

Kenya:

The flying Foxbat

Much of my work for the Laikipia Wildlife Forum requires face-to-face discussions with land owners and community groups about their needs, priorities and how they can pool their expertise and resources to create the future they want.

Anthony King
Executive Director
Laikipia Wildlife Forum

The LWF's Community Conservation Programme has five themes, which respond directly to the key resources that support the lives of the people of Laikipia and, of course, its important wildlife population. These themes are the management of the rangelands (grass for grazing); the management of the 32 rivers (90% of people depend on river water for their needs); the management of forests (from which all the rivers come and many other important resources); the reduction in human-wildlife conflict (for example, elephants destroy thousands of hectares of crops a year); and lastly the development of enterprises that will benefit both people and the environment (we call this conservation enterprise).

It is through the collaboration and efforts of the people of Laikipia, including the pastoralists, small-scale farmers, large-scale ranchers and tourism operators, that Laikipia has become one of Kenya's greatest conservation successes and a sanctuary for more than half of Kenya's black rhino. However, for me to get around the 10,000 sq km area we work in, to meet landowners and communities, was - up until a year ago - a slow business. Like much of Kenya, the roads and tracks are rough and in the rainy season many are almost impassable. It could be a three-to-four hour drive across rocks or through mud for a one-hour discussion and then the same to return back to the office, and repeated several times a week. This meant that much of the necessary administration and office work would pile up to very unappealing levels and I would get stuck in the office, and then I would find myself getting out of touch with people across Laikipia.

It occurred to us that a solution would be to fly around, which would save an enormous amount of time and enable me to get around the district and do my paper-work. Our offices are based at Nanyuki airfield. We did our sums and worked out that a modern two-seat aircraft would be very affordable and cost effective, and with support from the Netherlands Government we bought a small aircraft called a Foxbat.



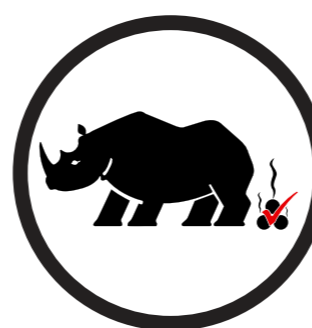
The shiny new photocopier, seen here with Rosemary

We have had the Foxbat for a year now and it has been a revelation. It enables me to get around Laikipia and much further afield with ease, and has also become an important tool for others in Laikipia. The Foxbat has fabulous visibility and very good slow flying capability, which makes it a great way to view things from above. I have been able to take the District Commissioner over the Laikipia to see the state of our rivers, which are all drying up, and for him to see and understand the land use causes. The Foxbat has been used to radio track wild dog and lion. Last year we were able to put the Foxbat into the pool of conventional aircraft for a wildlife population census, when the Kenya Wildlife Service observer said it was the best game-counting plane he had been in. We also used it to help Mugie rhino sanctuary to spot and count their black rhino, at a time when the threat of poaching is high.

Thanks

We sent £27,993 to the LWF to help pay for the core costs of the CCP, thanks to the heroic efforts of the 2009 3 Peaks 3 Weeks team. Part of the money paid for a shiny new photocopier, seen here with Rosemary. The 2010 team sets off in January, and they're currently all hard at work training and fundraising.

Anthony's arrival at the Nanyuki airstrip often attracts attention from plane spotters



It's all in the poo

Or, more accurately, "Molecular tracking of black rhinoceros in the Chyulu Hills National Park: using microsatellite, mtDNA and sex gene analysis." We proposed this project back in 2006 and, finally, we're now on the verge of publishing the report, which will inform the future rhino management plans of the Kenya Wildlife Service and the Maasailand Preservation Trust.

Antony Wandera
Rhino Programme
Kenya Wildlife Service

Bradley Cain
School of Biology, Chemistry and Health Sciences
Kenya Wildlife Service
Manchester Metropolitan University

The use of dung DNA analysis for determining the genetic make-up of black rhinos is a new, cutting-edge technique in Kenya, and is being introduced to improve the country's wildlife management. This pioneering method has proven to be invaluable for surveying rhino demographics and their genetic status, enhancing the conservation efforts for this endangered species. Kenya is home to 12% of Africa's endangered black rhino, and 85% of the Eastern black subspecies. Sound biological and genetic decision making and management of these animals is therefore vital for ensuring the sustainability the country's natural resources.

The aims of the project were two-fold: to build the KWS's capacity in rhino conservation genetic studies and management through training in molecular genetic analysis; and to assess the genetic make-up of a rare, indigenous rhino population in the Chyulu Hills, Southern Kenya.

The secondary aims of the project, in relation to the work at the Chyulu Hills were to:

- Establish the minimum number of individuals in the population through probability of identification based on microsatellite genotypes
- Determine the sex of all identified individuals by analysis of Y-specific restriction digests of the ZFX/Y gene
- Reconstruct pedigrees and determine levels of inbreeding
- Determine the effective population size
- Examine rank-order relatedness between breeding males in the population
- Determine levels of genetic diversity present in the two study populations through microsatellite and mtDNA analysis
- Compare levels of diversity found in study population with those found in other extant Kenyan populations and with museum samples
- Calculate the genetic distance between the study population and other extant populations in Kenya

What actually happened?

- 6 weeks sample collection started in Oct 2007
- Fresh faecal samples collected in collaboration with KWS rangers and Mbirikani scouts
- For each sample GPS location, possible sex and approximate age of sample was recorded
- Faecal samples preserved by dessication with silica gel
- A total of 43 samples collected from across Chyulu range

Molecular analysis

- DNA extracted at ILRI labs in Nairobi
- DNA extracted from faeces
- Genotyped for 11 polymorphic microsatellite loci
- 507 bp region of mitochondrial control region sequenced
- 5'exonuclease assay performed (TaqMan SNP) to determine sex
- DNA from Chyulu samples was extremely degraded
- Subsequently 3 microsatellite loci were excluded from the final analysis



Brad shows Richard Bonham how to collect dung

- Multiple repeats of all molecular analysis performed to ensure reliability of genotyping in light of allelic dropout
- Genotypes only recorded as unique if they couldn't be due to allelic dropout

Results

- Minimum population of 14 animals: 6 male; 6 female; 1 male calf; and 1 unknown
- Population admixed with 2 animals from Ngulia
- One female originating from Ngulia has a calf
- Population shows significantly higher levels of inbreeding and lower levels of genetic diversity compared to other genotyped populations in Kenya

Workshop

The results were discussed at a site-specific workshop, held in July 2009 in Tsavo West National Park, and attended by representatives from the Kenya Wildlife Service and from the Maasailand Preservation Trust. The workshop presented the findings of the study to management and stakeholders on molecular tracking project; and proposed a site-specific black rhino management plan that will become part of the overall national black rhino strategy. Ambitious plans for an IPZ and increased security were put forward, and we are waiting eagerly to see what the final approved plan will include. The workshop proceedings and recommendations arising will be circulated as soon as they become available to all funders.

Funding

The total cost of the project was £25,923, which was supported by the following: KWS US \$20,000; Chester Zoo £4,080; EAZA Rhino Campaign 7,860 euros; Amnéville Zoo 5,000 euros; Save the Rhino £750; Manchester Metropolitan University, 3,145 euros. In addition, Chester Zoo and Save the Rhino each contributed £200 towards the cost of the workshop. Our thanks to everyone who made this project possible.