

Project Update: September 2009

Summary of Project

Niassa National Reserve (NNR) is located in northern Mozambique on the border with Tanzania. It is one of the largest protected areas in Africa (42 000 km²) and is considered to be one of the “Last of the Wild” and most undeveloped places in Africa. Despite decades of war and neglect with only recent rehabilitation (2000), this extensive wilderness has survived intact and supports a full complement of carnivores. The protected area supports the largest concentrations of wildlife remaining in Mozambique including viable populations of the African lion (800-1000 individuals) and the African wild dog (more than 350), as well as important populations of leopard and spotted hyaena. For large carnivores the extensive areas of wilderness needed to support viable populations are becoming increasingly rare and NNR is therefore a national and global conservation treasure. The Niassa Carnivore Project has been working in NNR since 2003 in close collaboration with SRN (The Society for the Development of the Niassa Reserve -the Management Authority of NNR), Niassa communities and tourism operators. It serves to secure and conserve the large carnivore populations (lion, leopard, spotted hyaena and African wild dog) in Niassa National Reserve, northern Mozambique by promoting coexistence between carnivores and people. We acknowledge the costs to Niassa communities who live with carnivores while recognizing the potential of these carnivores to provide substantial ecological, cultural and economic benefits to Niassa Reserve and Mozambique. This mission is being achieved through direct mitigation of threats (human-carnivore conflict, underage sport-hunting, disease, snaring), targeted pragmatic research to assess status, density and threats, development of locally based monitoring systems, mentorship and training of local conservationists and community outreach (education and awareness).

Our broad objectives for this second phase 2007-2010 are to:

1. Use targeted research to specifically determine the status, density of and threats to lions, leopards, spotted hyaenas and African wild dogs in NNR and develop indicators and survey protocols that can be used for ongoing monitoring by local conservationists and SRN.
2. Examine the local contexts of large carnivore attacks, particularly by lions (humans, livestock) and identify, test and finally implement locally-derived, practical solutions with the active participation of local communities.
3. Develop and refine the Community-scout monitoring program to provide ongoing assessment of threats to carnivores, levels of human-carnivore conflict, and status of special species as well as provide incentives for community based natural resource management.
4. Assess and minimize the levels of disease risk (canine distemper, rabies, canine parvovirus) to African wild dogs and lions.
5. Collaborate with SRN and professional hunters to develop and implement locally developed sport hunting guidelines and trophy monitoring systems and providing independent monitoring of trophy quality for lion and leopard to ensure sustainable hunting while maximising economic returns to communities and SRN.

6. Initiate and manage community outreach initiatives (environmental education and extension work) in Niassa communities to promote the cultural, economic and conservation value of large carnivores and the use of effective conflict mitigation methods.
7. Ensure monitoring and conservation of carnivores in NNR is sustainable (not researcher driven) by providing appropriate training and mentorship, detailed surveying protocols and required equipment to NNR staff and local conservationists.
8. Disseminate the findings, mitigation strategies and protocols to inform broader national and regional conservation strategies and collaborate with local organisations wherever possible, including assisting and advising on Mozambican National Lion Conservation Strategy.

Progress towards achieving objectives

1. Targeted Ecological Research

a) Collaring of selected lions and leopards

The aim is to radiocollar lions around Mbamba and Nkuti villages to understand movement patterns and the level of snaring. In addition male lions and leopards are followed to develop visual aging cues that can be used by Professional hunters to assess ages of lion and leopards taken as trophies. Leopard density is being assessed to ensure sport hunting quotas and off-take are sustainable. In June, three GPS radio-collars (2 lion; 1 leopard) were found to be transmitting an emergency signals showing a loss in battery power. All three of these animals have been recaptured and the collars removed. These will be returned to Vectronics in Germany to retrieve the GPS information. Two male lions were re-collared to continue to validate the visual aging cues (mane development and nose pigmentation). One of these lions has been collared since 2005, and nose pigmentation and mane development have been assessed for five years to validate visual aging cues in Niassa and the aging of sport hunted trophies. A concentrated effort is currently underway to collar three “village” lions with GPS collars adding to the three lions (one male and two females) that are already marked. Our aim in 2010 is to put on collars on all individuals around the villages to assess levels of snaring as well as movement patterns. Four collared lions have been snared to date. One adult new adult male leopard has been collared in the intensive study area, there appears to be a high turnover of male leopards in the area and this is being investigated further. We currently have collars on one male leopard, three female leopards, two male lions and one lioness. Two male lions, one female lion and one male leopard are currently unaccounted for.

b) Camera trapping for leopard density

15 camera stations (two cameras at each site) set up in a 150 km² area in a hunting concession opposite the intensive study. Another array of 15 camera stations set up in intensive study area. The aim is to determine leopard density in the hunting areas and compare with a non hunting area. Camera will be set until middle of October and the data analysed at the end of the year. Data will then be analysed with program CAPTURE and a density estimate for leopards within 10km from the Lugenda River will be calculated. This will be used to inform quotas for leopard in NNR and ensure hunting is sustainable for this CITES Appendix I species.

2. Community Monitoring Program

The two day training workshop for the 14 Community scouts from 13 villages will take place on the 22/23 September. This year no new scouts will be trained as the focus will be on providing further training to existing scouts to develop their role as extension agents for NNR. Two bicycles and three soccer balls will be presented to scouts that have been collecting excellent information over the past three years. Data will be analysed and scouts assisted with preparing annual reports on human-wildlife conflict, fisheries, and special species sightings. A three year plan for further development of the community scout program is being developed by NCP for presentation to NNR management. The aim is for full coverage of the reserve in next 2 years with a dedicated MOMS community coordinator (Grade 12 education) to enter data, produce reports and assist scouts. Detailed information on ways to minimize conflict with carnivores will be presented –goat corrals, safe sleeping shelter, safe behaviours.

3. Human –carnivore conflict

a) Community meetings: Two community meetings have been held in Mbamba village, one to report back to community on pig fence results and NCP activities and one with the school teachers (5) to develop local conservation content in the primary school (325 children, 35 schools in NNR). At present there is no environmental education occurring in NNR and little extension work. This is a priority. Funding for a vehicle dedicated to this work is being sort for 2010. In June, the final stage of the questionnaires surveys on carnivore attacks were completed in the seven remaining villages in the west of NNR. Information on 14 additional lion attacks since 1970 were collected. This completes the survey for the entire protected area (40 villages) and data will be analysed and form the baseline for future activities. An incident report has been developed for use by Reserve staff, operators and researchers to standardise the information collected. It is critical that details of each attack are collected (particularly the activity of the person immediately before the attack) so that we can understand what makes people vulnerable and thereby look for solutions. NCP will be developing simple databases and systems to digitally capture this information and allow it to be sent on to Reserve management and national databases on a regular basis. Based on the information collected a poster will be developed in collaboration with SRN community officer by Feb 2010 illustrating safe corrals for goats, safe shelters in fields and behaviours that make people vulnerable to attack (sleeping outside, walking alone at night).

b) Fences around fields to keep warthogs out:

In December 2008, the first experimental trials of a bamboo fence built to prevent bush pigs and warthogs from entering fields during the critical crop period were initiated. Warthogs and bush pigs are a favoured prey of lions. Lions enter the fields to catch pigs and this brings them into contact with people. Decreasing the number of warthogs and bush pigs entering the machambas/ fields will therefore not only help the communities control a major crop pest but will also decrease the possibility for human-lion conflict. The fence was built by four people over a 5 day period (30m x 40m) around a rice machamba known to experience high levels of warthog and bush pig damage. A neighbouring field with similar problems was used as a control. Pedro visited the two machambas every day during December -April and noted the

number of times warthogs entered and the amount of food (rice) eaten). Results were encouraging. Over a 5 month period, warthogs entered the field without the fence on 28 occasions compared to only five occasions in the field with the fence. The results were reported back to the Mbamba community in June. Significantly, the owner of the field with the fence has decided to maintain the fence for this year as he felt it worked very well. At present we are experimenting with local plant species that can be propagated to form living fences (eg. *Commiphora africana*). These will last longer and be more sustainable than the bamboo fences as bamboo is a limited resource in some area. Possibilities of propagating bamboo are also being investigated.

c) Lions killed and lion attacks

In May two fishermen were attacked by a lioness in the west of NNR Reserve, whilst sitting around the fire at their fishing camp. The hunting operator in the area tried to track the lioness 36 hours after the attack with no success. In August a man was killed by a lion when riding his bicycle in the east of the Reserve, few details are available.

Indiscriminate snaring of lions is currently the biggest threat to lions in NNR. In 2008, 5 lions were snared in Mbamba village and two lions have already been snared this year. Lions were not the targets of these snares they were set for bush meat or to control problem animals. This type of snaring is a complicated issue to address as it relates to poverty and the need for meat, issues that are larger than lion conservation on its own. However lions enter the fields due to high “prey catchability” by decreasing prey species in villages we can decrease the number of lions inadvertently snared. In another village, a lion was snared and possibly poisoned after attacking chickens; the lion was skinned and the skin sold. This was reported by the community scout. On a positive note, the information provided by Mbamba village residents is the first concrete information we have been able to collect on the level of snaring and has confirmed the need to address this issue urgently.

Trophy Monitoring and Hunting Guidelines

All operators provided with lion and leopard kits for 2009 hunting season (datasheets) as well as detailed guidelines on how to age lions and guidelines on leopard aging in Niassa. To date three leopard and one lion trophy aged and measured. Guidelines from leopard collaring show that it should be obvious to tell male and female leopards apart, with adult male leopard weighing an average of 43kg and females 28kg. Professional hunters advised that if they cannot tell whether a leopard is a male or a female, the male is probably a subadult and too young.

National Lion Conservation Strategy and Action Plan

On the 16th & 17th July a workshop was held in Maputo, Mozambique by MITUR (Ministry of Tourism) to develop a National Lion Conservation Strategy and Action plan. Colleen and Agostinho were invited to contribute and Colleen presented an overview of the lion population status and conservation activities in NNR. The NCP also provided funding for the printing of the final survey report on which the meeting was based. NCP contributed to this report. With information from NNR and surrounds This report (based on two surveys completed in 2007 and

2008) suggests that there are at least 2700 lions in Mozambique concentrated in three important lion conservation units, all with trans-frontier links. More than 30% of the Mozambican lion population is believed to be protected within Niassa National Reserve (800-1000 lions). This highlights the need for conservation work in this area to secure this population. The Action Plan will be completed by October and will hopefully receive endorsement from the National Government by next year. This is only the first (though critical) step, the challenge is to translate this ambitious plan into reality with limited resources.

Funding, Awareness, Mentoring

Agostinho Jorge is spending 6 months with us in the field this year obtaining experience in all facets of the project. NCP is also assisting him with his Masters applications and hope that he will be completing a Masters Program on the project next year. Funding for all core activities has been secured for the 2009 field season. We have still not secured funding for a second vehicle dedicated to extension and education work in the villages to minimize human-carnivore conflict. Funding for these specific "wish-list items" will continue to be sought as they are considered essential for future carnivore conservation activities in NNR. An email newsletter has been initiated with the first edition sent out in April 2009, and the second edition to be sent out in September. This will allow us to keep all our sponsors, partners and supporters up to date with our progress. Invited to become a member of the IUCN Cat Specialist Group and IUCN Canid Specialist Group. NCP invited as a return guest speaker to WCN Expo in San Francisco, USA in October, Keith will be attending.

Main activities remaining for 2009

- 1. Complete camera trapping and analysis to establish leopard density**
- 2. Complete Community Scout training program and strategy for three years**
- 3. Collar three village lions with GPS collars**
- 4. Monitor and age all lion and leopard trophies**
- 5. Analyse community scout information on human-carnivore conflict**
- 6. Test living fences in Mbamba village during wet season**
- 7. Initiate conservation education material- ABC wall chart, storybook, and activity book**