REPÚBLICA DE MOÇAMBIQUE

MINISTÉRIO DA TERRA, AMBIENTE E DESENVOLVIMENTO RURAL (MITADER)

NATIONAL ADMINISTRATION FOR CONSERVATION AREAS (ANAC)

Review of the Leopard (*Panthera pardus*) quota of Mozambique, established per Resolution Conf. 10.14 (Rev. CoP16) and non-detriment determinations, in accordance with CITES Decision 17.114

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I. INTRODUCTION

i. The historical development of the CITES Resolutions on Leopard quotas

1. The leopard quota system was introduced at the fourth meeting of the Conference of Parties (Gaborone 1983) with Resolution Conf. 4.13. A thorough history of the CITES leopard quota system in CITES can be found in a leopard proposal to CITES CoP 12. (CoP12 Doc. 23.1.2 https://www.cites.org/sites/default/files/eng/cop/12/doc/E12-23-1-2.pdf).

2. The leopard *Panthera pardus* was included in Appendix I at the plenipotentiary conference at which CITES was concluded (Washington, D.C., 1973). This listing was not based on any scientific data or listing criteria, as for most of the species included in Appendices I and II at that time. At that time however, the leopard, like other spotted cats, was still heavily harvested for the fur trade, although already at a decreasing level following voluntary actions and agreements with the fur industry to stop the use of such species. Whether the leopard was globally endangered at that time is contestable, although it might have been in some locations, not necessarily because of its exploitation but rather owing to habitat destruction and deterioration.

3. In November 1982, at a regional meeting of Africa on the Ten-Year Review of the Appendices, the participants considered, on the basis of scientific evidence and management, that the leopard populations under consideration were not endangered and that their inclusion in Appendix I was not justified [Proceedings of the 4th meeting of the Conference of the Parties (CoP4)]. It was however too late to prepare a proposal for transfer to Appendix II for consideration at CoP4 (Gaborone, 1983). Nevertheless, on their own initiative, Zambia and Zimbabwe had already submitted a proposal to transfer the populations of Eastern and Southern Africa to Appendix II and Mozambique had done the same for its population.

4. In view of the concern of a number of Parties that such transfers could lead to an upsurge of the commercial trade in leopard skins, the above-mentioned countries, which were not promoting a re- opening of such trade, accepted, as a compromise, to replace their proposals by a Resolution on the trade in leopard skins. The purpose of the Resolution was not to open commercial trade in an Appendix-I species contrary to Article III of the Convention but only to simplify the procedures provided for by that Article, in particular regarding non-detriment findings for non-commercial trade.

5. In adopting Resolution Conf. 4.13, the Conference of the Parties recognized that “the killing of specimens of leopard may be sanctioned by countries of export in defence of life and property and to enhance the survival of the species, and that the leopard is in no way endangered in Botswana, Kenya, Malawi, Mozambique, the United Republic of Tanzania, Zambia or Zimbabwe”. It recognized also “the overwhelming desire of the Parties that the commercial market for leopard skins should not be reopened”. Hence, the leopard remains to this day on Appendix I.

6. Resolution Conf. 4.13 was revised several times at subsequent CoP meetings by the following Resolutions: Conf. 5.13 (1985), Conf. 6.9 (1987), Conf. 7.7 (1989), Conf. 8.10 (1991), Conf. 8.10 (Rev.) (1994), Conf. 10.14 (1997), Conf. 10.14 (Rev. CoP12) (2002), Conf. 10.14 (Rev. CoP13) (2004), Conf. 10.14 (Rev. CoP14) (2007), and lastly by Resolution Conf. 10.14 (Rev. CoP16) (2013) currently in force.

7. Resolution Conf. 10.14 (Rev. CoP16) on *Quotas for leopard hunting trophies and skins for personal use* sets a maximum annual export quota for each country requesting trade in skins including but not limited to sport-hunted leopard trophies, and detailed provisions on marking of skins. In particular the Parties having a quota should not authorize the harvest for export of more of the agreed skins during any one calendar year (1 January to 31 December) than the number shown under ‘Quota’ opposite the name of the State.

8. Quotas are requested or amended through specific amendment proposals and following the provisions of Resolution Conf. 9.21 (Rev.CoP13).

9. The last revision of Resolution Conf. 10.14 occurred at CoP16 through a document that was presented by Botswana, South Africa and the United States of America (CoP16 Doc. 52 (Rev. 1). In that document, the proponents made a series of recommendations (most of which were accepted by the Conference) to revise Resolution Conf. 10.14 in order to improve its trade provisions. Of particular interest is that the proponents had proposed the insertion of the following new text: *DIRECTS the Secretariat to report deficiencies of the system or specific instances of concern to the Animals Committee and the relevant Parties, as appropriate.*

The Secretariat commented in this way: "*Considering that this text deals with deficiencies in the system to regulate the trade, the Secretariat believes that the appropriate body to consider concerns is the Standing Committee"*. The Secretariat proposal was accepted by the Conference.From the above mentioned document two decisions (Decision 16.76 and 16.77) were taken by the CoP: one directed the Parties to report on their implementation of this resolution and the second directed the Secretariat to compile and present to the Standing Committee a summary of those reports, which was done at the 66th meeting of the Standing Committee.

10. As a result, compliance with the Leopard quotas is overseen by the Standing Committee through the Secretariat. In fact, the Resolution *DIRECTS the Secretariat to report deficiencies of the (quota) system or specific instances of concern to the Standing Committee and the relevant Parties, as appropriate.* Therefore, the Animal Committee has no role in the implementation Resolution Conf.10.14.

11. The Secretariat, so far, has reported several times on the implementation of this Resolution but, in recent years and after CoP16, has never reported any deficiencies of the system. Despite this, the Conference of the Parties at its 17th meetingadopted a series of oversight Decisions requesting a review of the leopard quotas and to share the outcomes of the review and the basis for the determination that the quota is not detrimental, with the Animals Committee at its 30th meeting. It appears evident that this is in clear contradiction with the provisions of Resolution Conf. 10.14 (Rev. CoP16), including a mandate to the Animals Committee which, as said in point 6 above, has no role in its implementation.

12. The rationale presented in support of these decisions, proposed by the European Union, was the following (see Point 9 of CoP17 Doc. 39.1):*The species (Leopard), which was previously considered as of 'Least Concern' according to the IUCN Red List, was categorized as "Near Threatened' in 2008 based on a population decline in large parts of its range due to habitat loss and fragmentation, and hunting for trade and pest control. Yet these quotas are in place with the assumption that 'no new scientific or management data have emerged to indicate that the population of the species in the range State concerned can no longer sustain the agreed quota', in line with Resolution Conf.9.21 (Rev. CoP13) on the interpretation and application of quotas for species included in Appendix I. The European Union and its Member States believe therefore that trophy hunting quotas set by the Conference of the Parties should be subject to regular review by the Animals Committee in collaboration with exporting countries.*

13. The above rationale illustrated in a partial way Resolution Conf. 9.21 (Rev.CoP13) in the sense that if the case foreseen in paragraph b) ii) arises, i.e. " new scientific or management data have emerged to indicate that the population of the species in the range State concerned can no longer sustain the agreed quota " the Scientific Authority of an importing country could make its own non-detriment finding if the quota has been exceeded; furthermore,in accordance with point a) of the same Resolution Con.9.21(Rev.CoP13) a new proposal to the Conference of the Parties could be presented if "new scientific or management data have emerged...." following a request from the Standing Committee based on a concern from the Secretariat as stipulated in Resolution Conf.10.14 (Rev.CoP16).

14. The European Union and its Member States probably overlooked that quotas for leopard hunting trophies and skins for personal use are governed by a Resolution that does not foresee at all the review by the Animals Committee. It must also be noted that the recent IUCN Red List assessment of the leopard (Stein et al 2016) did not find the leopard to be endangered but classified it as "vulnerable" across its range. The same IUCN assessment also reported that Southern Africa (which includes Mozambique) "likely has the healthiest leopard populations of their entire range."

15. Resolution Conf. 10.14 (Rev. CoP16) should have been amended by the CoP and not bypassed by a series of decisions that contradict the Resolution.

16. It is therefore an unusual and possibly legally challenging precedent that the quotas are reviewed through a set of Decisions instead of formal proposals, as agreed by the CoP in Resolution Conf.10.14(Rev.CoP16).

17. Mozambique believes that the Decisions 17.114 to 17.117 have been taken by the Conference in contradiction with the provisions of Resolution Conf. 10.14 (Rev. CoP16) whereby any revision of the quotas should have been done through an amendment proposal triggered by a concern of the Secretariat on deficiencies of the system and is hereby requesting the CITES Secretariat to bring the above-mentioned concerns to the attention of the Standing Committee in an attempt to clarify these concerns.

18. Notwithstanding the above-mentioned concerns, Mozambique is presenting in this document the review of its leopard quota, and the basis for the determination that the quota is not detrimental, and will evaluate, if the need arises, the presentation of a formal proposal for CoP18.

ii. Background on leopard export quota in Mozambique.

19. At the onset of the leopard quota system, an annual export quota of 60 trophies was approved for Mozambique, through Resolution Conf.4.13 (1983) based on an amendment proposal and maintained for 24 years when at CoP 14 (The Hague, The Netherlands, June 3-15, 2007), Mozambique introduced a proposal through document CoP14 Doc.37.1 to increase its leopard export quota to 120 individuals. The proposal was approved by consensus and was adopted with an amendment (Rev. CoP14) to Resolution Conf. 10.14. Delegates that supported the proposal noted that the quota was conservative and sustainable and that it would contribute to local economic development.

iii. Principles.

20. The following guiding principles on Leopard management and conservation, were agreed by SADC participants at the First Southern African Large Carnivore Management Meeting held in Magaliesberg (South Africa) from 19 to 23 February 2018:

    A. Management and conservation of leopard in SADC range States is underpinned by the sustainable use paradigm;
    B. SADC range States have adopted an adaptive management framework for the management and utilization of leopard;
    C. Monitoring is a crucial component of an adaptive management framework and the involvement of stakeholders in monitoring the resource base should be encouraged;
    D. Management and utilization of leopard in SADC range States should be underpinned by robust science;
    E. A variety of socio-ecological / socio-economic contexts in SADC range States necessitate different management approaches, tools and interventions;
    F. It is important to take into account the impact of the illegal leopard skin trade on regional leopard populations;
    G. Well-managed sport hunting is an important conservation tool; and
    H. Well-managed sport hunting benefits local livelihoods.

II. STATUS OF LEOPARD IN THE COUNTRY

a) Distribution

21. Mozambique is located on the south-eastern coast of Africa, bordering six countries. With an area of about 800,000 (799,830) square kilometres, the country is richly endowed with natural resources. These cover a considerable biological diversity with an estimated 726 species of birds, 214 species of mammals, 171 species of reptiles and 85 species of amphibians (National Strategy and Action Plan of Biological Diversity of Mozambique 2015-2035).

22. Mozambique's system of Conservation Areas (CAs) has two purposes: to conserve ecosystems, wild habitats, biological diversity and natural resources for the benefit of present and future generations; and secondly, to contribute to the development and the social-economic well-being of Mozambicans, particularly the poor communities that live nearby. The system is currently made up of seven National Parks, eight National Reserves, 17 Forest Reserves, 20 official hunting reserves (coutadas) and two Community Conservation Programs. Furthermore, an additional type of CA, the Community Conservation Area,is now envisioned in the new Conservation Law (16/2014 now 5/2017). The main Conservation Areas are shown in Map 1 and their extension in Table 1. The currently legally established CAs cover about 219,231 km^2, which represent nearly 28% of the country's mainland surface (799,380km^2).

Table 1: Extension of Conservation Areas in Mozambique (Source: ANAC)

Conservation Areas for sustainable use (Hunting Areas)	Size in km^2	Percentage (%) of the country land area. (799,830 km^2)
Official Coutadas (20)	62,495	7,82
Niassa National Reserve, Buffer Area Blocks (9)	27,977	3,50
Community Programs - Tchuma Tchato (12 blocks) + Chipanje Chetu	36,418	4,55
Game Farms (42)	4,535	0,57
Total HUNTING AREAS	131,425	16,44
Strictly Protected Areas		
National Parks (7)	36,470	4,56
National Reserves (8)	49,096	6,14
Forest Reserves (17)	2,240	0,28
Total STRICTLY PROTECTED AREAS	87,806	10,98
TOTAL CONSERVATION AREAS	**219,231**	**27,42**

23. The leopard is not threatened nor endangered in Mozambiquenor is it likely to be in the future. The recent IUCN assessment (Stein et al. 2016) describes the leopard as highly adaptable and widely distributed, and able to persist in areas where other large carnivores have been extirpated. The assessment reports that subpopulations also occur in suburban and urban environments in India and parts of sub-Saharan Africa and that leopard appear to be very successful in adapting to altered natural habitat and settled environments in the absence of intense persecution.

24. The study *"Habitat Mapping in Mozambique" (CEAGRE 2015),* collated all the existing and available information on habitat in Mozambique and identified gaps in habitat knowledge. According to this study, the most up-to-date available, the country is mostly (586,009 km^2, 74.2%) covered with natural areas, while 141,918 km^2 (18%) is covered by mixed habitat and modified habitat covers 61,831 km^2 (7.8%). Modified areas are strictly associated with human population concentration, with the southern coastal zone, the Limpopo Corridor, the Beira Corridor, the provinces of Zambézia and Nampula in general, showing extensive modified areas and coincidentally, areas with greater population concentration. This study provides a more detailed and updated habitat analysis than the one presented at CITES CoP14.

25. Taking into account that leopards appear to be very successful at adapting to altered natural habitat and settled environments (Nowell & Jackson 1996), we can conservatively estimate, a precautionary leopard range in Mozambique to cover 80% of the country i.e. approximately 640,000 km^2 that represents the average between the minimum area size reported in Jacobson et al. 2016 and the maximum area size derived from adding natural and mixed habitats as reported by CEAGRE 2015, although further research may be of value.

26. The improved data presented in CEAGRE 2015 was <u>not</u> used by Jacobson et al. (2016) in their global assessment of Leopard status, whereby they calculated leopard range in Mozambique at about 457.000-465.700 km^2 (59-60% of the country) and predicted that leopard is possibly extinct in 140.700 Km^2 (18%) and extinct in 172.200 km^2 (22%), using expert opinion, land cover, biogeographic data from other species, and other generic information from scientific and grey literature. However, the authors admit, in supplemental table 5, "*There is still imprecision in exact range boundaries and hence these numbers should be used only as a rough guide rather than absolute truth*," Moreover, Jacobson et al. 2016 reported the leopard as extinct in patches of the country (see Map 3 and legend) where on the contrary there is evidence of its existence in some of the patches. For example, one leopard has been spotted in a camera trapping survey carried out in 2016 in the Maputo Special Reserve (MSR), and several leopard sightings were subsequently made by tourists in the area where it was previously thought that leopard were not present. (MSR Chief Warden pers. comm.). Further research will likely disprove some of the negative data presented in Jacobson et al. 2016. For example, in many of the patches where they show leopard as Historic and Possibly Extinct on the contrary there is evidence of the presence of leopard. Additionally, the appropriateness of the Jacobson et al. 2016 assessment is disputed because it arbitrarily uses a "historic" 1750 range loss. It is difficult to see how that helps advise practical conservation and it sensationalizes range loss estimate.

27. It is believed leopards are present across much of this available habitat because they can persist in landscapes impacted by subsistence agriculture, livestock and high incidences of bushmeat poaching, provided sufficient prey is available (Strampelli et al 2018). Leopard can survive on small rodents and even insects. (Bailey, 1993, Hayward et al. 2006, Hunter et al. 2013). More importantly, prey populations

in Mozambique have been increasing since the end of the civil war (1977-1992) and are probably approaching historical levels in some areas (ANAC 2016)

28. Furthermore, the appropriateness of the Jacobson et al. 2016 assessment is disputed because it arbitrarily uses a “historic" 1750 range loss! It is difficult to see how that helps advise practical conservationand it sensationalizes range lossestimate.

29. Further researches would be clearly necessary to ascertain the extent of the leopard range in Mozambique; however, the estimated range today is more important and useful than more speculative estimates of historic range. For the purposes of this document, the best estimated leopard extant of habitat is approximately 640,000 km^2 representing about 80% of the country’s landmass, which represents the average between the minimum area size reported in Jacobson et al. 2016 and the maximum area size derived from adding natural and mixed habitats as reported by CEAGRE 2015

b) Abundance

30. Bearing in mind the extreme difficulties to count leopards (Balme et al.2009), the model used by Martin and de Meulenaer (1988), based on rainfall and vegetation types, to estimate leopard population, although criticized by many authors (Norton 1990, Stein et al 2016), for omitting critical factors such as anthropogenic mortality and prey availability, still represents the only practical and quantitative attempt to date to estimate leopard number in Sub-Saharan Africa. The recent assessments by Jacobson et al 2016 and Stein et al 2016 do not include any estimates of leopard populations. To date no attempt has been made to improve the model proposed by Martin and de Meulenaer (1988).Key findings of the model are still valid including the following:
    - The leopard belongs to the category of "populations with full compensation (i.e. populations able to compensate easily to reasonable harvesting)." Even if a population has been decreased to a very low level, it will recover its maximal density when the pressure causing the decrease is stopped.
    - The populations of predators are in general limited by the food resources and, in Africa, these resources are determined by the biological productivity, itself determined by the rainfall.
    - On the basis of the habitats available and rainfall, Martin and de Meulenaer (1988), estimated about 37,000 leopards for Mozambique.

31. Researchers in Niassa National Reserve (NNR) (Jorge 2012 and Jorge et al.2013) and in Xonghile Game Reserve (XGR), an area of 450 km^2 located south of Limpopo National Park, (Strampelli 2015) estimate respective leopard densities in intensive study areas using camera trap methodology, to be 2.18–12.65 leopard/100 km^2 in NNR (depending on habitat - densities were roughly two times higher in riparian areas (3.7 – 12.65 leopards/100 km2) than in miombo woodland (2.18 – 4.31) - average 7.42 leopard/100km^2) and at about 1.53 ± SE 0.57 leopard/100km^2 in “sandveld” (dry open deciduous tree savanna) in XGR. These density estimates are in line with other estimated leopard populations in Africa (Strampelli 2015) and the methodology used in XGR has recognized limitations and bias that likely led to underestimates. In NNR, although the sample area was limited, no statistically important differences in leopard densities between hunting and photographic concessions were observed, which suggests that the numbers of sport-hunted leopards have limited impact on the populations compared to other anthropogenic actions (Jorge 2012).

32. Taking into account that in particular conditions leopard can reach densities of 15 and even 30 leopard/100km^2 (Hunter et al. 2013, Strampelli 2015) and the densities found in two different habitats in Mozambique, reported in point 9 above, are on average of 4.47 leopard/100 km^{2}and taking into account previous chapter a) on distribution and range (set at 640,000 km^2) the Mozambique leopard population would stand at 28,608 and at an extremely conservative density of only 1 leopard/100km^2 for the 640,000 km^2 of potential range would give an arbitrary minimum population of leopards in Mozambique of 6,400.

33. However, in recognizing the fact that reliable estimates of population size are unattainable at a national level, Chapters III and IV present the adaptive management framework in which Mozambique is working to inform actions aimed at ensuring sustainability of consumptive wildlife utilization.

c) Threats

34. The major threats to leopard have been categorized by Stein et al. 2016 as being habitat loss and fragmentation, reduced prey base and conflict with livestock and game farming

35. Leopards are extremely resilient carnivores. They have survived the extensive trapping and trade of the decades in the 1960s and 1970s when tens of thousands of leopards' skins (7,000 leopard skins were imported annually in the United States of America alone) were traded annually from Africa for the fur fashion (Fitzgerald 1989, CITES 1994, Nowell and Jackson 1996).

36. It is widely acknowledged that the most important direct threat to biodiversity comes in the form of the conversion, loss, degradation, and fragmentation of natural ecosystems. According to the Global Forest Assessment 2015 (FAO 2015) and based on a model developed during the National Forest inventory (Marzoli 2007) it was assumed that the deforestation rate in Mozambique was of 219.000 ha/year and has anthropogenic causes. In fact, illegal logging is reported in several areas by safari operators and scientists. A more recent assessment of deforestation in Mozambique (CEAGRE &Winrock International 2016) estimated the deforestation rate in Mozambique at 138,302 ha/year.

37. Although deforestation and other pressures on habitat such as illegal mining are worrisome, natural habitats in Mozambique, as reported in CEAGRE 2015, still cover a substantial percentage of the country (74.2%). Although improved actions are needed to stop illegal activities affecting habitat and biodiversity in many areas of Mozambique, it must be noted that savanna habitat supports denser leopard populations and leopard prey than forested habitat.

38. Although wildlife populations in Mozambique have declined during the civil war that waged between 1977 and 1992 (Hatton et al. 2001, Daskin & Pringle 2018), and presumptively affected leopard and their preys, they are now increasing in many areas and are probably approaching maximum levels in some areas (ANAC 2016). In any case leopards are very adaptable on preys and can survive with small rodents and even insects. (Bailey, 1993, Hunter et al. 2013). For example, the latest available wildlife aerial survey done in Niassa National Reserve in 2016 (Grossman et al. 2017) suggests an upward trend in impala (*Aepyceros melampus johnstoni*) and common or grey duiker (*Sylvicapra grimmia*) two of the leopard's preferred prey (Hayward et al. 2006). Similarly, the Gorongosa National Park (Stalsman 2012, Stalsman et al 2014 Stalsman et al 2016) and the Tchuma Tchato Community Area (Grossmann et al. 2014) especially on the south banks of the Cahora Bassa lake, and Zambezi Delta-Marromeu Complex (CEAGRE 2017) have increasing or important populations of leopard's prey species.

39. The main threat to leopard in Mozambique seems to be represented by direct persecution in retaliation of livestock losses, indirect killings through snares set for bushmeat and in some areas an instance by illegal killings for the skin trade.

40. The Human population in Mozambique has been recently censused through the National Census of 2017 and preliminary data released by the National Institute of Statistics shows that it amounts at 28.861.863 people with a human density of about 36 people per sq.km, compared to the 20.252.223 people recorded in 2007 (National Institute of Statistics). This rapidly growing human population exacerbates the anthropogenic threats to leopard.

41. Poaching for bushmeat is an important livelihood component of rural communities in Mozambique and in Africa.Poverty is the major driver. A vast literature exists on this subject (among others Lindsey et. al. 2015a and 2015b). The livelihoods of illegal hunters using bushmeat both for supplementing household protein and for economic gain have been augmented considerably through revenue generated from bushmeat sales (Knapp 2012, Fisher et al. 2014). More research is needed to fully understand the impactof poaching for bushmeat on leopard populations as leopardsare often inadvertently caught in snares set for animals targeted by poachers.

42. Monitoring of carnivores in 26 out of 44 villages the Niassa National Reserve (NCP 2016) indicated that allegedly about 20 leopards were annually illegally killed from 2014 to 2016 most likely directly for the illegal skin trade.

43. In response to a questionnaire on the importance of leopard in Niassa National Reserve (Jorge, 2012), villagers valued leopard mainly for bringing hunting and photographic tourists (58%, n = 91), for preying on crop-raiding wild animals (15%, n = 24), for its skin (10%, n = 16), and for the usefulness of its body parts for medicinal purposes (3%, n = 4). Some villagers claimed to not know the importance of leopard (13%, n = 21) or considered the animal unimportant (1%, n = 2).

44. Recent data (Naude, in press) on DNA-based forensic of skins seized in South Africa as entering Shembe (cultural group using leopard skins)markets, suggest that out of 97 seized skins, 11 originated in Northern Mozambique. This fact poses a new challenge on the management of the Reserve already under pressure for elephant poaching and managed since 2012 by Wildlife Conservation Society.

d) Human-Leopard Conflicts

45. Pro-active research has been conducted on human wildlife conflict in Mozambique (Anderson & Pariela 2005, Chardonnet et al.2010). In 2009 the Council of Ministers of the Government of Mozambique approved the National Human-Wildlife Conflict Mitigation Strategy (Estratégia de Gestão do Conflito Homem-Fauna Bravia -Resolution no 58/2009 29 of December).

46. The main objective of the strategy was to ensure the permanent protection of people and goods, contributing to the conservation and sustainable use of wildlife to the economic and social benefit of the current and future generation of Mozambicans.

47. The implementation of the HWC National Strategy involved several state services. The Ministry of Agriculture (MINAG) and the Ministry of Tourism (MITUR) were responsible for wildlife management respectively outside and inside conservation areas. In a supporting role, the Ministry of Public Works and Habitation (MOPH) is in charge of water supply in rural areas and the Ministry for the Coordination of Environmental Action (MICOA) is in charge of land use planning together with the Ministry of the State's Administration (MAE).

    To achieve its objective, the Strategy defined the following key principles:

    - To separate wildlife from humans;
    - To remove wildlife from human settlements;
    - To use land-use plans (LUPs) to manage conflicts;
    - To change the attitude of human population in the interaction with wildlife in terms of their natural corridors, as well as in adoption of alternative accesses to water;
    - To develop game farms and community projects as a buffer around Conservation Areas.

48. Since 2015, the Ministry of Land, Environment and Rural Development (MITADER), though ANAC, is responsible of all wildlife management in the country implementing the new Conservation Law 16/2014 (5/2017) and the national HWC Strategy, which is now in process of revision for the next 5 years, with the support of FAO. The drafting process has been concluded and the revised strategy is expected to be approved by 2018. A total of 45 districts out of 128 (35,15%), were identified as of high HWC incidence.

49. Among wildlife species, however, the leopard does not appear to be the most involved in human conflicts: in Mozambique, Nile Crocodile (*Crocodylus niloticus*) is the species that more kill and injure people. The elephant and hippos are involved in destruction of crops. Human/leopard conflicts involve mainly human injuries, loss of livestock, loss of incomes for local communities, competition for source of protein and is mainly due to an increase in livestock production and settlements of people around or inside protected areas.

50. In the period 2013-2016, according to ANAC official data, 8 people were injured by leopards and 4 leopards were taken in PAC operations due to the persistence of the reported damages to small domestic animals mainly chickens and goats. There could be some underreporting of damages to ANAC. Overall in eleven years (2006-2016), ten species of carnivores have been reported to be causing problems in villages across Niassa National Reserve. However, in comparison with other Human wildlife conflict events, problems with carnivore are relatively low. Of the 18,543 human wildlife conflict events reported over the past ten years about 240 events are involving leopard, mainly for predation of small domestic animals such as chickens, goats and domestic ducks (NCP 2016).

51. As much insightful work has demonstrated, HWC may not be good for people and their livelihoods, but it is not good for conservation efforts and wildlife either as it can lead to resentment among affected

populations towards wildlife, protected areas, and conservation more generally. The displacement of communities as a result of conservation efforts may also alienate the very people from nature who depend on it and without whose support conservation will never be fully successful (Massé, 2016).

III. ADAPTIVE MANAGEMENT FRAMEWORK

a) Adaptive Management

52. Adaptive management, a concept formalized from a learning process of trial and error or learning by doing (Walters & Holling. 1990), has proven a useful approach to the paucity of data that often surrounds issues of harvesting less well-known species groups. Even for species where some basic facts of biology and ecology such as population size or maximum rate of increase are known, adaptive management is a crucial concept because:
    - ecological systems are very complex and great uncertainties surround consequences of the use of those systems, and of the consequences of environmental, social and economic changes; and,
    - management itself must be sustainable, and able to adapt to changing conditions.

53. A system of adaptive management reviews decisions and procedures and uses the lessons learned to adjust the management system. The central component of effective adaptive management is the monitoring system that is incorporated to evaluate management activities. Hence, an act of management, such as harvesting, is designed as a trial, the outcome of which can be assessed scientifically and improved upon where necessary, through a properly designed monitoring system.

b) Management Tools

54. Tourist safarihunting is managed and regulated at the national level. Since the entry into force of the Forest Law 10/99 and its Regulation 12/2002, hunting has been managed through a quota system. Leopard harvest is informed through specific studies and information gathered from authorities at the National, Provincial and district level and from concessionaires of the hunting areas. Management is adaptive with formal oversight and feedback through mandatory safari operators' annual reports. Hunting areas are allocated trough a closed tender process. In Niassa National Reserve the tender process is established by the Reserve Management Authority on the basis of the leasing contract with ANAC.

55. In the Tchuma Tchato Community Programme hunting blocks are allocated through a direct negotiation between the Safari Operator and the Tchuma Tchato Programme Unit now in the Provincial Department of Land, Environment and Rural Development (MITADER- formerly Provincial Department of Tourism). It comprises 12 Blocks of which two were transformed in the Magoé National Park and three are not operational and in the process of being possibly transformed into National Reserves.

56. All hunting concessions are awarded to private safari operators subject to a binding contract. The obligations for the safari operator foreseen in the contract includes but are not limited to:

    - Submitting a management plan for approval by ANAC;
    - By 30 March each year, submitting the Annual Plan of Activities to ANAC for approval and ensuring its proper implementation;
    - Obtaining ANAC's approval for all hunting quotas on the concession);
    - By 28 February each year, submitting the Annual Activity Report to ANAC;
    - Complying with and enforcing all applicable laws and the terms and limits of this contract, including ensuring that all professional hunters comply with applicable law and contractual requirements (the Concessionaire is jointly liable for acts done by professional hunters);
    - Obtaining ANAC's approval for activities related to hunting and ecotourism operations in the concession area;
    - Monitoring of poaching and other illegal activities by establishing and maintaining a supervisory body composed of sworn inspectors, guards and/or community workers which should focus on the recruitment of members of local communities;

- Collaborating with ANAC in the control and prevention of fires, indiscriminate use of natural resources, prospecting and illegal mining, soil erosion, contamination of water courses and the use of poisons and illegal fishing methods and movement of people once approved zoning plan;
- Carrying out regular inventory of wildlife populations in the concession;
- Ensuring that local communities residing in the Hunting Area be treated with courtesy and generating partnerships of mutual benefits that can be verifiable and quantifiable;
- Making all agreements with local communities in writing and within 15 days, delivering a copy to ANAC for approval and a copy to the government of the district area where the local community is established for knowledge and monitoring purposes;
- Giving the local communities the benefits that have been agreed, as well as those resulting from governing legislation, and supporting the development of income activities that benefit local communities;
- Distributing, whenever possible, part of the game meat harvested by tourist hunters to local communities, health institutions, children, prison and school centers, or other places that take care of disadvantaged groups.
- Providing employment to personnel choses with preference among the local communities residing close to the hunting area.

57. Hunting areas included in Conservation Areas (NNR Blocks, Coutadas, Community Programs and Game Farms) cover an extension of 131,425 km2, equivalent to nearly the 17% of the country's land surface (see Table 1).

58. Coutadas (Official Hunting Areas) were created by colonial legislation in the 1930s. During the 1960's these were consolidated so that by the 1970's some 17 of these hunting areas had been gazetted as official reserves. Much of the hunting at that time focused on meat harvesting with limited sport hunting taking place.

59. During the civil war period (1977-1992), organized sport hunting was effectively closed down and uncontrolled wildlife harvesting for meat was widespread across the country to feed the troops, leading to a decline in wildlife in many areas (Anstey, 2009, Hatton et al 2011).

60. As the hunting sector emerged from this period following the General Peace Agreement of 1992, so too were there changes in the number of hunting coutadas that were available. Some, such as Coutada 16, were incorporated into the Limpopo National Park while others were overrun by human settlements. Some coutadas were closed as the wildlife populations had been depleted and were not suitable to support a sustainable hunting industry.

61. Following the creation of ANAC in 2014 several areas that were designated as Multiple Utilization Areas were transformed and gazetted as coutadas that according to the Conservation Law 16/2014 are designated as Conservation Areas for sustainable utilization and managed in accordance with a management plan duly approved by ANAC. Those have growing populations of leopard prey.

62. The right to hunt is only recognized by means of the concession contract between the State and the operator.

63. Concessions are awarded in general for a period of 5 years' renewable for 10 years if the obligations of the contract have been duly respected. In the Tchuma Tchato Community Programme some of the concessions have been granted for a renewable period of 20 years.

64. The Concessionaire is required by contractual obligations to purchase a number of licenses and permits and pay various taxes to Government. These fees are paid by the safari operators while others are paid by hunting clients.

65. The revenues obtained by the different fees from safari operators and sport hunters are re-invested in the operational costs of the Conservation Areas managed by ANAC including anti-poaching salaries and equipment.

66. Other areas with strong local control over resource use are represented by Game Farms (Fazendas do bravio). They were formerly established under the Ministry of Agriculture as areas designated to the breeding of wild species, Game Farms (Fazenda do bravio) are now considered Conservation Areas for

sustainable use by the Conservation Law 16/2014 (now 5/2017) and its implementing Regulation and are fenced areas of private domain, designated for the conservation of fauna and flora where the right to hunt is limited to the holder of the land use rights (Land License or DUAT) or to those who have been authorized by that holder, provided that both acquire the respective license issued by the competent authority. There are 43 registered Game Farms in Mozambique covering an area of 4535km^2 (See Table 1).

67. The holder of the game farm may set up the balanced exploitation of certain species for meat production and utilization of by-products and other remains. The holder of the game farm who introduces animals in captivity is responsible for their feeding, health and maintenance and he/she is the owner of the animals he introduces. If the holder of the game farm intends to claims ownership of the animals found in the area, he can buy them from the State. The repopulation of species is allowed on game farms, subject to the provisions of relevant national legislation and requesting a specific management plan.

68. As of 2016 only 7 Game Farms are fully fenced. To obtain a license to operate a Game Farm. the applicant must meet the following criteria: Obtain land license (DUAT in accordance with Land Law); submit a Management Plan; introducing the wildlife in accordance with the law and carrying capacity. Since February 2016 the management and licensing of Game Farms is under ANAC.

69. In 2010 the Association of Mozambique Hunting Safari Operators (AMOS) was formed to promote ethical hunting and the conservation of nature, mainly fauna, in the interest of the present and future generations advocating sustainable use of natural resources as an important tool for social and economic benefits and therefore as an incentive for their conservation.

c) Legislative Tools

70. The Mozambique Legislation concerning wildlife conservation and sustainable use including specific regulations on hunting and CITES implementation is more than adequate to address conservation needs especially after the recent reforms.

71. The law amending the Conservation Law no.16 of 2014, was approved by Parliament in November 2016 and has been published on the Official Journal of Mozambique on 11 May 2017. It entered into force on 26 May 2017. Law No.16 of 2014 has been republished completely as law No.5 of 11 May 2017 as Law on the Protection, Conservation and Sustainable Use of Biological Diversity. http://www.biofund.org.mz/wp-content/uploads/2017/06/Lei-5-2017-Lei-da-Conservacao-da-Biodiversidade.pdf . Among other provisions, it increases penalties and allow judges to impose prison terms from 12 to 16 years for poachers as well as those who finance poaching or receive illegal wildlife products. The amended law, extend the applicability of the law to all Mozambique territory inside and outside Conservation Areas and ANAC can act as technical advisor of public prosecutors. The changes regarding the applicability of the law to all authors of infractions both material and moral, will enable law enforcement to crack down on higher-level wildlife trafficking rings, yielding a more significant impact on the fight to save Mozambique's wildlife populations and extends the provisions of the law to the whole national territory. Among other important provisions, according to the new law, is the fact that it is a crime, punishable with imprisonment up to sixteen years, to harvest without a license, any protected or prohibited species of wildlife, including the species listed in Appendices I and II of CITES. Mozambique's wildlife trade penalties are now among the strongest in Africa and imprisonment is now a requirement, not an option. The amended law also extends the applicability of the conservation law and authorizes ANAC to act as technical advisor for public prosecutors. The amended law is allowing law enforcement to crack down on higher-level wildlife trafficking rings, yielding a more significant impact in the protection of Mozambique's wildlife populations and the prosecution of criminal poaching syndicates.

72. The Regulation implementing the Conservation Law, has been approved by the Council of Ministers and published on the Official Journal of Mozambique as Decree 89 of 29 December 2017. ThisRegulation contains a detailed series of provisions including the creation of Community Conservation Areas in order to increase benefits to rural communities through the sustainable use of natural resources. The original version is available here:http://www.biofund.org.mz/wp-content/uploads/2018/03/Decreto-89-2017-Regul-Lei-da-Protec----o-Conserva----o-e-Uso-Sustent--vel-da-Diversidade-Biologica.pdf. An English translation is available here: http://www.biofund.org.mz/wp-content/uploads/2018/04/Decreto-89-2017-Regul-Lei-da-Protec----o-Conserv-e-Uso-Sustent-da-Divers-Bio-ENG.pdf

73. The updated CITES Regulation has been published on the Official Journal of the Republic of Mozambique of 25 August 2017 as Decree of the Council of Ministers No. 34 of 2016. It is in force since that date. For

its text see: NIRAP Progress report submitted at CITES SC69: https://cites.org/sites/default/files/eng/com/sc/69/E-SC69-29-03-A-12.pdf

74. The new Hunting Regulation, has been approved by the Council of Ministers and published on the Official Journal of Mozambique as Decree 82 of 29 December 2017 (http://www.biofund.org.mz/wp-content/uploads/2018/03/Decreto-82-e-83-de-2017-Regulamento-da-Caca-Desportiva-com-novas-taxas.pdf).It contains a series of new provisions including specific provisions on lion minimum allowed age for hunting fixed at 6 years, minimum length and weight for elephant trophies and minimum length measure for leopard hunting fixed at 1,20 meters. Further hunting restrictions and regulations are described below under d) Harvest Restrictions.

75. As recognized by the CITES Secretariat, (see https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-22-A3-R1.pdf), it is foreseen that with the adoption of the CITES Regulation and the amendments to the Conservation Law, Mozambique CITES legislation will be evaluated as Category 1, i.e. legislation that is believed generally to meet all requirements for effective implementation of CITES. It is the ANAC's understanding that the Regulation implementing the Conservation law does not fit into the CITES legislation process.

76. The above legislative reforms will now allow an improved enforcement and compliance with international agreements and standards on wildlife conservation.

d) Harvest Restrictions

77. In Mozambique, hunting of leopard (and all species) is restricted to a specific season (April-November). In addition, hunting of leopard and other species is limited to a specific quota approved through a Ministerial Decree, set for that concession through a participatory approach described in point e). In addition, hunting of leopard is limited to males.

78. The amended Conservation Law no. 5/2017 and its implementing regulation have provided the legal basis to include a series of important reforms in the new Hunting Regulation that now includes specific provisions that apply what had been localized policies throughout the country. For example, while lion hunting in the NNR blocks had been subject to an age-based restriction, the Hunting Regulation extends this restriction to all hunting areas in the country. The Hunting Regulation also sets a minimum length and weight for lawful elephant trophies and a minimum length for lawful leopard trophies of 1,20 meters. Furthermore, the Hunting Regulation enacted through Decree 83/2017 prohibits the hunting of lion and leopard in Multiple Utilization Areas, and in Game farms whose area is less than 10,000 hectares further prohibiting the hunting of lion and leopard which were bred in captivity.

79. Finally, and importantly, the Regulation contains a provision in which the relevant ministry is allowed to enact a Ministerial Decree defining the mechanisms and standards on age and size of huntable species when applicable.

80. The above has now provided the legal basis to enact specific guidelines on the hunting of lion and leopard which have been drafted since 2016 through the MOZBIO project. It is expected that ANAC will shortly adopt specific trophy inspection and control procedures to ensure compliance with these age- and size-based requirements and a monitoring system through a compulsory Leopard Hunt Return Form.

e) Sustainable Hunting Quotas

81. Until 2017 sport hunting in Mozambique was governed by the Forestry and Wildlife Law (Law10/99) and its regulations (Decree 12/2002) with a system of hunting quotas. Now as detailed in point 69 to 75 above it is regulated through law 5/2017 and its Regulations (Decree 89/2017) and the Hunting Regulation included in Decree 83/2017. Until the year 2014, the establishment of hunting quotas was made by two bodies (National Directorate of Conservation - DNAC / Ministry of Tourism MITUR and National Land Management and Forestry - DNTF / Ministry of Agriculture) responsible for the management of wildlife resources in the country.

82. With the formation of the new government after the 2014 elections, the management of the natural resource sectors have been integrated into the Ministry of Land, Environment and Rural Development

(MITADER) and the National Administration of Protected Areas (ANAC) created. Therefore since 2014 ANAC is the sole authority responsible for the implementation of hunting legislations including the allocation of hunting quotas.

83. The size and composition of quotas depends on the estimated number of animals present in the hunting area, adjusted upwards and downwards for the various species on offer, depending on their population trends and impact of hunting on trophy quality. (Booth & Chardonnet, 2015)

84. Hunting quotas are given for areas open to foreign sport hunting such as Coutadas (Hunting Reserves), and Hunting Blocks around Niassa National Reserve, Community Programs hunting blocks (Tchuma Tchatu and Chipanje Chetu) and Game Farms. No Leopard quota is given are to areas for local national hunting (Areas Livres – Free Areas and community quotas in selected areas).

85. Quotas are set in a participatory way between ANAC, Provincial Authorities and Safari Operators, whose Annual Activity Reportsare mandatory for quota setting, and are informed by surveys and local studies following the model described in the Quota setting Manual (WWF 1997 and edition in Portuguese,2004) which is widely used in Southern Africa. Until 2014 the quota was split between Ministry of Tourism and Ministry of Agriculture that was mainly in charge of Fazendas do Bravio (Game Farms).

86. In Mozambique the only legal trade of leopard is in the form of sport hunting trophies. Actual safari hunting offtakeis normally 40 to 50% of the allowed quotas therefore more conservative and sustainable than the quota suggests (Table 2).

Table 2: Trophy hunting offtakes of Leopard in Mozambique (Source ANAC)

Year	CITES Quota (Quota given by MZGov)	Tags issued
2011	120 (106)	49
2012	120 (110)	46
2013	120 (115)	55
2014	120 (119)	52
2015	120 (116)	57
2016	120 (116)	53
2017	120 (117)	41 (Incomplete data)

87. The quotas are set conservatively. For example, in NNR if we calculate the portion of the 42,000 km^2 reserve, set aside for trophy hunting - 28,000 km^2 - at the mean density suggested by Jorge 2012 of 7.42 leopard/100km^2 (2.18- 12,65) we obtain a theoretical population of 2,076 leopards for the portion of the reserve occupied by hunting blocks. Applying to this theoretical population the sustainable offtake index recommended by Caro et al (2009), i.e. 3,6% of the total population, results in a potential offtake of 75 leopards. In the period 2011-2017, the quotas given by the Mozambique Government for leopard sport hunting in Niassa National Reserve averaged at 38,75 leopards (see table 3) equal to nearly the 51% of the index recommended by Caro et al. (2009) or to about 1.86% of the estimated population. In the period 2011-2017 the average actual offtake has been 18 (17,85) leopards, representing around 0,86% of the estimated population, less than one fourth of the limit recommended by Caro et al. (2009).

88. Booth & Chardonnet 2015, recommended a quota percentage for leopard varying from a maximum of 4% (similar to Caro et al. 2009) in Safari Areas to a minimum of 2% in Communal Areas. The quotas average below these recommended percentages.

Table 3: Trophy hunting offtakes of Leopard in Hunting Blocks of Niassa National Reserve (Source ANAC)

Year	Quota allocated by ANAC (Quota allocated inNNR)*	Offtake
2011	41	20
2012	41	14
2013	40	22
2014	39	21
2015	39	20
2016	35 (22)	13
2017	35 (25)	15

**Due to vacant blocks the quota allocated was less than the approved Government quota.*

89. Research by Packer et al., 2011 recommended leopard harvest rates of 1 leopard/1000 km^2 inthe whole of Tanzania and 3 leopard/1000 km^2 in the Selous Game Reserve. These thresholds were based on

offtakes rather than densities and are considered more a “rule of thumb” than a proven methodology for quota setting. However, it is interesting to note that recent research in Tanzania (Tanzania Government 2016) has estimated a preliminary leopard density in the Selous Game Reserve at 3.5 leopard/100km^2, about 47% of the average density in the Niassa National Reserve (7.42 leopard/100km^2). Therefore, using the threshold of 3 leopard/1000 km^{2,} the theoretical sustainable offtake in the Niassa National Reserve would be of 86 leopard, slightly higher than using the Caro et al (2009) methodology. Jorge 2012 (p.42), reports that the overall leopard legal hunting intensity for NNR is within the limits recommended by Packer et al. (2011), although the sustainability of leopard hunting might vary across individual hunting concessions. However, Jorge 2012set the limit at 1 leopard/1000km^2 and not at 3 leopard/1000 km^2 as he should have done, a circumstance that further demonstrates a conservative offtake. This method is not used by the Government.

90. Taking note of the above, and of the conservative leopard range and densities described in Chapter II, a) and b) above, the hunting quotas of Mozambique are set according to the sustainable level of 120 leopard per year decided at the CITES Conference of the Parties through Resolution Conf.10.14 lastly revised at CITES CoP 16. These quotas are representing 1.8% of the conservative estimates of leopard in the country based on habitat availability at extremely conservative densities as described in point32 above. The quotas for the 2018 season are shown in the following table 4. As for the previous years the quota for leopard are slightly below the level set by CITES Resolution Conf.10.14 (Rev.CoP16).

Table 4: Hunting Quotas for 2018. (Source ANAC)

Época Venatória 2018 - Resumo de Quotas de Abate

Area/Espécie	Áreas Livres	Coutadas e Blocos da RNN	Fazendas de Niassa e Cabo Delgado	Fazendas de Tete, Manica e Sofala	Fazendas de Maputo e Gaza	Tchuma Tchatu e Chipanje Chetu	Quotas Comunitárias	TOTAL
Abetarda	0	11	0	0	0	0	0	**11**
Búfalo	35	427	105	82	106	92	22	**869**
Cabrito Azul	5	52	0	9		0	0	**66**
Cabrito Chengane	58	153	22	45	28	20	0	**326**
Cabrito Cinzento	195	230	66	73	68	74	80	**786**
Chango	93	262	51	86	21	50	91	**654**
Chipenhe Grizalho	15	97	0	0		57	0	**169**
Chipenhe	40	5	0	0	22	0	0	**67**
Cocone	7	44	17	0	38	2	0	**108**
Crocodilo	320	132	58	84	14	144	0	**752**
Cudo	85	168	39	32	64	85	11	**484**
Elande	10	152	10	40	5	21	4	**242**
Elefante	0	2	0	6	6	12	0	**26**
Facocero	148	418	61	100	40	95	79	**941**
Francolino	460	314	0	0	0	272	0	**1046**
Galinha do mato	305	540	0	46	75	384	0	**1350**
Gondonga	12	187	0	20	0	27	0	**246**
Hiena malhada	0	44	20	14	5	33	0	**116**
Hipopotamo	0	13	0	0	0	27	0	**40**
Imbabala	107	254	47	53	5	89	4	**559**
Impala	77	142	30	37	156	294	5	**741**
Inhacoso	41	246	43	25	20	46	39	**460**
Inhala	11	107	0	26	27	0	0	**171**
Leão	0	30	4	2	1	11	0	**48**
Lebre	475	15	0	5	43	25	0	**563**
Leopardo	0	67	10	8	8	24	0	**117**
Macaco-cão	99	375	27	91	16	198	0	**806**
Mangul	22	145	15	34	0	5	0	**221**
Oribi	13	89	0	29	3	0	28	**162**
Pala-pala	24	323	56	53	0	64	0	**520**
Patos	550	155	0	30	0	330	0	**1065**
Pombos	1500	5	0	0	0	300	0	**1805**
Porco bravo	59	269	56	94	46	73	54	**651**
Porco espinho	12	15	14	17	7	19	0	**84**
Rolas	2500	15	0	0	75	365	0	**2955**
Zebra	4	101	9	8	22	32	0	**176**
TOTAL	**7282**	**5604**	**760**	**979**	**921**	**3270**	**417**	**19403**

IV. THE MONITORING OF LEOPARD TROPHY HUNTING IN MOZAMBIQUE

91. Harvest Monitoring in Mozambique is based on a variety of systems: an important monitoring tool is represented by the regular verification of the conditions included in the Management Plan of the hunting area, in the Annual Plan and in the Annual Activity (Hunting) Report that is done according to a specified format, valid for all hunting areas in the country (Hunting Blocks, Community Programs, Coutadas and

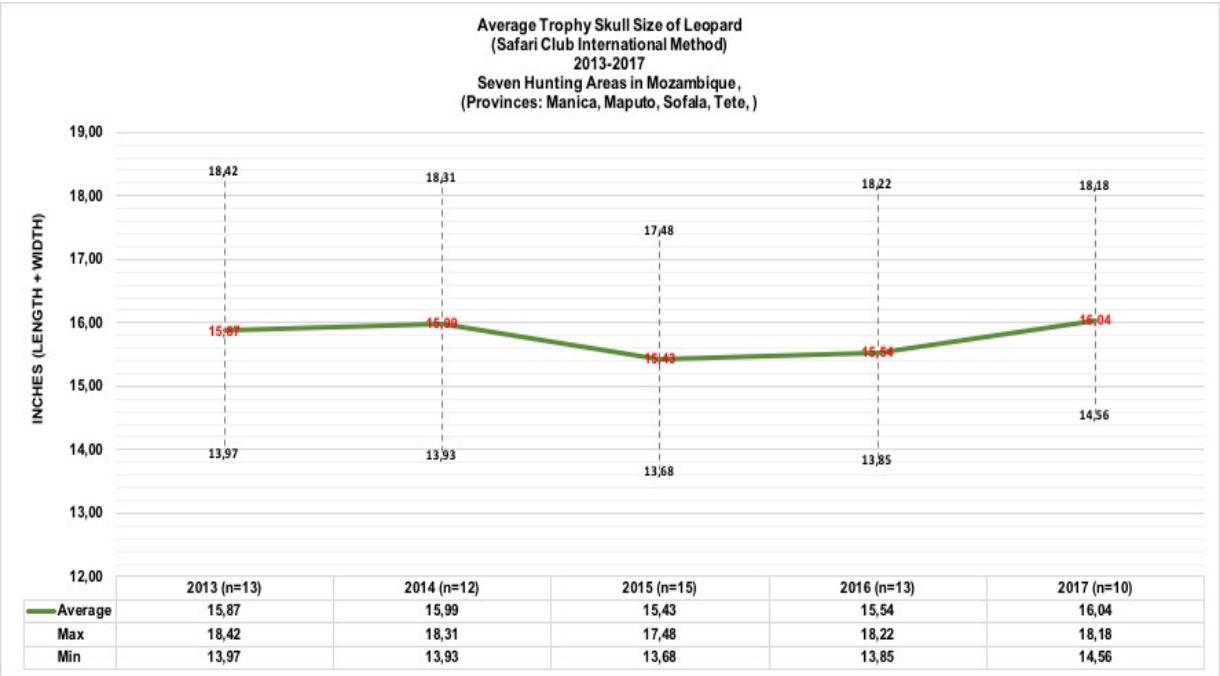
Game Farms). Safari operators enter into a contractual agreement with ANAC in accordance with law 5/2017 and among the various obligations for the safari operator prescribed in the contract, there is the Safari Operator's Annual Activity Report or Annual Hunting Report, where the operators are obliged to report all the activities related to the hunting season. These reports, developed by ANAC in a format to be compiled by the operators, contain an important amount of information such as quota and harvest monitoring, wildlife monitoring, law enforcement activities and communities and social aspects. These reports are analyzed by ANAC also to verify any differences between the activities implemented and planned in the Annual Plan, which is another obligation of the safari operators (ANAC 2017).

92. The provincial offices of Ministry of Land, Environment and Rural Development (MITADER) monitor the harvest of leopards through the trophy ownership certificates issued for every trophy harvested in Mozambique and through periodical visits to the hunting areas.

93. In an effort to improve hunting administration also in light of the recent legislative and regulative reforms (see points 19 to 24) ANAC is developing two databases: one to efficiently monitor and supervise information related to sport hunting in sport hunting designated areas (hunting blocks, coutadas, Game Farms). The information will be used for monitoring of the sport hunting sector and wildlife management including quota settings. This database will contain mainly quantitative data that are now part of the Annual Hunting Report. A second database linked to the previous one will be dedicated to wildlife monitoring for selected species. Through the regular use of these databases and the relevant applications, Safari operators, professional hunters and game scouts will provide useful data to ANAC and in particular:
    - ✓ While on the field the recorder, PH or GS, will have the opportunity to record data "on the fly" i.e. in real time because the fields are few and very quick to fill.
    - ✓ ANAC will use data in a variety of ways such as: quota setting in conjunction with aerial or other specific surveys; production of status reports on a given species, calculation of presence/absence and abundance indexes for a given species, production of NDFs, etc.

94. The above will be informed also by the impressive amount of information on leopard in most of the Hunting Areas in the country that Safari Operators and Professional Hunters working for them have collected over the years such as hundreds of pictures of leopard feeding as well as information of direct sightings and trophy measurements. In this regard an analysis of trophies (63 leopard skulls) taken in the period 2013-2017 in hunting areas throughout the country and outside Niassa National Reserve returned the data illustrated in table 6. The Safari Club International (SCI)measuring Method 15 was used, i.e. adding skull length to skull width; it has to be considered that the minimum size accepted for the SCI Record Book is of 14 inches that is believed to represent an adult male.The biggest leopards are taken in the south part of the country, and there is a high level of variability in size and morphology of leopards throughout the country.

Table 5: Average Trophy Skull Size of Leopard in Mozambique 2013 – 2017 (source AMOS, M. Pani unpublished)



	2013 (n=13)	2014 (n=12)	2015 (n=15)	2016 (n=13)	2017 (n=10)
Average	15,87	15,99	15,43	15,54	16,04
Max	18,42	18,31	17,48	18,22	18,18
Min	13,97	13,93	13,68	13,85	14,56

95. Efforts are in progress in Mozambique to develop monitoring frameworks in order to reliably assess population trends at a national scale. In this regard the guidelines on leopard hunting that are in preparation as reported in point 77 will serve as one of the components of these frameworks together with the wildlife monitoring database illustrated in point 92 above. Furthermore, efforts are in progress to stimulate scientific collection of data and monitoring of carnivores in hunting areas trough standardized techniques such as camera trapping. In this regard the hunting sector stakeholders have shown interest and willingness to participate in national, Government driven efforts to improve monitoring of carnivores.

V. CONSERVATION AND SOCIO-ECONOMIC BENEFITS AND INCENTIVES

96. An analysis of a sample of the Safari Operator's s Annual Activities Reports (13 Operators) shows the following benefits that sport-hunting provides to large carnivores, their habitat and their prey (ANAC 2016):
    a) Safari Hunting Companies employed more than 1,000 people in 2017 of which about 40% were seasonal workers. Among these people there were also the anti-poaching teams.
    b) Meat is provided to the local communities. Although is difficult to assess the quantity, it is an important source of protein that increases the tolerance of communities toward wildlife and their understanding of legal regulated harvesting.
    c) assignment of monetary value to large dangerous carnivores and thus, increased incentive for rural people to tolerate carnivores outside of National Parks,
    d) increased financial and logistical support for anti-poaching,
    e) protection of native prey species through decreased bush-meat poaching, Thousands of snares are removed annually by the anti-poaching teams of the hunting operators.
    f) protection of large carnivores' habitat against land conversion and unsustainable resource extraction e.g., logging and mining
    g) decreased livestock presence, overgrazing and associated desertification
    h) decreased exposure of large carnivores and their prey to domestic diseases from livestock.

97. Each point serves to reduce existing threats as well as tolerance of rural communities toward wildlife, including reduction of poaching. Sport hunting in Mozambique has contributed to improving livelihoods of communities living in and around the conservation areas, in this case the official Hunting Areas, by creating jobs and importantly by channelling to local communities' 20 percent of revenues from sport hunting activity.

98. The Government of Mozambique has made efforts to create better living conditions of resident communities in and around Conservation Areas as a way to compensate these communities for the ban on the use of natural resources. Sport hunting is one of the main sources of income for local communities and in many rural areas of Mozambique, the only one.

99. It is in this context and in order to constantly improve the living conditions of rural communities, the Government approved by Ministerial Decree n.93/2005 of 4 May This Ministerial Decree, composed of 6 articles, requires that the 20% of any tax or fees collected from the use of forest and wildlife resources shall revert to the local communities living in the area where such resources are being used. The Ministerial Decree foresees the institution of special Management Committees composed by representatives of both local communities and public authorities. Moreover, it requires the establishment of a Registry of the beneficiary local communities. Finally, it rules on the detailed procedures for collecting and distributing the funds through a dedicated Bank account.

100. The 2005 Decree was the beginning of a process of organizing local communities through the creation of natural resource management committees (CGRN) and subsequent registration in the district administrations and the opening of its Bank account.At present 45 registered Communities benefits from the 20% of the revenues from trophy hunting and others are in the process of being registered.Some Hunting Areas Concessionaires' have voluntarily increased the revenue sharing percentage for the local communities.

101. In the Tchuma Tchato Community Programme (Tete Province), revenue sharing is dictated by Ministerial Decree 63/2003 as follows: 33% Local Communities;32% Tchuma Tchato Program Functioning (e.g. Maintaining of threeCommunity anti-poaching Units)20% District Government and 15% INATUR (National Tourism Institute).

102. Importantly, the new Conservation Law 5/2017 make provisions that the 20% revenue sharing system with local communities being the minimum percentage and not the maximum as was provided by the Forest

Law 10/99 and its Regulations.

103. Recovery of wildlife in some hunting areas has been impressive. For example, in Coutada 11 in the Marromeu Area of the Zambezi Delta wildlife has made spectacular recovery thanks to the efforts of the Safari Operator who began since 1994 an intense antipoaching initiative together with a community program. This initiative that began with foot and bicycle patrols, expanded over two decades and costs that exceeded a million dollars. That initiative has grown today to include the following:
    - Very active patrolling by a 23-man team on motorcycles and backed up with a land cruiser and as one of the results several hundred gin traps have been removed, resulting in tens of thousands of animals' lives being saved.
    - Daily air patrols in a sponsored helicopter. This is not only an exceptional way of spotting poaching activity but announces the presence of the anti-poaching teams.
    - Carefully managed intelligence gathering, which is truly effective when coupled with focused raids and well positioned "roadblocks." Many top poachers have been employed and included in the anti-poaching teams. The knowledge they bring to the table has been very efficient. They are also motivated by being offered alternative income through legal employment.
    - A free meat distribution program, which has been an effective tool in eliminating subsistence poachers. Supplying free meat eliminates poaching to survive, and the meat is legally generated from well-regulated hunting operation. The community is held accountable to the partnership, in that they forfeit the free meat if anyone from the community is caught poaching.
    - The results of the policing and protection on the game numbers were remarkable. According to the latest aerial survey in the entire Marromeu Complex (CEAGRE 2017),Buffalo bounced back to 20,000 individuals, Sable population exploded to nearly 6,000and Reedbuck and Waterbuck population is estimated to 15,000 individuals for each species. Literally several hundred animals can be seen on any given day on the concession area. Every year game counts are conducted and the counts prove that the area is well on its way to returning to its former glory.The costs for continued protection goes up every year. They currently stand at $500 per day for the entire anti-poaching team.

104. Similarly, other hunting areas are undertaking important efforts to conserve wildlife in their areas. For example, an operator in the Tchuma Tchato Community Programme in theTete Province after building schools, health primary care centres and boreholes for the neighbouring communities is now assisting them, inter alia, to establish horticultural activities that are increasing food security and whose products can be also marketed, thereby providing long term income to communities' livelihoods. This area holds the second most important elephant population in Mozambique (Grossman et al.2014) and important population of other wildlife species including carnivores.

105. Another Community Programme that is operational in Mozambique is the Chipanje Chetu Community Programme, which is an extension of the Niassa National Reserve at its western border. The Programme was initiated in 2007 when an operator successfully won the tender that now extended to 2025. This long-term lease has assisted in making long term investments toward the improvement of wildlife management and communities livelihoods. In Chipanje Chetu trophy fees are paid directly to the communities. The community has seen a benefit from a financial injection of approximately US$ 3,000,000 through lease fees, trophy fees, building material purchases and indirectly through salaries and incentive payments. Wildlife numbers are on the increase despite the wave of poaching that has affected the neighbouring Niassa National Reserve. This is due to the involvement of communities in the management activities and the benefits that the communities are receiving from the hunting operations.

106. Of particular interest is the community programme developed in Coutada 9 where the investors have a contract with the then Ministry of Tourism (MITUR) to restore the animal populations, introduce good conservation practices and make the Coutada a viable economic activity that generates revenues for the State from sport hunting. At the inception of this contract MITUR were at first of the opinion that the local community should not be in the Coutada. In addition, the investors found that serious, illegal hunting by the local people was taking place. However instead of trying to move people out of the Coutada, the investors assessed the situation, recognized the long-standing rights of the communities and accepted that they needed to benefit from the wildlife resource base to support their livelihoods. Negotiations with local chiefs resulted in an agreement being proposed in which the community agreed to give up illegal hunting and in return the investor would share trophy fee revenues with the communities. In addition, the communities could keep all the meat from animals killed by the sports hunters. The deal also recognized that since part of the Coutada was already heavily settled, it should become a multi-use area, usable for agriculture, etc. A revenue sharing arrangement was structured around this and the management plan included a zoning plan in which the core area would be managed by the investor while a second area

between this core and the multi-use area would be managed by the community as a hunting reserve. The community is now receiving 25% of trophy fees from the core area while they are receiving 75% of the trophy fee from animals taken in the community-managed area. In return the community has agreed to stop all illegal hunting. The arrangement is working and wildlife is increasing in the area.

107. Another example of tangible benefits to communities is represented by the community programme established by Sabie Game Park (SGP) a private Hunting Reserve extending for about 400 km^2 in south western Mozambique and bordering Kruger National Park in South Africa. Sabie is part of the Lebombo Conservancy and of the Great Limpopo Trans-Frontier Conservation Area (GLTFCA) created in 2002 through an international treaty. SGP is crucial for Rhino conservation in Mozambique and considerable financial resources, deriving mainly from hunting, are invested in the protection of this species thus benefitting other species such as elephant, lion, leopard and a variety of prey species including a large buffalo population.

108. SGP manages a community-based conservation project co-sponsored by USAID through WWF with training done by the South African Wildlife College. When it was established, a fence was erected to keep local people out and there were no benefits from conservation. After several years of conflict and poaching, 20 per cent of the revenue from SGP is now shared directly with the Mangalane community consisting of 5 villages totalling approximately 430 households. Every village has his own committee that manage the village and has his own bank account and is managed by the village committee.

109. There are many other examples on the support of hunting to conservation and rural communities'livelihoods and in general financial terms, anti-poaching, area management and community development voluntary contributions were analysed for 13 Hunting Operators in different regions of Mozambique, and data are presented in Table 6 below.

Table 6 Voluntary Contributions of 13 Hunting Operators for Anti-poaching, Block development and community development 2013-2017 (in USD).

Anti-poaching (USD)	*Block Development (USD)*	*Community Development (USD)*	*TOTAL*
2,450,840,00	*1,714,500,00*	*1,400,350,00*	*5,565,690.00*

110. The above reported contributions are critical in providing improved livelihoods for rural communities, in maintaining antipoaching operations in hunting areas and in providing for habitat conservation. Tourist Hunting represents in many rural areas of Mozambique the only source for improved income to some of the poorest rural communities in Africa.

VI. CONCLUSION AND NON-DETRIMENT DETERMINATIONS

111. Mozambique is giving a high priority to the devising of a comprehensive national CBRNM institutional program in line with other SADC countries, where local communities can obtain full and direct benefits from consumptive and non-consumptive wildlife utilization, thereby sustaining their livelihoods and wildlife conservation in the country. To this end the regulations of the Conservation Law which were recently approved represents a crucial opportunity because they foresee the creation of a National CBRNM Programme. In fact, weak community engagement in natural resource management is one of the main causes of increased illegal trade in wildlife and other natural resources as deep poverty and lack of benefits from wildlife legal utilization are among the main drivers of illegal activities. There is no good conservation policy which does not prioritize the human dimension. When motivated and mobilized, the rural communities are the best wardens and defenders of biodiversity. The synergy between wildlife conservation and rural development is achieved by integrating sustainable use of natural resources with ecosystem conservation.

112. In this regard, tourist safari hunting is one of the components that the Mozambican government is using in its wildlife conservation strategies because of the high level off benefits, tangible and intangible, that it can produce. Safari Operators are in need of a good and healthy wildlife population in order for the sector to be viable. To achieve that they are supporting the government in actions not only to increase protection of habitats and wildlife, but also in community benefits. The depletion of wildlife is slowly reducing in Mozambique due to important investments made by the government, the private sector, particularly hunting operators, and donor hunting clients.

113. The new hunting regulation approved at the end of 2017 provides an improved basis to enhance

sustainability of hunting and is paving the way for stronger monitoring of wildlife. In particular there are now specific provisions on lion minimum age, minimum length and weight for elephant trophies and minimum length measure for leopard hunting fixed at 1,20 meters. Importantly, the Regulation contains a provision in which the relevant ministry is allowed to enact a Ministerial Decree defining the mechanisms and standards on age and size of huntable species when applicable, thereby providing the legal basis to enact specific guidelines on the hunting of lion and leopard. These guidelines will include provisions on trophy inspection and control to ensure compliance with the requirements of the Hunting Regulation and a new monitoring system through a compulsory Leopard Hunt Return Form.

114. The steps that ANAC is envisaging further strengthen sustainable wildlife utilisation are the following:
    a) Now that the New Hunting Regulation is in force, revise the Guidelines on Leopard and Lion Hunting to be in line with the provisions of the Regulation and to enact the relevant Decree as this system would improve the carnivore management and monitoring in Mozambique.
    b) Strengthen the assistance to the Safari Operators in terms of law enforcement, from patrol to judiciary level. A co-operative partnership to secure habitat and species in the hunting areas shall be formed between ANAC, Safari Operators and communities in order to achieve improved protection.
    c) Further development of Community Conservation Areas as recently defined by the new Conservation Law 5/2017 and its Regulations shall be devised and implemented also through partnerships between private operators and communities in order to address two pressing priorities: poverty reduction and habitat/wildlife conservation.

115. In this document ANAC has considered the status of the leopard in Mozambique, habitat availability, the quota-setting system, the newly implemented minimum length measure, the limited offtake, the adaptive management of leopard and the substantial revenues generated for ANAC operations, anti-poaching, and community development.

116. ANAC has also considered the current threats to leopard, including loss of habitat, human-leopard conflicts, and unique potential of safari hunting to mitigate those threats.

117. Upon considering these factors, ANAC and the Government of Mozambique concludes that the low level of off-take generated by safari hunting is not detrimental to the survival of leopard in Mozambique and the activities and 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. 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.

118. Furthermore, the Government of Mozambique concludes that the quota established by CITES by Resolution Conf. 10.14 (Rev. CoP16) is set at levels which are non-detrimental to the survival of the species in the wild. The leopard, its prey base and habitat is believed to be improving because of the reestablishment of safari hunting since the war. The quota is conservative and too low to be of biological concern. Moreover, it is still underutilized while the potential of greater use of the underutilized quota promises more budget revenue, community incentives and restoration of prey and habitat.

119. The Government of Mozambique underlines that it expects CITES Parties to implement CITES Resolution Conf. 2.11(Rev.) 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“

120. Finally, the Government of Mozambique points out that its implementation of Resolution Conf. 10.14 (Rev. CoP16) has been spotless since its inception and that the quota has never been overutilized and therefore believes that the quota system and the trade regime contained in Resolution Conf. 10.14 (Rev. CoP16) should remain in place and that any attempt to circumvent it through other stricter domestic measures or means should be avoided.

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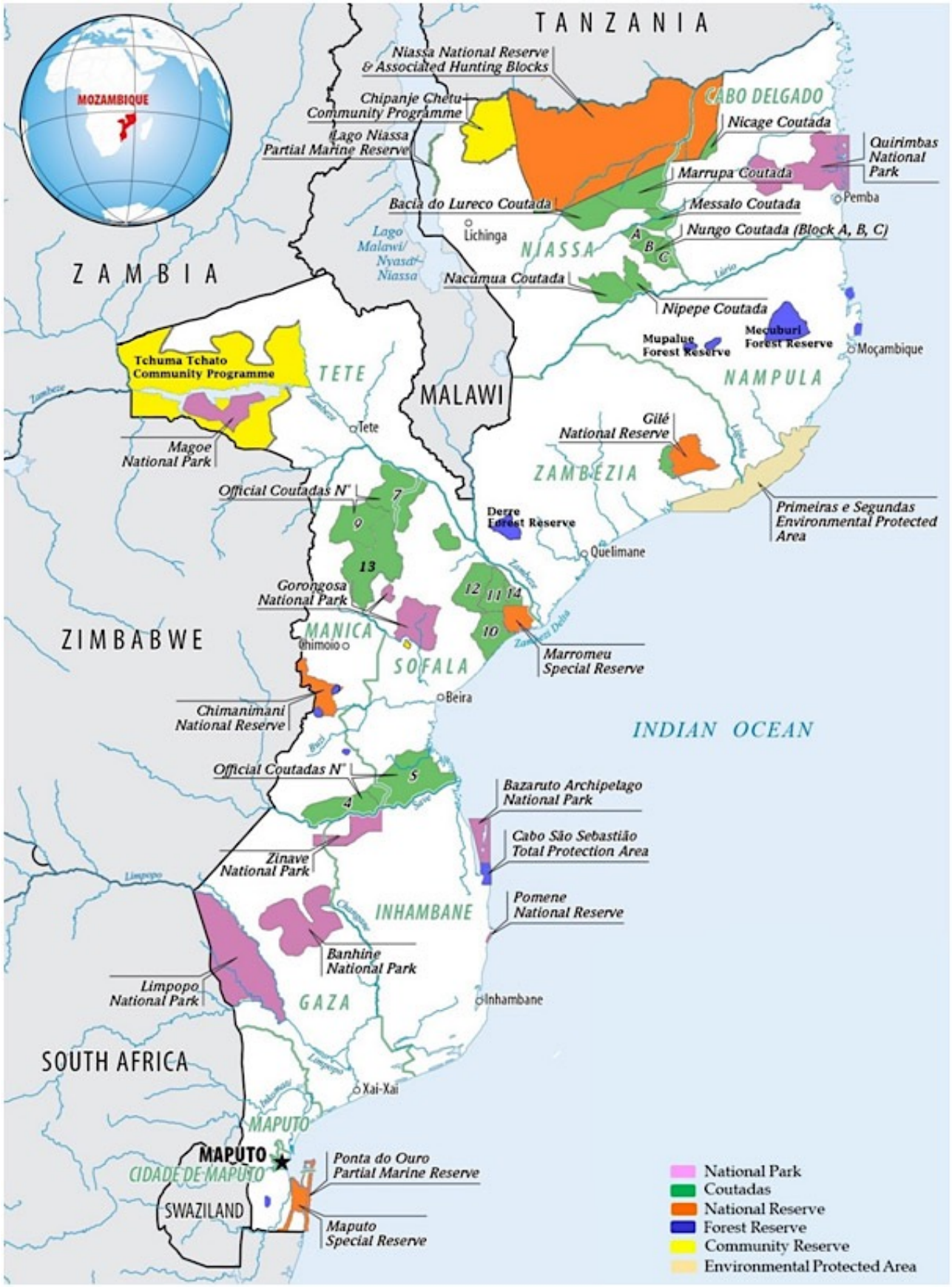
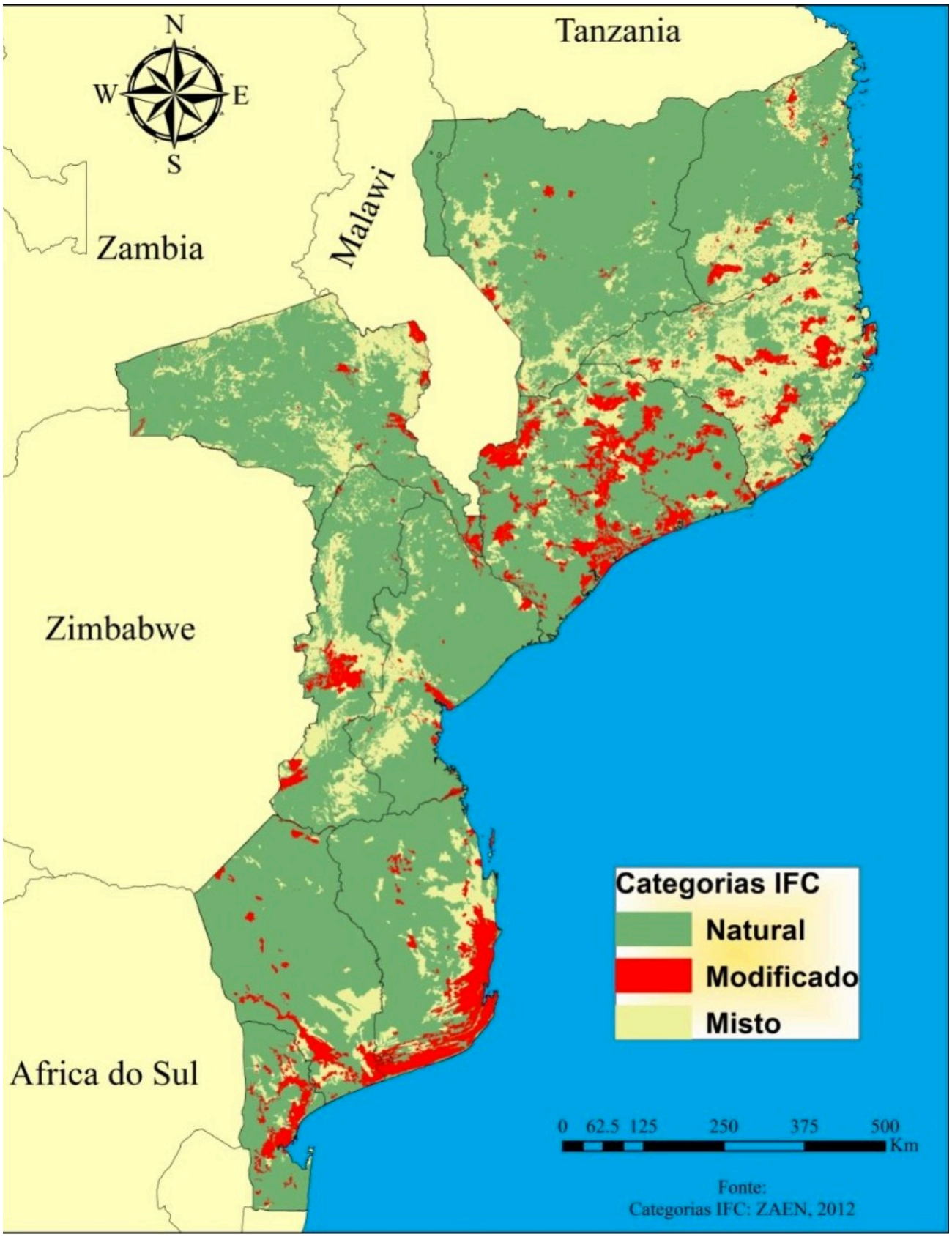
MAPS:

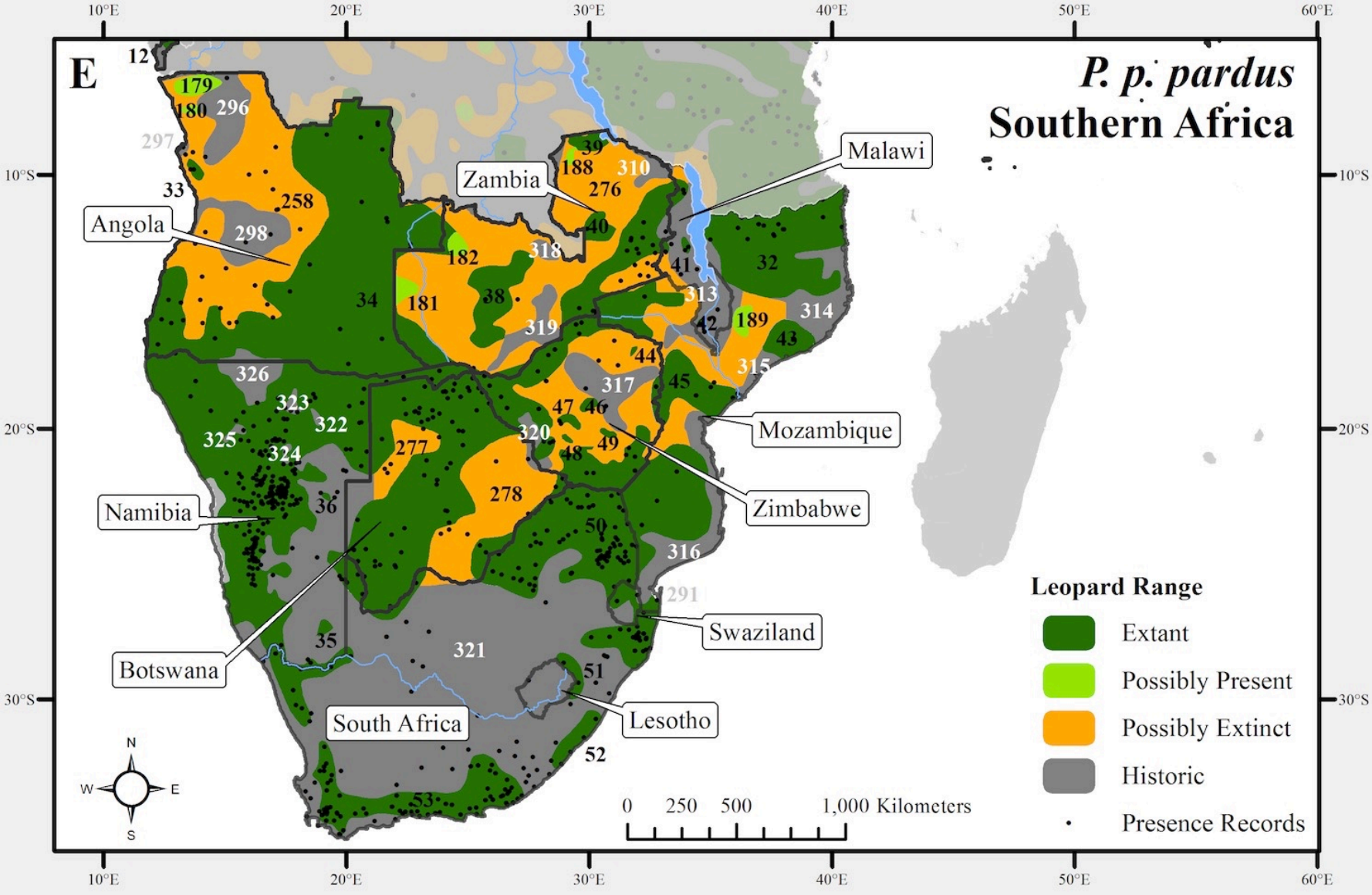
Map 1: Map of Conservation Areas in Mozambique (ANAC)



Map 2: IFC Habitat Categories - Natural, Modified, Mixed. (Source: CEAGRE –Universidade Eduardo Mondlane 2015)



Map 3: Leopard range in Southern Africa according to Jacobson et al.2016 (legend on next page)



Legend to map 3
Patch name and IDs referred in Map 3 (from Supplemental Table 2 in Jacobson et al. 2016)

Patch ID	Patch Name	Subspecies	Presence	Area (km^2)	Prot area km^2 (cat. 1 -4)	Prot area %	Mean human pop'n density	Trans boundary	Countries
32	Kenya, Tanzania, N Mozambique	pardus	Extant	1.153.200	236.000	20%	36,0	y	Kenya, Mozambique, Somalia, Tanzania
43	Gile and coastal Mozambique	pardus	Extant	26.600	2.800	11%	25,7	n	Mozambique
45	Marromeu and central Mozambique	pardus	Extant	61.800	5.600	9%	20,0	y	Mozambique, Zimbabwe
189	northern Zambezi province	pardus	Possibly Present	8.700	-	0%	42,2	n	Mozambique
291	Maputo bay	pardus	Extinct	300	-		8,1		
314	NE coastal Mozambique	pardus	Extinct	61.400	-		60,3		
315	central coastal Mozambique	pardus	Extinct	12.700	-		70,6		
316	SE coastal Mozambique	pardus	Extinct	69.600	-		67,6		

Note: We disagree with the map presented in Jacobson 2016. In many of the patches where they show leopard as Historic and Possibly Extinct on the contrary there is evidence of the presence of leopard although further researches are needed (see point 26). Also, the Human densities are not correct.