

**Department of Commercial Crops  
Fruits & Forestry (DCCFF)**



MINISTRY OF AGRICULTURE,  
LIVESTOCK & ENVIRONMENT  
REVOLUTIONARY GOVERNMENT OF ZANZIBAR  
TANZANIA

FORESTRY TECHNICAL PAPER  
NUMBER 122

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The Revolutionary Government of Zanzibar

*Conservation and Planning Sections*  
Commission for Natural Resources  
Maruhubi

**Ader's Duiker (*Cephalophus adersi*)**

**A DISCUSSION DOCUMENT ON THE POTENTIAL OF TROPHY HUNTING AS A  
CONSERVATION METHOD**

*Forestry Technical Paper No. 122*

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January 2001



**ADER'S DUIKER (*Cephalophus adersi*)****A DISCUSSION DOCUMENT ON THE POTENTIAL OF TROPHY HUNTING AS A  
CONSERVATION METHOD*****Introduction***

Trophy hunting has been proposed as a possible conservation tool in an attempt to reverse the decline of Ader's duiker on Zanzibar. However, this is seen by some as a controversial measure. The following report outlines the pros and cons of such a scheme in an attempt to stimulate further discussion and research on the subject, thus allowing an informed, objective decision to be made by all parties involved.

Outside Unguja, the last known sighting of Ader's Duiker (*Cephalophus adersi*) was in Arabuko Sokoke Forest, Kenya in 1995 (Erustus Kanga *pers. comm.*). It is therefore generally accepted that the animals on Unguja are the last known viable population.

Several surveys over recent years have identified a major decline in the population of Ader's duiker within Unguja. The initial survey undertaken in 1983 placed the population at approximately 5000 (Swai 1983). A second survey undertaken in 1995 estimated the population to be 2000 individuals, which were confined to five main areas within southern and eastern Unguja (Williams *et al.* 1996). The latest survey, which was conducted in 1999, suggested the population be in the region of 400 – 1000 individuals (Kanga 1999). It should be noted, however, that each of the three surveys used different methodologies and are, therefore, not directly comparable. However, it is apparent that the population has declined significantly over recent decades. The decline in population has now resulted in Ader's Duiker being amongst the rarest duikers in the world. The IUCN status of this species is 'threatened'.

Despite the efforts of the Commission for Natural Resources (CNR), the Zanzibar Government institution responsible for wildlife management and CARE Tanzania, an international development agency, it is feared that the numbers of Ader's is continuing to fall. Communities (*Shehias*) still do not see themselves as responsible for the conservation of the duikers. Furthermore, they can not identify tangible (economic) benefits resulting from protective management of the species (Williams, Masoud and Othman 1998). While all the current methods to protect the species could improve its chances of survival, especially if well funded, safari hunting is one option proposed thus far which could give the communities a real incentive to conserve the species through the promotion of conservation of suitable habitat.

***Conservation Activities***

It has been illegal to hunt Ader's Duiker on Zanzibar since 1919. Pre-independence conservation efforts included the translocation of a population to Funzi Island, Pemba and a closed hunting season for all antelope. A captive-breeding programme was carried out in Nairobi some years ago. Both the translocation and captive breeding programme ended in tragedy.

Since 1994 the CNR has been implementing an Ader's Duiker conservation programme. This was supported in 1994 by FINNIDA and since 1995 by the Jozani-Chwaka Bay Conservation Project (JCBCP, a partnership between CNR Zanzibar and CARE Tanzania). The main aim of this latter project is the establishment of the Jozani-Chwaka Bay Conservation Area. The

duiker programme has been secondary to this main goal. The duiker programme, therefore, has been implemented with minimal funding.

Despite the lack of funding, the following conservation measures have been undertaken:

#### *Population Survey*

Three separate duiker surveys have been carried out on Unguja to date. The results, although not directly comparable, have shown a major decrease in the Ader's population. Ader's was found to be more or less specific to high thicket with low disturbance rates (however, Kanga (1999) also found Ader's within secondary thicket). A study carried out in 1995 suggested that in 10 villages, a total of 75 Ader's Duiker were hunted in the period July – December (Archer & Mwinyi, 1995). Extrapolating this figure, it can be assumed that approximately 7.5% of the population were being illegally hunted at this time. Interestingly, the annual decline of Ader's duiker between 1983 and 1995 has been calculated at 7.4% (Masoud 1999).

The duiker's main habitat represents the last high thicket on the island and is the target for firewood harvesting. Southern Unguja is the main harvest location for firewood, which is used in Zanzibar town. Although illegal hunting has an effect on the population size, habitat loss is also a major contributing factor to the population decline.

#### *Community Duiker Management*

One of the outputs of the many village meetings has been the establishment of hunting associations in 12 villages in the vicinity of Jozani Forest. By-laws have been negotiated and legislation passed on local hunting licenses and management.

#### *Sanctuary Area*

Increased protection in the Jozani Forest Reserve has reduced the amount of hunting in the reserve. While hunting has not been controlled completely, this is now limited to the occasional bush pig. Despite the high pressure on Jozani, it is believed that Ader's is reasonably well protected in the reserve itself. The population size within the reserve is unknown but based on the area of suitable habitat and discussions with reserve staff it is believed to be in the region of 20 – 50 animals. No hunting is permitted within the reserve.

#### *Conservation Education*

Meetings have been held with village hunters and other village members. Workshops have been held with village and national hunters, district staff, police and other interested parties. Far more work is needed before the plight of the animal is widely understood on Zanzibar.

#### *Closed Hunting Season*

Since 1995 a six month Closed Hunting Season has been implemented each year, which (at least in theory) does not allow any hunting of mini-antelope. This is the resurrection of a pre-1962 closed season. The effectiveness of the programme has been variable depending on the resources for public education and patrolling. With more resources the closed season would help the recovery of the species.

### *Translocation*

A scheme to translocate 8 individuals to Chumbe Island was undertaken in February 1999 by the CNR with the assistance of Munich Zoo. A total of 9 animals were captured throughout a 13 day period. Unfortunately only 5 survived the translocation process (Mwinyi 2000). This brings the total number of Ader's duiker on Chumbe to 3 males and 3 females (a female moved from Jozani was already present on the island). Due to the high mortality rate incurred during the translocation project, there are no plans at present to move more animals.

It is hoped that the small population present on Chumbe can be used as a breeding nucleus for future re-introductions.

### *Captive Breeding*

Captive breeding has often been used as an *ex situ* conservation tool for populations that are under threat from extinction. The value of such measures has caused many debates between conservation ecologists. But it is generally accepted that as a last hope it is an acceptable practice. The majority of conservation ecologists agree that *in situ* conservation is preferable.

Captive breeding aims to increase the population by taking animals into a protected environment and providing the optimal conditions for breeding. If breeding is successful, the offspring are then released back into the wild. However, the causal factor in the decline in the population must be eradicated prior to the animals' release for the programme to be successful.

It has been proposed to establish a captive-breeding centre within the confines of Jozani Forest core area, if funds can be raised. However, due to mounting criticism of the efficacy of captive-breeding programmes, and the large sums of money needed per animal, the CNR is currently reviewing the captive breeding policy (Finnie 2001).

### *Conservation and Recovery Plan*

A Conservation and Recovery Plan for Ader's Duiker was produced and circulated for discussion in 1998. This documented in some detail the activities listed above and included proposals for trophy hunting. After a workshop held in Stone Town, Zanzibar in December 1999, this document is currently under revision (Finnie in prep.).

## **Proposed Safari Hunting of Ader's Duiker**

### *Introduction*

Safari hunting, or trophy hunting, has, over the last 10 years, become an accepted conservation and wildlife management practice in many countries, with the benefits of safari hunting being passed on to the community. Most of the existing safari hunting programmes tend to concentrate on the more common species. As far as it is known, no scheme of this sort has been proposed for a species as endangered as Ader's Duiker in Africa.

### *The Theory behind Safari Hunting*

Safari hunting aims to raise revenue by allowing limited hunting of target species at a sustainable rate. It is an economically viable form of wildlife use that is consistent with promoting high quality, yet low-density tourism (Leader-Williams, Kayera & Overton 1996). Hunters are invited to take individual animals for a substantial fee, in this case it is proposed that the fee should be in the region of US\$ 5000 per Ader's Duiker. The revenue thus

generated is then used for community and conservation projects. It should be noted, however, that this fee level is currently being reviewed, as it is believed to be too low (D. Wilkie *pers. comm.*) due to the exclusive nature of Ader's duiker trophy hunting

One danger of safari hunting is that, with low levels of monitoring, the off-take by hunters may exceed the intrinsic growth rate of the species concerned. Thus the population may still continue to decline and will eventually become extinct. It is important, therefore, to limit the number of animals taken each year. There are various methods used for calculating the maximum sustainable yield that can be taken from a population each year. For most species this generally results in an upper limit of 10% of the total viable population (Caro *et al.* 1998). However, detailed information on the species auteocology is required before this can be calculated. To date, this type of information is not available for the Ader's Duiker. An alternative method is to allow a fixed number of individuals to be taken over a set time frame. As long as this figure is kept below the assumed intrinsic growth rate of the population, the probability of a population crash is minimised. For Ader's Duiker it is suggested that, in the first year, a maximum of 5 individual be offered for safari hunting. Even using the worse case scenario for the present population estimates, this represents 1% of the population. At this off take level, and if all other factors such as habitat degradation could be stopped or even slowed, a reversal of the population decline would soon be realised.

If the revenue from safari hunting is directed back to the community, the community has an incentive to protect areas of forest that are known to contain Ader's Duiker. It is also possible, if contracts between the CNR and a safari hunting company are drawn up comprehensively, that employment for a number of community members can be secured. Employment opportunities may also be available in the form of guides, trackers etc.

One advantage of safari hunting over other suggested conservation methods, is the self-sustainability of the project. It is not dependent on external donor funding. Safari hunting has the potential to provide Zanzibar with a private sector tool for resource conservation. However, it will only attain this goal if the revenues generated from the hunters are invested in managing the resource, regulating the industry and offsetting local opportunity costs associated with maintaining the forests (Wilkie & Carpenter 1999). However, the project is likely to have a finite life span. As the duiker population increases, the interest of the hunting community is likely to decrease, until it would not be financially viable for safari hunting company to operate such a project.

A major assumption in the proposed safari hunting scheme is that the local hunters can be convinced to stop hunting Ader's themselves. If this can not be achieved then safari hunting would only accelerate the decline of the duikers (Masoud 1999). However, it is believed that by receiving immediate and substantial economic benefits, the communities would perceive a clear value in the conservation of Ader's duiker and its habitat, thus resume responsibility for conserving both. To date, no species has become extinct due to safari hunting. Instead the population levels of formerly threatened species, such as the pronghorn antelope and white tailed deer, have increased significantly ([www.sci.dc.org](http://www.sci.dc.org), Sept 1999 in Masoud 1999).

However, safari hunting may also have a potential negative impact on the long-term conservation goal. Many conservation projects are supported by external funders, who rely heavily on public support to raise funds. It may be difficult for international donors, and in turn the public who may provide some of their funds, to accept the fact that they supply funds to preserve a species, while the recipients of the monies are actively promoting the hunting of the same species. This results mainly from a lack of understanding of the theory behind safari hunting. Nevertheless, this may still be a substantial obstacle when attempting to secure future fund raising. It should also be pointed out, however, that the majority of large, international aid agencies who are likely to fund any future JCBCP projects are likely to understand the

need for such programmes. There is also the question of the sustainability of relying on external funders. Eventually the JCBCP should be self-sustaining, so perhaps should start looking for sustainable incomes for itself.

At present hunters within the villages derive some income from the hunting of Ader's duiker as well as the other two duikers to be found on Zanzibar. Although this income is illegal, it will still form an important part of their livelihood. Any safari hunting scheme must be careful to target these individuals when re-distributing the revenues from hunters. If these individuals are not offered compensation of some description, such as alternative employment, the project is likely to fail, as these individuals are likely to continue their illegal activities. It is proposed that Jozani Environmental Conservation Association (JECA) will focus on these community members.

As the hunting of Ader's duiker has been illegal on Zanzibar since 1919, it may seem wrong to some people that rich, mainly western hunters are now being invited to hunt these animals. This may lead to some conflict with the existing hunters. However, this could be easily overcome through appropriate education. Any misgivings are also likely to be abated when the revenue from trophy hunting appears. Although this is only likely to happen in villages where trophy hunting takes place.

### **Existing Safari Hunting Proposal**

At the end of 1997, a professional hunting company, Fred Duckworth Safaris, who expressed an interest in hunting on Unguja, approached JCBCP. Since this date, the project has been considering the costs and benefits of sports hunting as a method of positively altering the local forest conservation at the community level. The Safari Club are willing to pay US\$ 5000 for each Ader's taken. It is proposed that US\$ 3000 of this money be used directly by the communities involved in the project, while US\$ 2000 is retained by the CNR to cover administration. In return, it is hoped that the target villages would set aside certain areas of land that would be used as sanctuary areas for duikers, with no activity being undertaken in these areas.

It was suggested that a pilot scheme be run in 2000 to examine the feasibility of such a project, with a maximum of 5 Ader's being taken. However, after discussions with the European Association of Zoos and Aquaria (EAZA), a decision was taken to postpone trophy hunting, with financial compensation being offered by EAZA.

Now a decision must be taken on whether to proceed with a pilot scheme in the year 2001. The following points must therefore be considered:

- Will safari hunting lead to the cessation of illegal hunting that is currently taking place, by giving an incentive to the local communities to stop;
- Will safari hunting lead to the conservation of forests within the target areas by giving an incentive to the local communities to preserve it;
- If the above two points are realised, will the population of Ader's duiker begin to increase?
- Will the introduction of safari hunting damage the reputation of JCBCP so as to alienate future donors;
- Will the revenues from any safari hunting project target the right community groups?
- Should safari hunting be carried out simultaneously as a captive breeding programme?

It should also be considered that the communities around the JCBCA have already been sensitised on the establishment of a safari hunting scheme in their area. The communities are aware of the motives behind a safari hunting scheme. In general, they agree with the retention of revenues for development activities as an outcome of conservation activities. Failure to continue with such an activity may demoralise the community members on future community based conservation initiatives, as some communities have already identified potential hunting grounds.

Trophy hunting is also compatible with the entire ethos of the JCBCP, that being of community based wildlife conservation programmes.

The Ministry of Agriculture, Natural Resources, Environment and Co-operatives, Zanzibar has given its permission for trophy hunting to proceed. However, at this juncture CARE Tanzania have reservations about trophy hunting and the possible implications it may have on CARE's reputation. It is therefore proposed that an external appraisal be undertaken on the proposed trophy hunting scheme to allow informed, objective decisions to be made by all parties involved. The appraisal should consider the following points:

- Ader's duiker's habitat specificity
- The ever increasing rate of habitat alteration
- Community responsiveness on the potential economic benefit from trophy hunting to stop illegal hunting and cutting on designated trophy hunting areas.

A decision on trophy hunting should be made as soon as possible, as experience elsewhere has shown that Ader's has gone extinct due to a delay on deciding the appropriate actions that should be taken.

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