

Niassa Lion Project



ANNUAL REPORT

2009



Colleen and Keith Begg

In Collaboration with:



Principle Sponsors



Regional Location of Niassa National Reserve in northern Mozambique



Mission Statement of Niassa Carnivore Project

The Niassa Carnivore Project serves to secure and conserve lions and other large carnivores (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 particularly human-carnivore conflict, targeted pragmatic research, development of locally based monitoring systems, mentorship and training of local conservationists and community outreach (education and awareness).

The Niassa Carnivore project works in close collaboration with SRN (the Management Authority of NNR), local communities and tourism operators

EXECUTIVE SUMMARY

The African lion is listed as vulnerable with an estimated 23 000 to 40 000 lions remaining in Africa and concerns are mounting about continuing population declines across the region. Niassa National Reserve (NNR), northern Mozambique is an extensive wilderness and one of the largest, most undeveloped and least known protected areas in Africa (42 000 km²). It has been identified as a priority for lion (IUCN 2006) and wild dog conservation in eastern and southern Africa. Unlike many protected areas, NNR also supports a growing population of more than 35 000 people spread across 40 villages.

Niassa's lion population (800-1000 individuals) is believed to be one of only five lion populations left in Africa that is currently increasing and it represents one third of the Mozambique's lion population (estimated at 2700). The importance of this population for global conservation efforts is increased by its transfrontier links to the Selous Game Reserve in Tanzania through the Selous – Niassa Wildlife Corridor. In addition, NNR provides the core and source of largely unprotected lion populations extending from the east coast of Mozambique at Pemba to the western boundary with Malawi at Lake Niassa. Protecting Niassa is not only vital for conserving of lions in the region, but also for its significant populations of African wild dog, leopard and spotted hyaena .

The Niassa Carnivore Project (NCP; which includes the Niassa Lion Project) has been working in NNR since 2003 in collaboration with SRN (the management authority), Niassa communities and tourism operators. The mission of NCP is to secure the lion population in NNR by promoting coexistence between carnivores and people and mitigating all human induced threats. Major threats identified in NNR are indiscriminate snaring and poisoning, and retaliatory killing due to human – carnivore conflict. Secondary threats include potential disease outbreaks, targeted snaring for skins and the sport hunting of underage individuals. NCP uses a four pronged approach of pragmatic research and monitoring, community outreach/ education, training of Mozambican conservationists and direct mitigation of threats to achieve its objectives.

In 2009, the project shifted from primarily being focused on targeted research to understand the problems that affect lions to testing and implementing solutions. Environmental education was initiated through three stakeholder meetings with teachers and a Niassa conservation story book focused on reducing human-carnivore conflict through taking responsibility and constructing safe shelter is nearing completion. NCP was asked to be friend of the Mbamba school and a patron of the Mecula Wildlife Club (the first wildlife club in NNR). SRN employee, A. Jorge spent six months working with NCP as a research assistant in 2009 and has been accepted into a Research Masters program for 2010. A questionnaire survey of villages in the western villages of NNR completes the historical data set of lion attacks in NNR. Two people were killed and two injured by lions in 2009. Research on the movement patterns and number of lions snared around villages continued through radio-marking of selected lions in the intensive study area. These data provide detailed information on high risk activities and the age and sex of victims etc. Based on this information a poster is being developed to spread information on high risk activities, safe shelters and effective goat corrals. Testing of "living" and bamboo fences to reduce contact between lion and people continued with the first "living" fence planted in November. Initial results have been encouraging. NCP continues to monitor lion and leopard trophies and advise SRN on the sport hunting of carnivores in NNR to ensure it is sustainable with a detailed memo prepared to address concerns of declining lion off takes. In 2009, NCP also prepared a three year strategy for the community scout monitoring program (SMOG) and the fourth annual training workshop was held at the NNR headquarters.

2010 will concentrate on continuing with these initiatives, particularly environmental education and reducing contact between lions and people. Research will focus on increasing understanding the movement of lions around villages and the number of lions being inadvertently killed by snaring and poisoning, as well as providing baseline data on perception of people towards lions so that education and outreach programs can be better assessed in the future.

NCP TEAM 2009



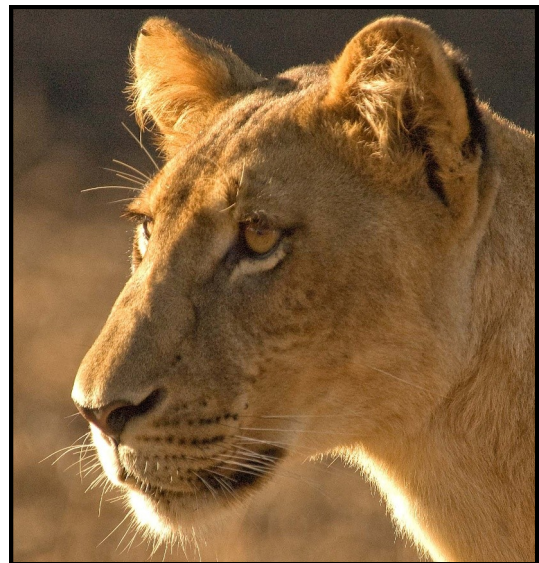
2009 Niassa Carnivore Project Team: Ndugu Alberto, Agostinho Jorge, Keith & Finn Begg, Euzebio Waiti, Danni-Boi Saude Alberto Mussoma, Colleen and Ella Begg, Pedro Sandali

CURRENT THREATS

Threats to Niassa Lions	Ranking
Inadvertent snaring and poisoning	High
Retaliatory killing as a result of lion attacks	Medium
Sport hunting of underage lions	Medium
Disease – rabies and canine distemper	Low
Targeted snaring for skin trade	Low
Traditional medicine	Low

MAIN ACHIEVEMENTS (2003-2009)

- Completion of the first biodiversity survey of Niassa carnivores with 24 carnivore species identified (2003).
- Lions and African wild dogs are identified as research and conservation priorities for NNR (2004), MOU with SRN (Management authority of Niassa Reserve) signed.
- NNR identified as a priority Lion Conservation Area in Southern and eastern Africa (IUCN Cat Specialist Group 2006).
- Niassa lion sport hunting regulations developed by the Niassa Lion Project and implemented in collaboration with SRN and Niassa tourism operators (2006). This system includes an innovative points system for assigning quotas based on lion age. Niassa Reserve becomes the only sport hunted area in Africa where a mandatory six year age limit for lion trophies is enforced. CIC Markhor Award is awarded to SRN/ Niassa in part due to lion sport hunting regulations.
- In collaboration with SRN, a community based monitoring program is implemented in NNR (SMOG) to monitor human wildlife conflict, and status of special species.
- Baseline data collected on lion densities, threats to the lion population, lion attacks (since 1970), with identification of behaviours that make people vulnerable and safe shelters and goat corrals to minimize contact between lions and humans.
- In collaboration with NCP and SRN, Mozambican veterinarian, Dr. Rui Branco conducts a study to assess disease risk to carnivores, particularly wild dog and lion with an associated awareness and vaccination campaign for domestic dogs inside NNR.
- Various materials are produced to increase awareness of NNR and its conservation potential to a wider audience including a promotional DVD produced in Portuguese for Mozambican audience (K. Begg), a full length wildlife documentary “Badger Quest” with Portuguese edition (K. Begg), and publication of article in Africa Geographic Magazine (June 2007).
- NCP assists with the survey to assess the status of lions in Mozambique (2008, 2009) and the development of the National Mozambican Lion Conservation Strategy and Action Plan (2009).



RESEARCH & MONITORING

Sound scientific research underpins all our activities, as we believe that only with a thorough understanding of the issues can effective conservation be achieved. Intensive ecological research on lions and other carnivores is focused in a study area situated along the Lugenda River, where we maintain a simple base camp. The study area includes Mbamba village, a major village inside the protected area which supports approximately 3000 people and encompasses a mosaic of habitats as well as an arc of granite Inselbergs. The southern boundary of the intensive study area is a 30km stretch of the Lugenda River, which is the most intensively fished area along the 350 km of the Lugenda River contained within NNR. The river provides a critical fish supply and income through bartering for many communities. The intensive study area therefore represents many of the larger challenges faced by NNR as a whole but it is not sport hunted. Surveying and monitoring of the status and threats to the large carnivore populations in NNR occurs throughout the protected area.

Lions are monitored in the intensive study area with a combination of GPS and VHF radio collars to understand movement patterns, density, age structure, mortality, and prey with a particular focus on the movements of lions around villages and validation of visual cues that can be used to age lions in Niassa such as increasing nose pigmentation and mane development. Since 2005, 12 lions have been radio collared: six females and six males. In 2009 three lions were captured, two collars were replaced and one collar was removed. One of these lions, Campo, has been collared since 2005 when he was 3-4 years old. He is now 7-8 years old and his nose is clearly darkening with age (see image) and his mane is filled in behind the ears. In 2008, he shifted his home range to an area of Miombo woodland around Nkuti and Mbamba villages. His movements are being closely monitored by Euzebio during the wet season (Dec– March) as he is frequently being heard around Mbamba village.



Campo, after he was darted to replace his collar, note the pink dart in his thigh. His nose is becoming blacker as he gets older.

In 2008/2009 there were at least 22 lions present in the study area. However, by December 2009, six of these animals had been killed or were missing, and two young cubs were spotted. In the past five years, at least 12 lions have died in the intensive study area and 75% of these deaths have been due to snaring (possibly poisoning) in Mbamba village. Two skinned lions were found by SRN field officers in 2009 raising our concerns about the lion skin trade. Indiscriminate snaring of lions is currently the biggest threat to lions in NNR. On a positive note, due to extensive outreach, Mbamba residents are reporting dead lions to NCP and this 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. 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 problem animals, 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” and by reducing the potential prey in villages we can decrease the number of lions inadvertently snared (see section on fences). Despite the number of lions being killed the density of lions in the intensive study area has remained stable but it is not increasing. Lion in populations away from rivers where human activities are concentrated have increased slightly.

HUMAN-LION CONFLICT

In 2009, two people were killed and two injured by lion inside NNR. In May two fishermen were attacked by a lioness on two separate occasions in the west of NNR Reserve, whilst sitting around the fire at their fishing camp. In August, a man was killed by a lion when riding his bicycle in the east of the Reserve, few details are available but this highlights the dangers of people moving alone through the reserve. Community scouts reported a man injured by a lion in Matondevela and a lion was snared, skinned and feet cut off in Lissongile after attacking chickens. The community scout system (SMOG) is essential for monitoring human-carnivore conflict. Expansion of the community scout monitoring system to all villages in NNR is a priority.

In June, the final stage of a questionnaire survey on carnivore attacks was completed in the seven remaining villages in the west of NNR by Agostinho and Euzebio. Information on 14 additional lion attacks since 1970 were collected. This completes the survey for the entire protected area (40 villages) with a total of 87 lion attacks recorded in the past 35 years. Men are the most likely victims of lion attacks (86%), with few attacks on youths, children or adult women. Overall attacks occur mainly in fields and villages, with high risk activities identified as sleeping outside and walking at night either to the toilet or to protect fields from crop pests. Five villages (the largest villages in NNR) have the highest rate of attacks (Mecula, Mussoma, Nego-mano village complex, Mbamba, Mavago). These data help us to focus our attention on how to reduce these attacks and provide a baseline against which we can assess whether we are being successful or not.

A major focus of NCP is to reduce contact between lions and people. The first step is to encourage responsible behaviours like sleeping in safe shelters (either on the ground with a door or on stilts), not allowing small children to walk without an adult present at night, not walking alone, using fences around cooking areas and to toilets in villages and corralling goats at night to prevent attracting lion into villages. Through community outreach (posters, village presentations and the storybook) we are disseminating the information we have collected to Niassa communities.

The second step is to reduce the number of bushpigs and warthogs attracted into fields during the cropping season as it is the high densities of pigs in the fields in the wet season that seems to be attracting lions into the fields where they come into close contact with people. Hunting is difficult for lions during the wet season due to long grass and dense vegetation, prey is easier to catch in the fields



Euzebio reports back to Mbamba community on NCP activities

due to the high concentrations there and relative openness. Reducing the numbers of crop pests will increase food security, decrease the need for people to patrol their fields at night, and will reduce the potential for lion to attack people and the chance for lions to be caught inadvertently in snares set in the fields.

GOOD FENCES MAKE GOOD NEIGHBOURS

In the 2008-2009 wet season we tested bamboo fences around rice fields in Mbamba village to reduce damage by bushpigs and warthogs. Over a 5 month period, warthogs entered the unprotected field on 28 occasions compared to only five occasions in the fenced field. A community meeting lead by Euzebio and Pedro was held in Mbamba village in June to report back on pig fence results and planned activities of NCP in 2009 / 2010 wet season. All agreed the fence worked well but community elders felt the labour needed to build the bamboo fence each year and the long distances needed to collect bamboo would prevent most people from building the fence. We are concerned that given that bamboo is a heavily utilized resource, additional use for fences might be unsustainable. Termite activity results in bamboo fences needing to be rebuilt every 1-2 years. "Living fences" may provide a more sustainable alternative. In 2009 we planted a variety of different local thorny plant species around our vegetable patch in camp to test whether they would coppice. *Commiphora africana* (African myrrh) was found to have the best potential as it coppices easily from small cuttings and cuttings are readily

available in Cabo Delgado province where it is already being used as a "living" fence. It forms a formidable barrier that will potentially keep out lions as well as bushpigs and warthogs. These fences require initial input to plant but thereafter need little maintenance. New fences can be built simply by coppicing from already established fences, which ensures sustainability. It requires no technical expertise and equipment and local communities are already acquainted with coppicing.



A meeting was held in Mbamba village in November to introduce *Commiphora africana* to the community and they were supportive and excited by the potential of this living fence. One Mbamba resident confirmed its potential as he had experience with it in Tanzania. The main concern was whether it would also keep out elephants. Elders agreed that an initial fence would be planted around Chief Ngongo's field in the 2009/ 2010 wet season with cuttings provided by NCP.



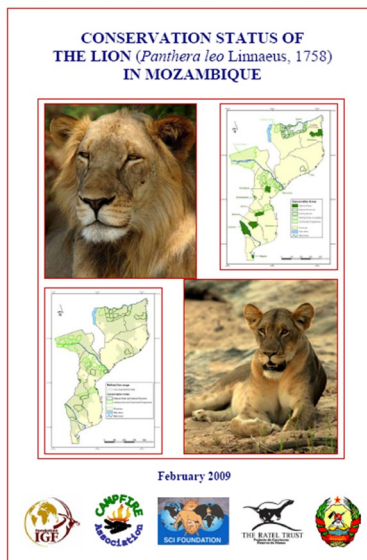
Chief Ngongo inspects a *C. Africana* cutting at a community meeting



Agostinho assists with the planting of the first *C. Africana* fence in Mbamba fields

The fence was planted by Chief Ngongo with NCP assistance in November, ten days before the first rains arrived. A crossover technique was used to minimize "holes" at the base of the fence. Initial results were encouraging as the fence had already produced shoots by mid December. This fence will be monitored throughout the wet season.

NATIONAL LION CONSERVATION STRATEGY AND ACTION PLAN



In 2008 and 2009, NCP contributed to a national survey of the status of lion in Mozambique. This report 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 importance of NCPs work in Niassa to secure this lion population. This report informed a national workshop held on the 16th & 17th July by the Ministry of Tourism to develop a National Lion Conservation Strategy and Action plan. We were invited to prepare a presentation on NCPs work in Niassa and take part in the workshop. The National Action Plan is currently out for review and NCP continues to assist and collaborate with this process wherever possible.

MONITORING OF SPORT HUNTING

Sport hunting of lion and leopard takes place in nine concessions inside Niassa National Reserve managed by SRN. NCP recognises that sustainable use currently plays an important role in NNR to generate a local economy to finance conservation activities and support communities (20% of concession and trophy fees go to communities) in the absence of any significant ecotourism in the area. However, we strongly believe that sport hunting must be strictly regulated and effectively monitored to ensure it is sustainable. For lions, current scientific evidence shows that sport hunting can be sustainable as long as only males over the age of six years are taken as trophies. These males have already raised a litter of cubs and effects of infanticide are minimized.

NCP independently ages (from teeth wear, nose pigmentation and mane development), measures and monitors all lions taken as trophies in NNR for SRN. The project has collaborated with SRN to develop an innovative system of determining quotas based on the previous year's trophy quality. In 2009 a pamphlet entitled "A Quick Guide to Niassa Lions" was developed by NCP to assist professional hunters (PHs) and clients in correctly aging Niassa Lions and to provide information on the SRN lion regulations with its mandatory six year age minimum. This was based on five years of data on Niassa lions collected by NCP. In 2009, six lions were taken as trophies representing 38% of the quota allocated by SRN. Unfortunately the good results of 2008 when no underage lions were taken as trophies was not repeated and three lions were under the age of six. This highlights the need for continued pressure and monitoring of the lion trophies.



Lion trophies are aged from tooth wear. Note the lack of wear on bright white teeth of a lion that was under the age of four (top), and yellow teeth, broken canine and obvious wear on the teeth of an old lion (bottom).

In December, the Annual SRN meeting was held and NCP was asked to prepare a presentation on sport hunting of lions to all present (SRN, NNR sport hunting operators, government officials and researchers. A number of concerns and criticisms of the SRN lion regulations and six year lion age minimum were raised. Some operators felt that the lion regulations were resulting in off-takes that were too low for them to run a profitable business. Since 2006 when the lion regulations were instituted under the recommendations of NCP, lion off takes in Niassa have declined from 9-11 lions per year to 3-6 lions / year due to fewer underage lions being taken as trophies. Based on scientific data, NCP does not support any increase in the off-take of lions at present as it believes this will be unsustainable given the current lion density and level of illegal off take. A memo prepare by NCP dealing with these issues in more detail is available on request.

COMMUNITY SCOUT MONITORING

The SRN Community Scout Monitoring program (SMOG) has now been running for four years and there is no doubt it is a valuable and effective program, with the community scouts providing an important interface between NNR management. However, refinements are needed and a plan developed to guide its further development to make sure it reaches its full potential. At present the SMOG community scout program is fully funded by NCP. NCP has developed a three year strategy /plan with a budget for the SMOG program based on feedback from all stakeholders. This is currently with SRN for review. The most important recommendation is the hiring of a full-time SMOG Manager to coordinate the training and support of community scouts, data and financial management and regular reporting.

The fourth annual SMOG training workshop for the 13 Community scouts from 12 villages took place in Mbatamila in September, lead by SRN employees, Agostinho Jorge and Mbumba Marufo. This year no new scouts were trained as the focus was on providing further training to existing scouts to develop their role as extension agents for NNR and discussing problems and solutions. Two bicycles and three soccer balls were presented to scouts that have been collecting excellent information since 2006. Data on special species, fishing activities and human-wildlife conflict was analysed and scouts assisted with preparing annual reports. As part of our initiative to train the scouts to not only collect valuable information but also to communicate information from the reserve to communities, Agostinho presented information on ways for communities to avoid conflict with carnivores. Wim Ebersohn (SRN Security Officer) also talked to the scouts about the type of information that was needed for the Reserve scouts to be able to respond to problem animals quickly.



MENTORING AND TRAINING OF LOCAL CONSERVATIONISTS

Agostinho spent 6 months with us in the field this year obtaining experience in all facets of the project from research technique, through community outreach and logistics. His help has been invaluable, particularly with camera trapping and questionnaire surveys. We are delighted that he has been accepted for a Research Masters program at the University of Kwazulu Natal, South Africa in 2010 with his field project to be supported and guided by NCP in collaboration with SRN. We are committed to continuing to provide him with support wherever possible.

NCP research assistants, Euzebio and Pedro have both received their drivers licenses, the only two people in their village (Mbamba) to have this qualification. In 2009 they developed their skills in communicating results to their community and interacting with school children during the Lion fun days. Euzebio commented that two years ago he never would have imagined the work he would be doing and the position of respect he now holds in his community. Euzebio is an invaluable field assistant with expert radio-tracking skills. Pedro has also received his first training in entering data into a computer.

COMMUNITY OUTREACH AND EDUCATION

Niassa Reserve teachers are a vital resource for conservation management. Through the teachers (the most educated people in each village) important information on ecology and resolving human wildlife conflict can be communicated to children in an age appropriate way. Children will teach parents, many of whom are illiterate. There is currently no environmental education or ecology being taught in the 45 schools inside the protected area aside from some basic ecological information provided in the Government school books in grades 5 and above. Most children leave school after 3-4 years of schooling and do not appear to know they live in a protected area or what this actually means. There is also little understanding of the importance of animals in the cycles of ecology beyond being a source of meat and skins. Animals are generally only seen as problems or food.

In 2009, Mbamba village teachers asked NCP to be a Friend of the Mbamba School. It was agreed that the teachers would provide us with a list of materials needed for the community to upgrade and fix the two old school rooms. NCP would also help provide the teachers with information on ways for people to protect themselves from lion attacks and behaviours that made them vulnerable. The school supports 328 children in seven grades with five teachers and very few resources. Based on the list provided, NCP has rehabilitated one of the old school rooms although doors and shutters still need to be made. The second school room will be rehabilitated as funds are found. This was a collaborative effort with rehabilitation initiated and guided by Mbamba teachers. Materials were purchased and delivered by NCP, labour provided by the Mbamba community members and NCP, and payment of workers provided by Director of Education. On hearing of this initiative, SRN provided school desks made from timber confiscated from illegal logging activities inside NNR.



Mbamba old school room before being painted and desks provided

Initial funding has been found for development of a Conservation Storybook for all Niassa Reserve Schools. This will be the first storybook the children have ever seen. Additional funds are being sought for a workbook and cloth ABC conservation wall-chart that will be closely linked to the storybook. Afra Kingdon, a well known artist, naturalist and children's book author (recent book is "Green meets White") was asked to prepare the materials. Afra spent two weeks with NCP in the field to ensure the details in the story and illustrations are locally appropriate. As part of her visit, two mornings of conservation activities were planned in Mbamba village lead by Afra, Paula Ferro (anthropologists) and NCP. The aim of these Lion Fun Days was to make conservation fun, motivate the school children and assess their abilities to do different activities to make sure the activity books are set at the correct level. The storybook developed by Afra in collaboration with



Pedro helping children use scissors and glue for the first time to make lion badges



Agostinho shows the Mbamba community where they live in the world

NCP is a fictional but locally relevant story about a young girl that has a strong conservation message for her village based on building safe shelters and keeping the village safe from carnivores. This book will help with literacy and numeracy, and will be complementary to the national syllabus.

FINANCIAL REPORT: THE RATEL TRUST –NIIASSA LION PROJECT

Income Statement (US Dollars)

Calendar Year ending December 2009

Revenue

Donor contributions for 2009 deposited 2008	14590
Donor Contributions for 2009 deposited 2009	115606
Credit from 2008	7287
Donor Contributions for 2010	22107
Total Revenue	159590

Expenses

Personnel-Salaries and Wages	28432
Fund raising and awareness	9160
Administration of Ratel Trust	3786
Workshops, meetings, training	5400
Travel costs	6358
Running costs-consumables	15013
Program –Research	17870
Program-Sample and trophy Monitoring	688
Program-community education and outreach	6494
Program-Community Scout Monitoring	6651
Miscellaneous-Contingency	640
Outstanding 2008 payments	2886
Accounts still payable	27260
Total Expenses	130638
Change in net assets	28952

Balance Sheet: (US Dollars)

As of December 31 2009

Assets

Cash	34105
Cash Donor contributions 2010	22107
Total Assets (cash)	56212

Liabilities

Accounts still payable for 2008	27260
Change in net assets	28952
Total Liabilities and Net Assets	56212

ACKNOWLEDGMENTS

This project would never be possible without the enthusiastic support of all our sponsors that make working in such a remote region possible. The Niassa Carnivore Project is substantially funded by Panthera, the Innovation Award of the Rufford Small Grants Foundation, Wildlife Conservation Network and the Fair Play Foundation through Fauna and Flora International (USA). Additional support is provided by the Predator Conservation Trust and the Flint Chapter of Safari Club International (Marc Somers).

A very big thank you to all the individual donors who supported the project in 2009: Mary Boardman, Steven and Florence Goldby, Cheryl Kendall and Glenn Nash, Beverly Spector and Ken Lipson, Lisette Gelber, Linda Tabor-Beck, Christine Davis, Peter Wan, Kathryn Stoddard, Julia Poelstra, Larry Bowman, Gloria and Kent Marshall, Eveline Stalling (and all her friends) Carol and Jim Polich, Catherine Hilker (The Cincinnati Zoo Angel Fund, and Jon Vannini and India Sanjuan. A very special thanks to Stephen Gold and Mario Klip from the WCN Solar Project for all their efforts to provide solar power for the NNR headquarters and Guy Balme from Panthera for ongoing field assistance and donation of equipment.

Our sincere thanks go to Sociedade para a Gestão e Desenvolvimento da Reserva do Niassa (SGDRN) and the Government of Mozambique for granting us permission to work in the Niassa National Reserve. In particular we thank Anabela Rodrigues, Sandra Almeida, Denise Valigny, and Paula Gamito from the Maputo office for organising fuel, customs and immigration formalities and other logistical assistance. We thank Vernon Booth, SRN Tourism Officer for ongoing discussions about sport hunting. Agostinho Jorge has been working full time on the project this field season and we thank him for all his hard work, enthusiasm and assistance; this year's achievements were in a large part due to his efforts. We are most grateful to the Niassa team for all their ongoing assistance and support, particularly Wim Ebersohn, Mbumba Marufo, Edson Tanga, David Chambal and Americo Mazive.

As always a special thank you to the "Nkuli" team – our dedicated field and camp assistants (Euzebio Waiti, Alberto Mussoma and Pedro Sandali) as well as additional part time assistance from Danni-Boi Saude, Ndugu Alberto this season. For assistance with our new environmental education initiative we thank Afra Kingdon and Paula Ferro for all their assistance and enthusiasm during our Mbamba Lion Fun days and Teacher meetings.

We also thank all the Niassa operators who provide ongoing information and support with particular thanks to Kambako Safaris for assistance with flights, use of their satellite email system, and fresh vegetables. The project is administered by The Ratel Trust and we thank Stephen Clark for his ongoing legal and financial assistance in his capacity as a trustee and Westley Logon for advice on setting up a Mozambican Trust.