

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES  
OF WILD FAUNA AND FLORA



Fourteenth meeting of the Conference of the Parties  
The Hague (Netherlands), 3-15 June 2007

Interpretation and implementation of the Convention

Trade control and marking issues

Appendix-I species subject to export quotas

LEOPARD EXPORT QUOTAS FOR MOZAMBIQUE

1. This document has been submitted by Mozambique.

Proposal

2. In accordance with Resolution Conf. 9.21 (Rev. CoP13) on The interpretation and application of quotas for species included in Appendix I, paragraph a), the Management Authority of Mozambique requests the Conference of the Parties to increase its export quota for leopard hunting trophies and skins for personal use indicated in Resolution Conf. 10.14 (Rev. CoP13) from 60 to 120.

Supporting statement

Background

3. The leopard *Panthera pardus* was included in Appendix I at the plenipotentiary conference of CITES in 1973. This classification was not based on scientific data and preceded the establishment of any scientific criteria for the listing of species. Subsequently, a series of Resolutions [starting with Resolution Conf. 4.13 in 1983 and culminating with Resolution Conf. 10.14 (Rev. CoP13) in 2004] were adopted by the Conference of the Parties to establish a quota system for the controlled export of leopard hunting trophies and skins for personal use. At the onset of this system, an export quota of 60 was approved for Mozambique which has remained constant at this level for the 20 years for which it has been in operation.
4. The issue of such quotas for Appendix-I species has been the subject of considerable debate within CITES, and there is a body of opinion that such quotas should be determined unilaterally by each range State (see, for example, Comments from the Secretariat in relation to document CoP12 Doc. 23.1.2 – the United Republic of Tanzania's proposal to increase its quota for this species). In addition, it is accepted for some other Appendix-I species (notably the African elephant *Loxodonta africana*) that export quotas for sport-hunting trophy specimens are set voluntarily by range States. However, the present proposal is made on the presumption that Resolution Conf. 10.14 (Rev. CoP13) will remain in force.

Review of the status of the leopard in Mozambique

5. Little research has been conducted into the status, distribution or ecology of the leopard in Mozambique. There are no detailed field studies on which to draw when attempting to assess the status of the species in such a large country with a wealth of different habitat types and a range of

climatic and physical conditions. Nonetheless, it is possible to provide some estimates of overall abundance (as has been done previously by several countries in the context of CITES quotas).

6. Martin and de Meulenaer (1988) devised an indirect method for estimating leopard populations in sub-Saharan Africa based on a combination of parameters, including habitat available and rainfall, and based also on the premise that leopard populations are ultimately limited by their food supply which, in turn, is dependent on rainfall. Their model falls into the "complete compensation" category (Caughley, 1985) in which population density remains more or less unaffected by harvesting unless the rate of offtake exceeds a specific threshold. While some have criticized the model they use, there has also been considerable support for their methods and, in the absence of anything better, we feel confident in basing our estimates on a similar method. It should also be noted that previous quota modifications approved by CITES (for the United Republic of Tanzania in 2002 and for Namibia in 2004) have used the Martin and de Meulenaer model to support their submissions.
7. Martin and de Meulenaer estimated the leopard population of Mozambique to be 37,542 (with 95 % confidence intervals of 20,648 – 68,326) and estimated a potential sustainable harvest (5 % of the population outside protected areas) to be 1,779. They also noted that Smithers and Tello (1976) reported the leopard to be "widely distributed and extremely common in undeveloped areas" and Tello (1986) reported the species to be "common everywhere except possibly in the south of the country".
8. The only recent field survey reporting on leopard populations is that of Begg and Begg (2004) in Niassa National Reserve (a total area in excess of 42,000 km<sup>2</sup>). They reported on a general carnivore survey and record the leopard as being "common".
9. An updated estimate of leopard populations in Mozambique is presented below in the section "Population trends and threats".

#### Habitat

10. Leopards are well adapted to survive in a wide variety of habitats and are the most versatile of the large cats in this respect. They have been recorded from extremely arid semi-desert areas through to rainforest, in varying densities. Martin and de Meulenaer (1986) showed that there appears to be a good correlation between leopard density and rainfall (and thus habitat type). Rainfall in Mozambique varies from a minimum of around 400 mm p.a. to a maximum of around 1,250 mm p.a., with the majority of the country experiencing annual precipitation in the region of 1,000 mm.
11. Many different habitats occur in Mozambique, with mopane woodland, miombo woodland, thicket, bushland, riverine vegetation, savannah and grassland all being common and occurring over very large areas. Data derived from 1998 LANDSAT imagery (National Directorate of Land and Forestry, 2006) indicate that over 82 % of the total land area of Mozambique still comprises natural or semi-natural habitats suitable for leopards, with "bushland", "wooded grassland" and "open woodland" accounting for around 73 % of the total. Map 1 illustrates the broad habitat coverage of the country.
12. Thus, it is clear that much of Mozambique (perhaps up to 80 %) falls within the category capable of supporting leopards at densities of between 0.03 and 0.1 per km<sup>2</sup>.
13. Data derived from 1998 LANDSAT imagery (National Directorate of Land and Forestry, 2006) show that the protected areas, including the Coutadas and Niassa NR buffer zone (see below) mostly have good or prime leopard habitat over at least 90 % of their areas (Table 1).

**Table 1** Percentage of various leopard habitats in each protected area.

	<u>Prime habitats</u> Riverine, woodland, thicket, shrubland, bushland	<u>Good habitats</u> Open woodland, wooded grassland, scrub wooded grassland	<u>Fair habitats</u> Grassland	<u>Total area</u> km <sup>2</sup>
Quirimbas NP	30.7	60.7	2.6	8,096
Gorongosa NP	8.6	54.5		4,114
Zinave NP	30.6	66.0	0.7	4,618
Banhine NP	24.4	75.1	0.1	7,047
Limpopo NP	44.5	54.7	0.2	12,725
Gile NR	39.8	60.2		3,089
Chimanimani NR		36.0	12.1	706
Marromeu NR			57.5	1,721
Maputo NR	28.1		23.9	951
Niassa NR	5.0	86.3	7.7	23,113
Niassa Block A		96.8	2.6	2,889
Niassa Block B	5.8	93.7		2,147
Niassa Block C	11.8	84.3		4,437
Niassa Block D1	5.3	92.0		2,314
Niassa Block D2	7.7	83.6		3,342
Niassa Block E	0.6	69.5	29.9	4,110
Coutada 1	22.0	76.7		827
Coutada 3	15.4	83.9		1,197
Coutada 4	38.2	46.2	1.1	3,693
Coutada 5	3.6	89.5		7,307
Coutada 6	22.7	62.2	0.3	3,373
Coutada 7	3.0	89.0		1,784
Coutada 8	17.9	62.4	9.6	355
Coutada 9	1.9	96.3	1.3	4,150
Coutada 10	2.0	62.3		2,901
Coutada 11	30.0	55.4	0.2	2,080
Coutada 12	29.0	64.4	0.6	3,022
Coutada 13	5.6	93.1	1.3	5,219
Coutada 14	11.0	17.3	8.9	719
Coutada 15	22.3	38.9		1,450

Protected areas

14. Mozambique has an extensive network of protected areas of several types. These include national parks and national reserves as the core of the network. With the exception of the buffer zone around Niassa NR (19,980 km<sup>2</sup>) where sport hunting is permitted, wildlife is totally protected within these areas. The 'Coutadas' are areas set aside specifically for sport hunting, but still retain a high level of protective measures. Forest Reserves are designated for the protection of forest resources. It should also be noted that wildlife is protected throughout the rest of the country to varying degrees under national conservation legislation (the Forests and Wildlife Act of 1999 and the Forestry and Wildlife

Regulations of 2002), thus providing the legislative mechanism to afford protection to the leopard throughout the country. Table 2 illustrates the coverage of each category of designated protected area, and Map 1 shows their distribution.

**Table 2** Protected areas. (N.B. total land area of Mozambique c. 802,000 km<sup>2</sup>)

PA Category	Total area (km <sup>2</sup> )	% of Mozambique land
National Parks (six)	38,200	4.8
National Reserves (six)	49,760	6.2
Coutadas (= hunting blocks)	38,077	4.8
Forest Reserves	4,500	0.5
Total	130,537	16.3

15. The administrative authority for the National Parks, National Reserves and Coutadas lies with the Ministry of Tourism, whereas the Forest Reserves are the responsibility of the Ministry of Agriculture. Currently, the Ministry of Tourism (through the National Directorate for Conservation Areas, DNAC) is undertaking a comprehensive review of wildlife and biodiversity policy with the aim of updating overall policy and rationalizing the administrative structures.

#### Population trends and threats

16. The leopard populations in Mozambique will have declined during the civil war as a result of reduced prey populations. However, over the last 10 to 15 years, prey populations have been increasing (and in many areas causing a problem with human/wildlife conflict) and are probably approaching optimal levels in some areas. There has also been habitat loss as land has been reclaimed for agriculture. These factors are not easy to quantify, but the calculations upon which the hunting quotas are based are deliberately conservative.
17. For the country as a whole, it is assumed here that only 50 % of the land area provides habitat and conditions that are suitable for leopards. This is a deliberately conservative estimate in view of the fact that around 80 % of the land cover consists of habitat likely to be suitable. Using the Martin and de Meulenaer data for the relationship between leopard density and rainfall, it is probable that the leopard population of Mozambique exceeds 20,000. This estimate is based on a very conservative overall density of leopards of 0.05/km<sup>2</sup> (N.B. using the Martin and de Meulenaer data, a density of around 0.1/km<sup>2</sup> would be expected with the average rainfall figures for Mozambique, but this has been halved in order to allow for negative factors mentioned above). A population of this size could support an annual harvest of around 1,000.
18. In order to adopt a cautious approach, further estimates have been made of the leopard population in those areas in which hunting occurs. The total area of 'hunting blocks', i.e. Coutadas (excluding Nos. 1, 3 and 8 which are not currently used for hunting) and Niassa National Reserve buffer zone amounts to 55,678 km<sup>2</sup>. It is reasonable to base estimates on 90 % of this area being good or prime leopard habitat, i.e. 50,110 km<sup>2</sup>. At a leopard density of 0.1/km<sup>2</sup>, these areas would hold around 5,000 leopards and at a conservative estimate of density at 0.05/km<sup>2</sup> the population would be around 2,500. The 2006 hunting quotas for these areas amounted to 28, i.e. about 1 % of the conservative population estimate.
19. In addition, leopards are hunted in community programme areas, game farms, experimental areas and multiple use areas. The two larger areas under this regime are Thumatchato (Tete Province) with an area of 10,500 km<sup>2</sup> and Chipande Chetu with an area of 6,000 km<sup>2</sup>. However it is difficult to estimate the leopard population within these areas.
20. Threats to the leopard population include habitat loss, illegal hunting/killing and conflict with humans leading to killing of individual leopards. Of these, the first (habitat loss) is considered to be the greatest by far. As land is converted from natural or semi-natural habitat for agriculture, leopard prey species decline or disappear, leading to a reduction in leopard densities. However, with over 16 % of the country under some form of protection for conservation, and with the species having a

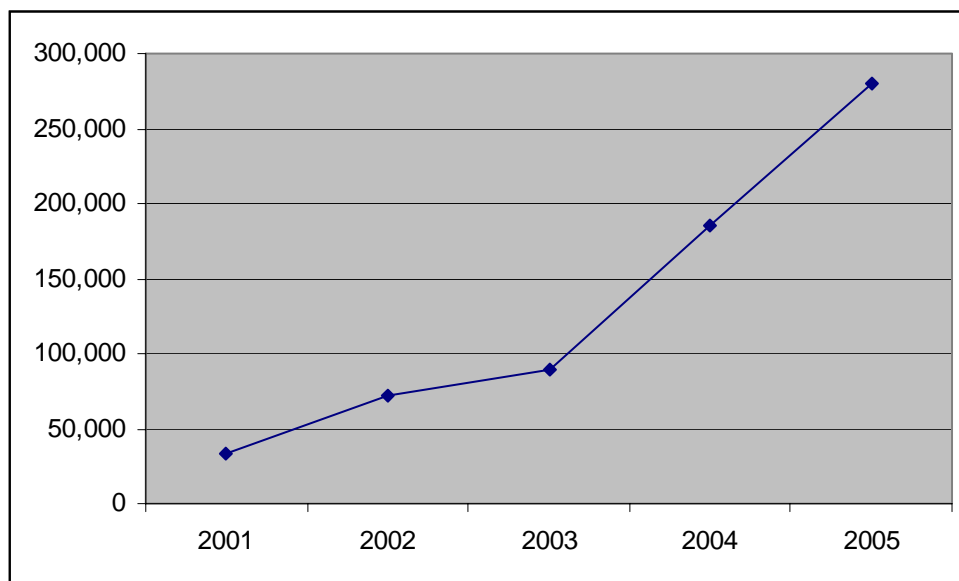
commercial value through hunting in much of the rest, there is no real danger of the leopard becoming endangered in Mozambique.

### Sport hunting in Mozambique

21. Sport hunting in Mozambique is regulated through the wildlife legislation mentioned above. In protected areas it falls under the authority of DNAC in the Ministry of Tourism and elsewhere it is the responsibility of the National Directorate for Land and Forestry in the Ministry of Agriculture. This latter Directorate is also the designated CITES Management Authority. Following the end of the war, the authorities initiated the rehabilitation of the protected areas (at that time the Ministry of Agriculture was responsible for all wildlife conservation) and sport hunting was then reopened in 2000 with internal quotas set for all game species. These quotas are allocated individually to each Coutada or hunting area. Recently, responsibility for National Parks, National Reserves and Coutadas was transferred to the newly established DNAC in the Ministry of Tourism, since when the internal hunting quotas have been set jointly by DNAC and the relevant Directorate in the Ministry of Agriculture.
22. Hunting is permitted in a variety of areas, under different conditions. The Coutadas and the hunting blocks in the Niassa buffer zone, covering a total of approximately 55,000 km<sup>2</sup>, are administered by DNAC primarily for sport hunting with on the ground management by professional hunting operations. These areas received a total allocation of 28 leopards in 2006. Revenues from these operations go to each of Government (DNAC), the Niassa National Reserve management consortium (SRN – a partnership between Government and private sector) and local communities (20 % of the concession fees is allocated directly to local communities). There are also additional benefits to local communities in the form of employment.
23. Hunting is also established in the 'community programmes' and 'experimental areas' in Tete Province (the 'Tchuma Tchato' programme), Cabo Delgado Province, Niassa Province and Zambezia Province. These areas received an allocation of 21 leopards in 2006.
24. There are also game farms (totalling 1,253 km<sup>2</sup>) with an allocation of eight leopards and 'multiple use areas' (for sport hunting by nationals) with a quota of three leopards.
25. It is important to note that the areas where hunting is permitted are not only very large, but also are frequently adjacent to large areas of suitable leopard habitat (including National Parks and National Reserves) where hunting does not occur. Thus, the leopard populations from which the offtake occurs are contiguous with and part of much larger populations.
26. A comprehensive monitoring system has been introduced by DNAC which requires detailed returns from all hunting operations in the Coutadas and Niassa buffer zone hunting blocks. This system allows the authorities to monitor closely the trophy quality and the hunting effort per trophy. These, and other parameters covered by the system, will provide data allowing DNAC to judge whether the quotas are sustainable.
27. The leopard is a major attraction to overseas hunters and is, therefore, of considerable economic significance to the hunting industry. It is estimated that each leopard contributes in the region of \$ 17,000 to the local and national economy (Begg and Begg, 2004). Thus, the current quota of 60 results in income of around \$ 1 million per annum. An illustration of the overall importance of this species is the fact that in the Niassa buffer zone hunting blocks, 36 % of the hunting safaris conducted in 2003-2005 (inclusive) included leopard trophies. Thus, it is clear that this species is central to Mozambique's strategy to expand the hunting industry.
28. The benefits of leopard trophy hunting are also significant to local communities, both in the community programme areas and in the Coutadas and Niassa buffer zone hunting blocks. In these latter areas a fixed proportion of the revenue (20 % of the concession fees) is allocated directly to the local communities. Employment generated by hunting operations is also important. For example, the Niassa buffer zone hunting operators employed 382 people in 2005, of which 94 % were recruited from the local population.

29. Expansion of hunting in Mozambique has resulted in substantial revenues to DNAC from licences and fees, as shown in Figure 1.

**Figure 1** DNAC revenues from hunting licences and fees in USD.



#### Leopards as problem animals

30. There are surprisingly few reports of leopards as problem animals in Mozambique. Internal government statistics suggest only one report in 2005 (in Niassa Province). Begg and Begg (2004) record that the species is a 'problem animal' to the people living in Niassa National Reserve, but do not refer to any specific incidents. However, it is possible that most such incidents are going unrecorded.

#### Exports of leopard from Mozambique

31. Mozambique has submitted to the Secretariat regular, timely and comprehensive annual reports on the exports of leopard specimens (mostly skins and skulls as hunting trophies) for every year since 2000 (when trophy hunting was re-opened). Table 3 shows a summary of the number of specimens (i.e. individual leopards) reported as authorized exports from 2000 to 2005.

**Table 3** Number of leopards represented by specimens exported under the quota system.

Year	2000	2001	2002	2003	2004	2005
Specimens exported	45	24	21	27	46	57

#### Illegal trade

32. There is no reliable information on the level of illegal trade in leopard skins. Begg and Begg (2004) note that "leopard and lion skins are offered for sale in Cabo del Gado province" but that "the level of trade is unknown". TRAFFIC has no recent data on illegal trade from or in Mozambique (Milliken, pers. comm., 2006).

#### Increase in quota for Mozambique

33. As can be seen from the above information, the internal hunting quota of 60 leopards was more or less filled in 2005 following a progressive increase in utilization over the previous years, thus reaching the maximum allowed under the export quota. This increase is a result of the gradual expansion of the sport hunting industry in Mozambique following its reintroduction in 2000. If the

export quota were to remain at 60, this would place a severe constraint on further expansion of the industry and a concomitant limit on revenues and incomes to be realized through sustainable use of the resources available for hunting. This would, in turn, limit the finances available (from hunting) to support community development and conservation activities.

34. The population estimates for leopard suggest that there is scope for considerable increase in annual offtake without any danger of significant threat to the species. Leopards are common over much of the country and there are large, secure populations in protected areas where hunting is not permitted. In addition, regulatory mechanisms are in place to monitor the results of any increase and adjust management accordingly.
35. It is the policy of the Government to encourage sport hunting as part of its "Strategic Plan for the Development of Tourism in Mozambique (2004-2013)" (Ministry of Tourism, 2004). The further expansion of the industry is expected to benefit the government through increased revenues (which will be used specifically for further conservation activities), and local communities and the private sector through increased income and employment opportunities. It must be stressed that the planned expansion will be subject to strict and improved regulation and that government policy requires that such activities must be undertaken on a sustainable basis.
36. If the requested quota is approved, it is intended to implement increase internal quotas progressively. That is, the internal hunting quota in the first year of increase will be 80. If the results of this initial increase are favourable and there is a need and justification to increase the quota further, the next step would be a quota of 100. In this way, the situation will be closely monitored and management of the internal quotas adjusted according to results obtained.
37. Please refers to the attached maps.

#### References

- Anon., 2002. Leopard: Amendment to the Quota of the United Republic of Tanzania. Document CoP12 Doc. 23.1.2. CITES, Geneva.
- Anon., 2004. Leopard: Export Quota for Namibia. Document CoP13 Doc. 19.1. CITES, Geneva.
- Begg, C.M. & K.S. Begg, 2004. A survey of carnivores in the Niassa Game Reserve, northern Mozambique. SRN, Maputo.
- Martin, R.B. & T. de Meulenaer, 1988. Survey of the status of the leopard (*Panthera pardus*) in sub-Saharan Africa. CITES, Switzerland.
- Milliken, T., 2006. Personal communication by email.
- Ministry of Tourism, Republic of Mozambique, 2004. Strategic Plan for the Development of Tourism in Mozambique (2004-2013). Maputo.
- National Directorate of Lands and Forestry, 2006. Land cover data. Internal reports.
- Smithers, R.H.N. & J. L. Tello, 1976. Checklist and Atlas of the Mammals of Mozambique. Museum Memoir No. 8, Trustees of the National Museums and Monuments of Rhodesia.
- Tello, J.L., 1986. Report to WWF on the status of wildlife in Mozambique. WWF International, Gland

#### COMMENTS FROM THE SECRETARIAT

- A. As required by Resolution Conf. 9.21 (Rev. CoP13), Mozambique has submitted this request with supporting information including details of the scientific basis for the proposed increased quota 150 days prior to the meeting of the Conference of the Parties.
- B. Mozambique explains clearly the rationale for its quota increase which appears to be in line with currently used leopard population assessment procedures. Estimations used in the calculation of the proposed quota are conservative. If approved, it is proposed that the new quota limit will be reached incrementally with ongoing monitoring undertaken with each incremental rise in quota up to the limit proposed for approval by the Conference.
- C. The Secretariat recommends that the Conference of the Parties approve the request of Mozambique.



Ecological zones  
(with references and hunting areas)

