2). Protected areas gazetted as hunting areas cover about one third of the country and serve as prime reservoirs of global biodiversity, securing maintenance of natural ecosystems and prey base for leopard.

Human population in Tanzania has significantly increased since 1950 (i.e. 7 million in 1950 against 46 million in 2011) and is projected to increase by 500 per cent or more by 2100 (United Nations, 2011). During 2011-2100, six countries are expected to account for half of the world's projected population increase, with Tanzania being among them (United Nations, 2011). As a result, there is considerable pressure to convert land to agro-pastoral production, and the pressure is expected to increase tremendously, given the above-mentioned projections from the United Nations.

Financial resources for conservation, particularly in developing countries such as Tanzania, are limited. As such, consumptive (including Safari hunting) and non-consumptive (photo tourism safaris) uses are both needed to generate funding. Without these, many natural habitats would otherwise be converted into agricultural or pastoral uses, producing inevitable habitat loss.

The Safari hunting sector's sustainability is underthreat by the loss of clients due do uninformed import suspensions. A lot of hunting companies operating are returning most (if not all) of their hunting areas to Tanzania Wildlife Management Authority (TAWA) to avoid bankruptcy. As a consequence, many protected areas devoted to safari hunting will be and are being converted to agro-pastoral land, leading to the unavoidable extinction of wildlife and natural habitats with collapse of ecosystem services. This negative consequence is that the Tanzania Government seeks to avoid and is a powerful reason to support regulated, sustainable safari hunting in Tanzania. It is clear, based on the data collected here, that safari hunting in Tanzania benefits the leopard and other species by mitigating the primary threats affecting them.

In this document consideration has been given to the population of leopard in Tanzania; the quota-setting system; the National Carnivore Action Plan; the limited harvest and the incentives to conservation represented by the substantial revenues generated by safari hunting for Wildlife Division operations, anti-poaching, and community development. The Scientific Authority has considered the current threats to leopard, including loss of habitat and human-lion conflicts, and potential of safari hunting to mitigate those threats.

Safari hunting provides a net benefit to the species, it does not pose a threat to the species, and it is not a detriment to the survival of the species. Regulated safari hunting of leopard in Tanzania enhances the survival of the species. Leopard is neither endangered nor threatened in Tanzania.

The United Republic of Tanzania expects CITES Parties to implement CITES Resolution Conf. 2.11 with particular reference to paragraph b) that states: "in order to achieve the envisaged complementary control of trade in Appendix-I species by the importing and exporting countries in the most effective and comprehensive manner, the Scientific Authority of the importing country accept the finding of the Scientific Authority of the exporting country that the exportation of the hunting trophy is not detrimental to the survival of the species, unless there are scientific or management data to indicate otherwise".

Upon considering all the factors illustrated in this document and in accordance with Article IV of CITES and CITES Resolution Conf.16.7, the Scientific Authority of Tanzania has advised the

Management Authority that the low level of off-take generated by safari hunting is not detrimental to the survival of the leopard in Tanzania and enhances its survival and the amount of revenues generated by this low level of off-take are of crucial importance for the conservation of the species also because of the benefits it provides to rural communities.

It concludes by indicating that the quota for leopard in Tanzania found in Resolution Conf. 10.14(Rev. CoP16) is sustainable and at levels which are non-detrimental to the survival of the species in the wild.

Tanzania wishes to maintain the flexibility of the 500 quota for dealing with any export lags and for marketing purposes across the vast hunting area. The quota itself is sustainable, and the offtakes are even more so, and therefore there is no reason to reduce the number. The quota is conservative, fully justified, and a net benefit to the species.

6. References

Caro et al. (2009) - Caro TM, Young CR, Cauldwell AE, Brown DDE. Animal breeding systems and big game hunting: Models and application. Biol. Conserv. 2009;142(4):909–929.

Crosmary, W., Ikanda, D., Ligate, F., Kasanga, I., Mkuburo, L., Lyamuya, R., Ngongolo, K., Sandini, P. and Chardonnet, P. (2018). Lion densities in the Selous Game Reserve, Tanzania. African Journal of Wildlife Research: 48(1): 014001

Endangered Ecosystems of Northern Tanzania Project. 2017. Annual Progress Reports 2017. Tanzania Wildlife Research Institute Archives, Arusha, Tanzania.

Foley, C., Foley, L., Lobora, A., De Luca, D. Msuha, M.,Davenport, T.R.B & Durant, S., 2014. A field guide to the Large Mammals in Tanzania. Princeton University Press, USA &UK.

Games and Severre, (2002)Leopards in Tanzania: A Review. Unpublished Report. Wildlife Division, Government of Tanzania

Packer, C., Brink, H., Kissui, B. M., Maliti, H., Kushnir, H. and Caro, T, .(2010). Effects of Trophy Hunting on Lion and Leopard Populations in Tanzania. Conservation Biology, 25: 142–153.doi:10.1111/j.1523-1739.2010.01576.x

Rovero, F., and Zimmermann, F. (2016) Camera Trapping for Wildlife Research. Pelagic Publishing, UK.

Snapshot Serengeti Project (www.lionresearch.org). Annual Progress Reports 2012. Tanzania Wildlife Research Institute Archives, Arusha, Tanzania

Tanzania Carnivore Project, 2004. Annual Progress Reports 2004-2008. Tanzania Wildlife Research Institute Archives, Arusha, Tanzania

Tanzania Large Carnivore Survey, 2015. Report to the Director of Wildlife. Tanzania Wildlife Division, Dodoma, Tanzania

Tanzania Lion and Leopard Conservation Action Plan. 2009. Tanzania Wildlife Research Institute Archives, Arusha, Tanzania

Tanzania *Mammal Atlas Project*. Annual Progress Reports 2008-2014. Tanzania Wildlife Research Institute Archives, Arusha, Tanzania.

Tanzania Wildlife Division.2017. Problem-animal control records, unpublished. Dodoma Tanzania

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