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ANTELOPE SPECIALIST GROUP

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FROM THE EDITOR...

The Antelope Specialist Group is pleased to present GNUSLETTER Volume 30 #2. This edition includes some incredibly positive news for antelopes and conservation in Africa including John Newby's letter announcing the Termit and Tin Toumma National Nature and Cultural Reserve in Niger, and the inauguration of the Boma National Park headquarters in South Sudan from the Wildlife Conservation Society press release. Conversely the report of the sacking of Epulu and the destruction of the headquarters of the Okapi Wildlife Reserve by elephant poachers in the DR Congo poignantly illustrates the dangerous war for control of wildlife and natural resources in Africa.

Also included in this volume are some reports from Sierre Leone on Jentink's duiker and gazelles in Iraq. Two very nice historic reviews (Paul Evangelista in Ethiopia and Abel and Kille in Somalia) were submitted concerning antelopes in the Horn of Africa.

Finally, GNUSLETTER is now registered with an ISSN (International Standard Serial Number) with the International ISSN Center in France formally recognizing the electronic distribution of this publication.

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Thanks to all the GNUSLETTER contributors and godspeed to all the ASG members, antelope researchers, and wildlife managers working to conserve antelope and support protected areas in Africa and Asia.

Steve Shurter, ASG GNUSLETTER Editor
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From the Gnusletter Editor ...

Mai Mai Rebels Overun Okapi Wildlife Reserve Headquarters

Steve Shurter, White Oak Conservation Center

Early morning Sunday June 24th a group of MaiMai (Simba) rebels overran the Epulu Station, headquarters of the Okapi Wildlife Reserve (OWR) in the DR Congo, killing park rangers and civilians (6 total), ransacking the station and the village, and killing 14 captive okapi. For the last year the rebel militia has been marauding in the southern region of the Ituri Forest and in the OWR, illegally mining for gold and poaching elephants for ivory. These activities resulted in several armed conflicts between OWR rangers and the rebels in recent months, who were also terrorizing civilian populations on the border of the Reserve.

Numerous international pleas for help by NGOs and OWR managers failed to protect the integrity of the Reserve from these criminals. As these conflicts escalated it became clear the rebels have significant and well placed external supporters who benefit from the illegal natural resource extraction.

While this particular tragedy may have been prevented by heeding warnings and reacting decisively, the pressure on protected areas and threats to wildlife will continue to grow. The escalating value of wildlife and forest products clearly outweighs the risks associated with the extraction process, and more importantly, supports organized criminal networks which profit at the expense of wildlife.

What is the strategy to break the supply chain or squelch the demand? What price on the lives lost in the process?

Although the NGO's and the Okapi Wildlife Reserve managers are reeling from the damage, the will and determination remain to protect the okapi and wildlife and this significant block of tropical forest. A fund raising campaign has been initiated to support the families whose lives have been disrupted and to begin the process of rebuilding and refocusing the infrastructure needed to protect and manage the Okapi Wildlife Reserve.

Okapi Conservation Project: www.okapiconservation.org

From the ASG Chairs...

The Antelope Specialist Group/SSC/IUCN will actively participate to the 5th IUCN World Conservation Congress in Jeju, South Korea, 6-15 September 2012. Beside attending several events of the Congress, the ASG will organise a specific event on antelopes with the following details:

Event: Knowledge Café
Reference: ID 85
Time: 11th September, 14h30 to 16h30
Venue: Room 102

Working Title: Enhancing the resilience of antelopes to human threats: from plan to action

The main objective of this knowledge cafe is to gather the Antelope Specialist Group (ASG) of the SSC/IUCN with other stakeholders to identify ways and means for boosting action in antelope conservation and increasing their resilience. Beyond raising awareness within public, media and decisions-makers, the ASG is willing to partner with other stakeholders to join forces and foster field working activities.

The participation to the knowledge cafe is open by (i) gathering members of the Antelope Specialist Group/SSC/IUCN, NGO's (e.g. Fondation IGF, Noé Conservation etc.), Research centers (e.g. CIRAD, MNHN etc.), IUCN (e.g. IUCN-Species Programme, IUCN-France etc.) & (ii) intending to attract international agencies, international conventions and any interested stakeholders.

Why the Panel should choose the proposal amongst any other: The Antelope Specialist Group (ASG) of the SSC/IUCN is very much concerned with the pressing need for action in preserving antelopes in general. Antelopes are subject to a number of surveys for assessing their conservation status. However, "counting antelopes does not save them". The ASG would like to take advantage of this knowledge cafe for addressing the specific issue of how to transform recommendations into action.

The resilience of antelopes is exposed to a broad range of threats, mainly of human origin, which tend to worsen. Habitat conversion for agriculture and over-harvesting for meat are among the prominent threats. Many antelope range States are developing countries coping with increasing needs for agricultural land and food security due to population growth. In this context, antelope conservation is hardly listed as a main priority.

Conservation successes do exist in some antelope range States and the question is raised whether lessons can be learnt and used for improving the situation elsewhere. The wildlife ranching industry has already succeeded to reconcile conservation and development by improving the conservation status of antelopes while contributing to the economy through income generating activities. In numerous instances, the tourism industry, both wildlife-viewing and hunting, has also succeeded to preserve very large tracts of natural habitat

with all the associated biodiversity while maintaining some of the largest populations of antelopes and their predators. However, the bushmeat industry, an informal sector in many countries, is often affecting the conservation of antelopes, so that action is really required to make progress in terms of sustainability.
The ASG will gather and share this concern with other stakeholders including from IUCN. The debate will concentrate on identifying (i) the constraints limiting the implementation of recommendations and (ii) the actions needed for making effective progress in the field.

One main objective of the Knowledge cafe:
The main objective of this knowledge cafe is to gather the Antelope Specialist Group (ASG) of the SSC/IUCN with other stakeholders to identify ways and means for boosting action in antelope conservation and increasing their resilience. Beyond raising awareness within public, media and decisions-makers, the ASG is willing to partner with other stakeholders to join forces and foster field working activities.

Relevance of the Knowledge cafe to the Congress Theme:
The first keyword of this particular knowledge cafe is "resilience": lessons of success stories will be shared by the participants for being used in situations where the conservation status of antelopes is degrading and where the resilience of antelopes to human threats is in need of being enhanced.

The second keyword of this knowledge cafe is "action": recommendations have been made and new recommendations are continuously made; but it must be admitted that few of them are implemented; a change must be made by taking action in the field and reverse the global trend of degradation of the conservation status of antelopes. The Antelope Specialist Group of the SSC/IUCN, together with other interested stakeholders, will examine how to overcome the constraints limiting actions for enhancing the resilience of antelopes. While strategies already exist, which tactics are we going to adopt now as a positive step forward?

Partners:
The participation to the knowledge cafe is open by (i) gathering members of the Antelope Specialist Group/SSC/IUCN, NGO's (e.g. Fondation IGF, Noé Conservation etc.), Research centers (e.g. CIRAD, MNHN etc.), IUCN (e.g. IUCN-Species Programme, IUCN-France etc.) & (ii) intending to attract international agencies, international conventions and any interested stakeholders.

Welcome to our special event!
Philippe Chardonnet
Docteur vétérinaire, Directeur
FONDATION INTERNATIONALE POUR LA GESTION DE LA FAUNE
INTERNATIONAL FOUNDATION FOR WILDLIFE MANAGEMENT
"Conserving Wildlife in a Developing World"
www.wildlife-conservation.org

Recent Reports

Tin Toumma National Nature and Cultural Reserve, Niger

John Newby, Sahara Conservation Fund

Dear Friends and Colleagues,
More than a decade's efforts were crowned today when Niger's Council of Ministers decreed the formal establishment of the Termit & Tin Toumma National Nature and Cultural Reserve. At 100,000 km² (38,610 sq. ml) the reserve is one of the biggest in Africa. Created to conserve some of the world's rarest desert species, like the addax, dama gazelle, cheetah and Barbary sheep, it also contains a large variety of desert habitats, ranging from mountains and valleys to grassy plains, open desert and sand seas. The inclusion in its title of both "natural" and "cultural" underlines the fundamental interrelatedness of both ecological and social aspects in the reserve's management.

For SCF, the establishment of Termit as a legally-gazetted protected area has been a cornerstone of our programme since our inception in 2004, and before that through the efforts and support of the Sahelo-Saharan Interest Group. We take this opportunity to thank all those who have contributed to this remarkable conservation success, including our partners in Niger at the Ministry of Environment and its Wildlife Service, major institutional donors like the Fonds Français pour l'Environnement Mondial and the European Union, the Convention on Migratory Species, and especially all of SCF's partners that made this achievement possible: Addax & Oryx Foundation, Abilene Zoo, Calgary Zoo, Gilman International Conservation, Philadelphia Zoo, Saint Louis Zoo, San Diego Global, Smithsonian's National Zoo, the Sheikh Mohammed bin Zayed Species Conservation Fund, Steadfast UK, Zoo Praha, AZA Conservation Endowment Fund, Buffalo Zoo, Disney's Animal Kingdom, Erie Zoo, Exotic Endeavors, Fossil Rim Wildlife Center, Fresno Chaffee Zoo, the Living Desert, Marwell Wildlife, Milwaukee Zoo, Nashville Zoo, New England Zoo, Oregon Zoo, Osnabruck Zoo, Wildlife World Zoo, Zoo d'Amnéville, Sheri Hannah, Adam Eyres, Lynn Hall and Phyllis Frazier. Above all I would like to thank my Nigerien friends and colleagues who have worked so hard to make this dream come true.

Today we have witnessed the successful culmination of a long process but it also marks the beginning of a new chapter because the new reserve will need our support to be effective and meet its conservation objectives. Just as you have been instrumental in the process to date, I know that I can count on your support in the years to come. Thank you all very much.

Yours most sincerely,
John Newby.

John Newby CEO Sahara Conservation Fund

South Sudan Takes Major Step to Safeguard Its Spectacular Wildlife

New York (March 13, 2012) The Wildlife Conservation Society (WCS) joined officials from the Republic of South Sudan and U.S. Government on March 8th to inaugurate Boma National Park Headquarters in Jonglei State in South Sudan, home to some of the world's most spectacular wildlife migrations and vast intact ecosystems.

This critical infrastructure was built with funding from the U.S. Government through the U.S. Agency for International Development (USAID) under the auspices of its partnership with the Republic of South Sudan and WCS. The new headquarters draws attention to the important role that protected areas can play in contributing to security, stability, eco-tourism development, and economic growth, especially in the more isolated regions of South Sudan.

The headquarters provides a secure office space and meeting area as a platform for overall park management, including wildlife law enforcement operations, community conservation partnerships and tourism development. The provision and training in the use and maintenance of high-frequency radios, along with other communications and transportation equipment, is enabling park staff to remain in close contact with local authorities and officials throughout the region and coordinate inter-agency conservation and security partnerships.

The USAID-funded Boma-Jonglei-Equatoria Landscape Program, implemented by WCS in cooperation with the Government of South Sudan, Ministry of Wildlife Conservation and Tourism, Jonglei, Eastern Equatoria, and Central Equatoria State and local governments, is working to establish the foundations for biodiversity conservation and land-use management. Its goal is to build capacity of government, civil society, and communities for natural resource management while reducing conflict and improving security. Livelihoods and economic opportunities are being enhanced through protected area management and initiating ecotourism to conserve this ecosystem and its magnificent wildlife, including the white-eared kob migration, elephants, giraffe, eland, shoebill, and other species.

South Sudan boasts some of the most spectacular pristine landscapes in Africa and supports one of the world's largest terrestrial wildlife migration of some 1.3 million white-eared kob, tiang antelope, Mongalla gazelle, and reedbuck. In 2007, WCS and the government of South Sudan announced these mammal migrations had survived decades of war, and vast tracts of savannas and wetlands remained largely intact. Surveys and GPS collaring research by WCS and the Ministry of Wildlife Conservation and Tourism over the past years have revealed important transboundary linkages between the wildlife populations of Boma Park with neighboring Gambella region of Ethiopia. Discussions for development of a transboundary protected area between South Sudan and Ethiopia are underway.

Dr. Paul Elkan, Wildlife Conservation Society's South Sudan Director, said: "The opening of Boma National Park headquarters is another major step toward establishing a functioning network of national parks and reserves across South Sudan, which will provide protection for the country's exceptional wildlife and great migrations, and provide a platform for creating partnerships to improve security—for the benefit of both wildlife and local communities."

Gen. Kuol Manyang Juuk, Governor of Jonglei State, said: "Wildlife is an abundant resource in South Sudan that we have to preserve and use as a source of income. Oil will one day finish, but tourism will continue forever if we maintain our wildlife." He added that establishing and strengthening wildlife management and government presence here will help to bring general security to the area.

Hon. Gabriel Changson Chang, Minister for Wildlife Conservation and Tourism, noted that: "Boma National Park, with its wildlife and scenic attractions, is a key site for initial tourism development in South Sudan. The opening today of the park headquarters infrastructure marks a major step in protecting the wildlife resource and providing the foundation for attracting investors to develop tourism facilities at Boma National Park and throughout the country."

U.S. Ambassador to South Sudan Susan D. Page said: "The development of this kind of infrastructure is part of the U.S. effort to support stability, economic prosperity, and sustainable development in South Sudan. The infrastructure will strengthen the government's ability to provide security for the citizens of Jonglei and Eastern Equatoria States and will help protect one of the largest intact savannah ecosystems in East Africa."

Antelopes in Southern Somalia, 1974-1975

(Summarised by ASG from reports by N.A.O. Abel and M.E. Kille)

Introduction (ASG)

A series of wildlife surveys were carried out in southern Somalia during the mid-1970s as part of FAO's *'Strengthening of Forestry and Wildlife Management Project. Somalia'*. Three project reports were produced (Abel 1976, Abel & Kille 1976a, 1976b) covering aerial surveys of wildlife and livestock, conservation recommendations for the area and a draft management plan for the proposed national park in Badade District. Very few other surveys have taken place in southern Somalia during the last 35 years due to instability and armed conflict and these reports are a valuable source of information on the wildlife present at that time.

The most interesting antelope results concern records of the hirola (now Critically Endangered) and an early report of Ader's duiker in the Boni Forest of Kenya and its possible occurrence in southern Somalia. Also noteworthy is the presence of black rhinos, elephants, hippos, and large carnivores.

These three reports amount to 274 pages in total and have not been widely circulated. They were recently scanned by Dr Nick Abel and made available to IUCN. The information on antelopes is briefly summarised here, with permission of the authors. The text below is taken directly from the reports. In places a note by ASG has been added to the text and placed in square brackets. The species maps (Figs. 3-8) have in some cases been simplified from the originals and colour symbols used. Each report is available in pdf format from ASG.

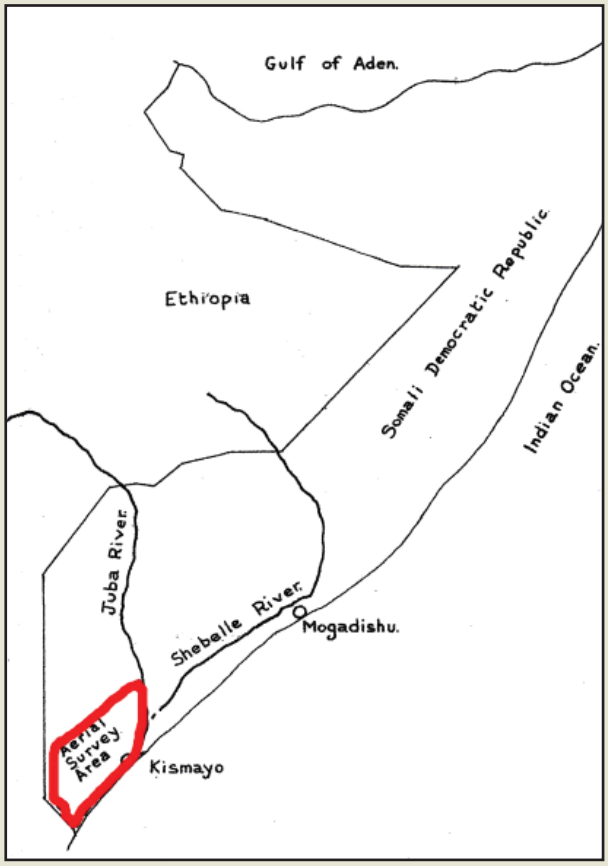


Figure 1. Somalia and location of study

Study area and methods

The study area was the southern part of the Trans-Juba region (the area lying between the Juba River and the Kenyan border) including Bushbush Game Reserve (Figures 1-2). Aerial surveys were conducted in November 1974 (rainy season), March 1975 (dry season) and June 1975 (main rainy season). A Cessna 206 light aircraft flew along parallel transects and animals were recorded within a 200m wide strip and their distribution mapped on a grid. The density figures obtained are useful for making comparisons between areas but are not true densities due to uncorrected biases and so cannot be used to calculate population estimates. Livestock and cultivated land were also recorded and mapped. A farmer questionnaire survey was carried out to investigate human-wildlife conflict. The area of the proposed national park was surveyed more intensively and a management plan for the area developed.

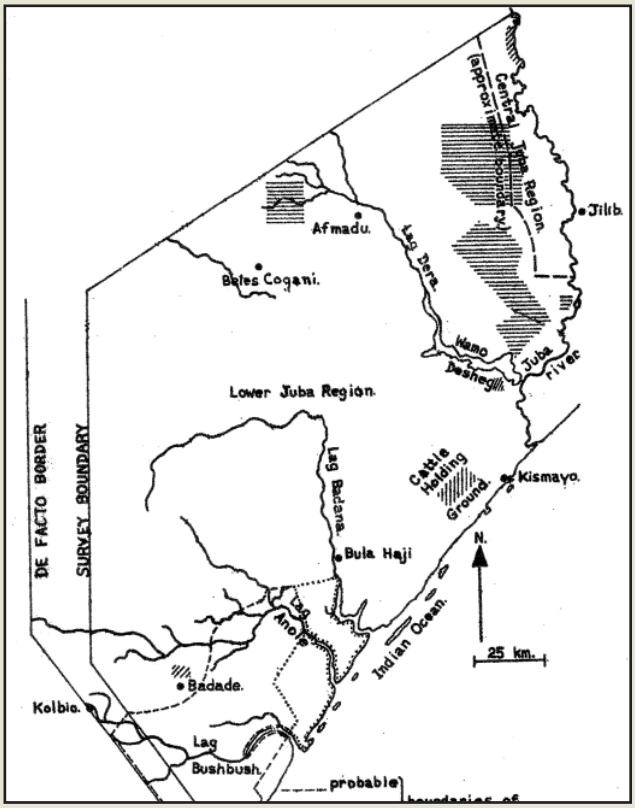


Figure 2. The study area in the souther Trans-Juba region

Species

Hirola *Beatragus hunteri*: The population is centred in Kenya. Some hirola migrate east into the south of the study area during the rainy seasons but others remain in Somalia throughout the year (Fig 3). Recorded densities were mainly in the range 0.1-0.6/km2 but 1.2-1.6 was recorded at one place in March 1975 [but see cautionary note above on interpretation of density figures].

Topi *Damaliscus lunatus*: Like hirola, the population is centred in Kenya and some seasonal movements into the study area are made during the rainy seasons though some remain throughout the year (Fig 4).

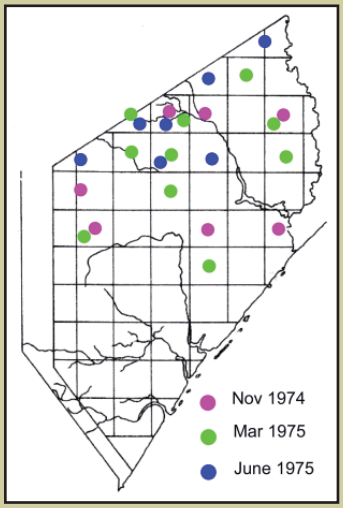


Figure 3. Distribution of hirola

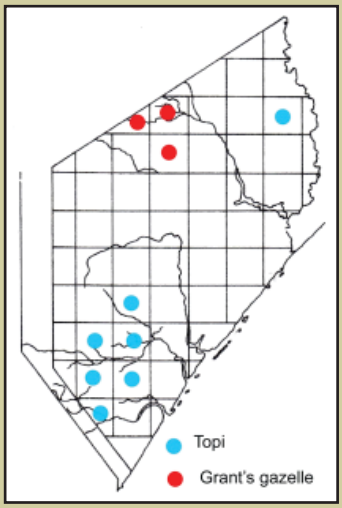


Figure 4. Distribution of topi and Grant's gazelle

Grant's gazelle *Nanger granti*: Only seen around Afmadu in the north of the study area where it was common (Fig. 4).

Beisa oryx *Oryx beisa*: Fairly common around Afmadu in the north of the survey area where the vegetation is more open (Fig. 5).

Lesser kudu *Tragelaphus imberbis*: Numerous and uniformly distributed. Fig. 6 shows the distribution only in the dry season, March 1975, due to the difficulty in detecting them from the air during the rains.

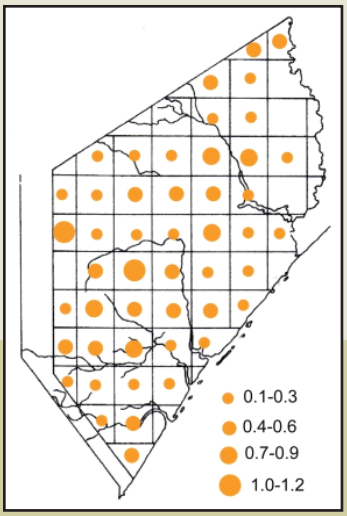
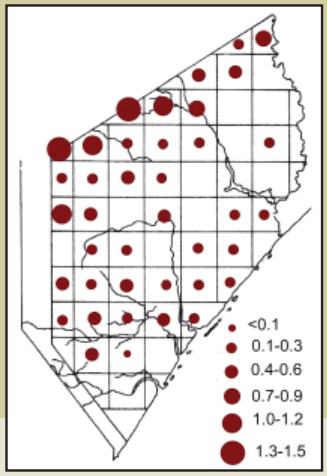


Fig. 5. Distribution of beisa oryx

Bushbuck *Tragelaphus scriptus*: Not recorded on aerial surveys but reported by farmers as a crop pest.

Waterbuck *Kobus ellipsiprymnus*: Recorded along permanent watercourses and seasonal streams.

Gerenuk *Litocranius walleri*: High densities were recorded in the north of the study area, with fewer in the east and south. Fig. 7 *(right)* shows distribution only in the dry season, March 1975, due to the difficulty in detection from the air during the rains.



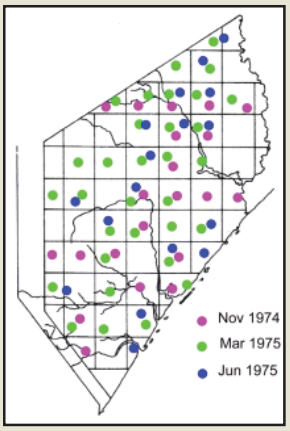
Bush duiker *Sylvicapra grimmia*: Recorded in Bushbush GR.

Ader's duiker *Cephalophus adersi*: Presence was confirmed in Boni Forest Reserve on the Kenyan side of the border by Gwynne and Smith (1974) and it is probably still present in wooded areas of Bushbush NP.
[This early record of the species in Boni Forest seems to have been overlooked since then and was not mentioned by e.g. East (1999) or subsequent authors. A recent camera-trap survey (Andanje et al. 2011) confirmed its presence in the Boni and Dodori Forests and estimated that the population may be significant, so it could also be present in Bushbush].

Harvey's red duiker *Cephalophus harveyi*: Noted in the Bushbush NP area by Funaioli and Simonetta (1966) and probably still present. Confirmed in Boni Forest Reserve on the Kenyan side of the border (Gwynne and Smith 1974).

Dik-dik *Madoqua sp*.: Abundant in the area of the proposed Bushbush NP. Not reported on aerial surveys. [*M. kirkii and M. guentheri* both occur in this region; East 1999].

Oribi *Ourebia ourebi*: Common in wooded and bushed grassland in the proposed national park.



Giraffe *Giraffa camelopardis*: Widespread, but more concentrated in the rainy seasons (Fig. 8 *right*)

Buffalo *Syncerus caffer*: Recorded within the proposed Bushbush NP in the south and also reported to occur along the Juba River.

Bushbush Game Reserve

Bushbush Game Reserve occupies the south of the study area adjacent to the Kenyan border. The proposed Lag Badana National Park lies within it. It is in the tsetse fly zone which restricts the number of livestock. Boni Forest Reserve lies on the Kenyan side of the border. Bushbush does not comprise an "ecological unit" because seasonal changes in food and water availability result in many species moving in and out of the reserve. Much of the area is covered in scrub but the western side contains a wider range of habitats. 37 mammal species were recorded, including 10 antelopes, with another 3 species probable. Lions were widespread and fairly common; wild dogs, leopards and cheetahs uncommon to rare. There is a viable black rhino population and large numbers of elephants occur in the dry season. Zebra come into the area during the rains.

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This feature is the first of a three-part series on the natural and unnatural history of the mountain nyala, an endangered antelope endemic to the southern highlands of Ethiopia. Part 1: Discovery will revisit the discovery of the mountain nyala's in 1908 and historical accounts by early explorers and big game hunters through 1960. Part 2: Biology will examine the biological characteristics of the species, its habitat and population. Part 3: Management and Conservation will evaluate different strategies aimed at protecting mountain nyala and review their effectiveness.

The Natural and Unnatural History of the Mountain Nyala Part 1: Discovery

By Paul Evangelista

The mountain nyala (*Tragelaphus buxtoni*) is a rare species of antelope that is endemic to the southern highlands of Ethiopia. It is a member of the Bovidae family, Tragelaphinae subfamily, Tragelaphini tribe, and one of nine species commonly known as Africa's spiral-horned antelopes. Discovered by western science in 1908, there is surprisingly little known about the biology, range or population of the mountain nyala. Currently listed as endangered by the IUCN Red List, the future of the species is uncertain and will ultimately be determined by Ethiopia's political, social, economic and environmental priorities. As Ethiopia's human population approaches 90 million, and the demand for land and natural resources

accelerates, the mountain nyala's habitat is rapidly being degraded and has been reduced to only a few isolated pockets. There is no evidence that the mountain nyala had a large range to begin with, and its specialized physical and metabolic features would suggest that it evolved within the mesic forests, giant heathlands and Afro-alpine systems that characterize Ethiopia's southern highlands.

These habitats are found between 1,600 and 3,500 m a.s.l. and receive considerably more rain than the northern highlands and other parts of the country. The terrain is steep and rugged, and when left undisturbed, the vegetation can be impenetrable. But the demand for resources is successfully converting the landscape to agriculture, grazing lands, and bare soil that erodes with each rainy season. The demise of the mountain nyala and its habitat was predicted soon after its discovery, yet the species has proved to be quite resilient and the population in the last decade appears to have stabilized, if only temporarily.

The mountain nyala is found in three mountain ranges that collectively define the southern highlands; these are the Chercher

Mountains, Arussi Mountains (also known as the Galama Mountains) and the Bale Mountains. It was in the Arussi Mountains where Major Ivor Buxton and his associate M.C. Albright shot several mountain nyala in 1908 and presented the first specimens to the British Museum. It was first described as a "spotted kudu" in 1910 by Richard Lydekker of the South Kensington Museum who first believed the species was a close relative, if not a sub-species, of the greater kudu. The skins and horns were sent to Rowland Ward in London, who informed Lydekker that the specimen was a new species of spiral-horned antelope not yet documented by western science. This prompted debate on whether the new species was more similar to the nyala found in southern Africa or the greater kudu which had a much broader range including parts of Ethiopia. At the time, the current *Tragelaphus* genus was divided into two different genera; *Tragelaphus*, which included the bushbuck and nyala, and *Strepsiceros* which was represented by the greater and lesser kudus. Lydekker believed that the two genera should be combined, and the discovery of the mountain nyala convinced his colleagues to merge Strepsiceros species with those of *Tragelaphus*. Subsequently, Lydekker gave the new species both its common and scientific names which were first published in Rowland Ward's Records of Great Game, sixth edition. However, the debate over the mountain's nyala's name and closest relative has yet to be resolved. Two decades later, in 1932, the Berlin Zoo secured the only known pair of live, captive mountain nyala, and there was a lobby by several German zoologists to rename the mountain nyala the "medium kudu" because they believed it resembled the lesser and greater kudu more than it resembled the common nyala. The name change obviously never occurred, but in 1980 a second group of zoologists from the Berlin Zoo believed the mountain nyala's combination of stripe patterns and spots resembled a western race of sitatunga and again suggested that a name change be considered. Historically, Ethiopians have called the mountain nyala "Gademsa", the same Oromo given name for the greater and lesser kudu.

Throughout the 19th and mid-20th centuries, big game hunters played an integral role in exploration and scientific discovery. It would be over 50 years after Major Buxton's discovery before any formal scientific study of the mountain nyala would be launched in the species' native environment. This was largely due a series of wars starting with a civil war in Ethiopia that marked the end of Emperor Menelik's reign (1911), a bloody revolution that would mark the beginning of Emperor Haile Selessie's rule (1916), the Great War (1914-1918), the Italian invasion of Ethiopia (1935), and World War II (1939-1945). During these dark years, there were a less than a dozen recorded hunting expeditions for mountain nyala, which were often driven by the opportunity for adventure and science, as much as the trophy. The first was by Wilfred Thesiger Sr. in 1913 during his residence in Ethiopia.

There are few details found on his hunt, but a photograph of the animal with his son Wilfred Thesiger II at the age of four *(upper left)* provides record. That same year, R. Hayne shot a bull in the hills near Lake Zewai which is documented by Rowland Ward. In 1926, James Baum, Wilfred Osgood and Lois Fuertes led the first American expedition for Chicago's Field Museum of Natural History

collecting several specimens for scientific study. In 1927, H.A. White took a large bull from the Arussi Mountains with horns that measured 46 inches from the base to the tip. For many years, it ranked as the top trophy listed in the Rowland Ward. Donald Carter and associates collected 21 mountain nyala specimens in 1929 for the American Museum of Natural History from Mt. Ansha and Mt. Kaka in the Arussi Mountains. Prince Henry, Duke of Gloucester, hunted mountain nyala following the coronation of Haile Selessie in 1930. In 1933, Wilfred Thesiger II and Haig Thomas both shot bulls on Mt. Chilalo in the Arussi Mountains. Details of his hunt are found in a few of Thesiger's writings, but the horns never entered in Rowland Ward. The following year, Major H.C. Maydon shot a bull in the same area as Thesiger below the summit of Mt. Chilalo. His trophy can also be found Rowland Ward.

Hunters of this time period usually kept meticulous logs of their expeditions recording detailed accounts of the people, culture, plants, landscape and weather they encountered. These records are invaluable for determining baseline information on the mountain nyala and their habitats. For example, nearly all the early accounts describe the difficulty of traversing through the dense giant heathland found above forests of kosso and juniper. Today, the heathlands are defined by small shrubs stunted by repetitive burning to facilitate livestock grazing, while the forest has been reduced to a few pockets of trees that are densely inhabited by people. Other accounts mention the traditional mountain nyala hunts by local the Galla people by horse and spear. Although illegal today in Ethiopia, rumor suggests that they may still occur in secrecy. With some searching, many of these accounts can be recalled from museum records, autobiographies, scientific papers and hunting journals.

Such is the case with 1929 hunting expedition of the American Museum of Natural History. The hunting party *(above)* was directed by Donald Carter (curator for mammals) Morris LeGendre,

Gertrude Sanford and Sidney LeGendre, who's expedition was published in two issues of Natural History in 1930 (Vol. XXX, Numbers 1 and 2). Not only will the careful reader find detailed information on the local flora, fauna and customs of the people, but can also examine dozens of photographs that show how the people and landscape looked more than eighty years ago. Other accounts that are as entertaining as informative include James Baum's *Savage Abyssinia,* Wilfred Tesiger's *The Life of My Choice* and *Prince Henry's Game Shooting of Africa*.

Through 1960, mountain nyala were known by Westerners to inhabit only the Arussi Mountains and East of Lake Ziway (presumed to be the present-day Munessa-Shashamane Forest). By this time, several more hunting expeditions for mountain nyala had taken place, and reports of poachers, habitat destruction and declining wildlife numbers began to surface. In 1961, Donald Carter recommended that the species be listed as endangered by the International Union for the Conservation of Nature and Natural Resources (now the IUCN). This sparked the curiosity of Leslie Brown, who is probably better known for his study of African birds than the mountain nyala. Although Brown was once a trophy hunter in his earlier years, he traded his rifle for a pencil and notebook becoming one of the most renowned African naturalists of his time. He made two trips to the southern highlands of Ethiopia in 1963 and again in 1965/1966 studying the mountain nyala and documenting new populations in the Chercher and Bale Mountains. His reports included behavioral observations, demographics and population estimates, which resulted in the removal of the mountain nyala from the IUCN's list of endangered species from 1969 to 1975. To this day, his observations remain some of the best information ever collected on the mountain nyala. More on Leslie Brown's expeditions and discoveries will be presented in the next issue.

*Prince Henry, Duke of Gloucester (*first row, center) *and his delegation in Addis Ababa for the coronation of Emperor Haile Selassie in 1930. Wilfred Thesiger is also pictured on the fourth row, third from the left.*

Paul Evangelista, PhD is a research ecologist at the Natural Resource Ecology Laboratory at Colorado State University. He has been exploring Ethiopia since 1999 focusing much of this time studying the mountain nyala, its habitat, and ways to support management and conservation efforts.

Survey Captures First-Ever Photos of Endangered Jentink's Duiker in Sierra Leone's Western Area

FOR IMMEDIATE RELEASE
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SIERRA LEONE (20 March 2012) – More than a dozen recent camera-trap photographs have confirmed that a small population of Jentink's Duiker, a deer-like animal that is threatened with global extinction, is living within Sierra Leone's Western Area Peninsula Forest Reserve.

The photographs, which were obtained between October 2011 and March 2012 as part of a camera-trap survey run by Tacugama Chimpanzee Sanctuary, are the first irrefutable evidence of the animal's live presence in the Western Area. Previous researchers had found only bones of the animals or heard reports of sightings from hunters.

"It is really exciting to see these great images of such rare and special animals," said Dr. John Oates, an emeritus professor at the City University of New York.

"They show how significant the Western Area forests still are for biodiversity in Sierra Leone, despite being so close to the large city of Freetown. We should not neglect the conservation value of any remaining areas of rain forest in that part of West Africa, even when they are relatively small and isolated."
"Jentink's duiker is among the world's least known, unusual-looking, and rare antelopes, so this solid evidence from camera trapping of their continued presence in the Western Area Peninsula Forest Reserve is very good news indeed," said Dr. Tim Wacher, a wildlife biologist with the Zoological Society of London. "It provides another strong reason to protect this fascinating and important habitat."

The Jentink's Duiker (*Cephalophus jentinki*) is a forest-dwelling mammal that stands 80 centimetres tall at the shoulder and weighs roughly 70 kilograms. Scientists have estimated that there are between 2,000 and 3,500 Jentink's Duikers left in the wild, with scattered groups living in the forests of Liberia and Cote d'Ivoire, in addition to Sierra Leone. The global population is on the decline, due largely to habitat destruction and poaching.

Tacugama's year-long camera-trap survey, run by Rosa Garriga, has also confirmed the presence of two other threatened species inside the Western Area Peninsula Forest Reserve (WAPFR): the Western chimpanzee, which is listed as endangered on the IUCN Red List, and the white-necked picathartes, an endemic bird that is classified as vulnerable. Many other mammals have also been captured by the cameras including black and bay duiker, bushbuck, genet, civet, mongoose and several monkey species.

The WAPFR is a 17,000-hectare forest reserve that borders Freetown, Sierra Leone's sprawling capital city. The forest is a biodiversity hotspot and a vital watershed, but it is critically threatened by its proximity to Freetown and faces many threats from land clearing, bushmeat hunting and urban expansion.

To increase protection of this important habitat, the government just announced that it is planning to designate the area as Sierra Leone's third national park. Efforts are also underway to have the forest listed as a UNESCO World Heritage Site
Background

Sierra Leone, a small West African nation that falls in the bottom ten percent of the UN's Human Development Index, suffered through a brutal 11-year civil war that ended in 2002. The conflict killed 200,000 people and devastated the country's wildlife, as bushmeat hunting soared with the proliferation of small arms. But Sierra Leone has been at peace for more than a decade and its Environmental Protection Agency was created in 2008. The country is preparing for a presidential election later this year.

The camera-trap survey has been made possible by generous support from Sea World Busch Gardens Conservation Fund, Lush Cosmetics, Barcelona Zoo, and GIS expert Berndt Eckhardt. For more information about Tacugama Chimpanzee Sanctuary, visit: www.tacugama.com.

Details on the Jentink's Duiker can be found on the IUCN Red List: http://www.iucnredlist.org/apps/redlist/details/4140/0
Several license-free photographs of the Jentink's Duiker in the Western Area are available on request. To access these, please email info@tacugama.com.

Notes on the antelopes of Iraq

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Introduction

Detailed information on the antelope species found in Iraq is provided by Hatt (1959), Harrison (1968) and Harrison and Bates (1991), but the last field expeditions were made in the 1960s and little is known about the current status and geographical distribution of antelopes in the country.

These notes were collected during Nature Iraq field surveys, combined with additional notes obtained from personal field trips from 2006 to 2011. The records are derived from direct visual observations of live animals in the wild or in captivity, dead specimens due to hunting or trapping, and examination of skins and mounted specimens. Hunters and local people's reports, pictures and interviews were also considered, and the Iraqi Natural History Museum, zoos, enclosures, reserves, and local animal markets were visited. Measurements were taken and records documented by professional photography and video recording in order to gain more detailed information about the actual status of antelopes in Iraq. See Fig. 1 for a map of Iraq showing provinces and some specific localities visited.

Species accounts

Arabian Oryx *Oryx leucoryx.* Specimens are known from Iraq but it is unclear whether the species occurred on the eastern side of the Euphrates (Harrison 1968). The last specimen was shot in Maqil in southern Iraq in 1914 (Hatt 1959). An attempt to reintroduce this species in the extreme south of Iraq was reportedly made by the Iraqi Ministry of Environment but no further details are available.

Afri or Saudi Gazelle *Gazella (dorcas) saudiya*. This species has been recorded in Kuwait and may also have occurred in western Iraq: a young male shot at Abu al Jir, south of the Ramadi – Rutba road was provisionally identified as this species, but adult material is required to confirm its presence in Iraq (Harrison 1968). No observations of this species were made during Nature Iraq surveys. It is listed as Extinct on the IUCN Red List (IUCN SSC Antelope Specialist Group 2008).

Idmi or Mountain Gazelle *Gazella gazella.* There seem to be no records of this species for Iraq (Hatt 1959).

Reem or Dhabi - Arabian Sand Gazelle *Gazella [subgutturosa] marica* and P**ersian Goitered Gazelle** *Gazella subgutturosa subgutturosa.* The traditional view is that *G. subgutturosa* occurs from the Arabian Peninsula through southern Turkey and Central Asia to China and Mongolia (Mallon and Kingswood 2001). Two forms have been reported in Iraq: *G.s. marica* in the west and south and *G. s. subgutturosa* in the north and east, with an intergrade (Harrison 1968) or hybrid (Groves and Harrison 1967) zone in between. These two forms have been distinguished on morphological grounds but intermediate forms occur and differentiating these two forms in the field can be problematic. A recent genetic study (Wacher et al. 2010) showed that the two were genetically distinct and recommended treating them as separate species.

Here it is provisionally assumed that *G. s. marica* is found in the west and southwest of Iraq, preferring arid and desert habitats, while *G. s. subgutturosa* is mainly found in the Kurdistan region of northern Iraq and along the eastern border with Iran. Further research will be needed to confirm the identity of all Iraqi gazelle populations.

During surveys in 2009, approximately 970 gazelles were discovered in two separate enclosures in Anbar province, western Iraq. The two enclosures, Faidhat Al-Massad and Faidhat Al-Dhaba'a, are situated in Badyatt Al Rutba in the far west of Iraq, near the national borders with Jordan and Saudi Arabia. Al-Massad enclosure is located c.13-16 km south of Rutba township and is surrounded by hills. It was established in 1974 and began with a captive breeding group of 11 gazelles, consisting of seven individuals trapped in the Al-Nikhaeb and Ara'ar area in southwest Iraq, three that were brought from Northern Iraq, and one individual from Falluja. The size of the enclosure is c.125 km long x 5 km wide with a BRC fence c.3m high. The Al Massad enclosure held 850 gazelles consisting mainly of adult males (Figs. 2-3). The Faidhat Al-Dhaba'a enclosure is c.35 km east of Rutba and formerly held 120 individuals brought from Al-Massad. Poor knowledge of wildlife management and lack of veterinary care caused a remarkable decline of the Al-Massad population between 2005 and 2006. These enclosures are within the range of Arabian Sand Gazelle G. [s.] marica and the gazelles are considered to be that form. However, since one of the founders originated in northern Iraq there may have been an element of genetic mixing with G. s. subgutturosa.

During a personal visit to Anbar province in 2011, a small population of *Gazella [s]. marica* was discovered at Al-Dheabeat c.20km southwest of Ramadi, the provincial capital. This herd consisted of approximately 150-200 individuals that are kept inside a private enclosure belonging to one of the main clan sheikhs of Anbar.

Besides the big herds found in Al- Massad and Al-Dhaba'a enclosures, a very small herd still exists in the wild near the Iraq-Saudi border and gazelles are also found in the Al- Jazera area between the Tigris and Euphrates rivers near Haditha, Rutba, and Al Qaeem in Anbar province. These are also presumably *G. [s.] marica*. Scattered small herds have also been observed in Al-Teeb, Myssan province, southern Iraq.

In the north and east, gazelles are still common in open grassland of Makhool mountain in Salah Adin province and Sinjar mountain of Nenawa province. Big herds were reported near Al-Sherqat, Makhool, and Baiji of Salahadin, and Makhmoor in Erbil province. Reports of gazelle hunting are frequently received from Rabe'ea open land in Nenawa province. There are also reports from the foothills of Himreen near Kafri, Kalar, Jalwla, Madli, Badra, and Khanaqeen from Diyala province in eastern Iraq. These are all assumed to be G. s. subgutturosa. Goitered gazelles were recently recorded by a Na-

ture Iraq team during an environmental impact assessment project in west Zagros Mountains when they observed eight individuals in Ser Qella at Garmyan area of Kurdistan region (L.A. Al-Obeaidy & H. Ahmad, pers. comm. 2011).

In addition to the two enclosures in Anbar province, two further areas were designated as natural gazelle reserves or enclosures, Kirkuk in north and Myssan in the south. In Kirkuk, an area called Al-Dibis was designated as a protected area for gazelles; unfortunately a recent survey indicated a large decline in its natural vegetation due to drought and great disturbance and changing land use. No gazelles were found in Al-Dibis. In Myssan province in the south-east of Iraq, Ali-Al Garbi protected area on the western side of the River Tigris was nominated as another gazelle sanctuary. This area was nominated by the Iraqi Ministry of Agriculture who proposed to release and rehabilitate gazelles brought from the Anbar gazelle population, but because of the absence of suitable transport and the great intrusion of local hunters around Ali-Al Garbi, with weak enforcement of hunting regulations, the project was not implemented.

Nature Iraq surveys and assessments considered that active hunting by advanced automatic rifles and 4x4 vehicles with habitat destruction and disturbance were the main threats impacting on the antelope populations in Iraq. Gazelles are involved in the trade and traffic of wild animals in Iraq (Fig. 4). Each spring during the breeding season, gazelle hunters and trappers, especially in the Rutba area of western Iraq, carry out "Maousem Al-Khshoof" which means "the Season of harvesting young gazelles". The hunters track or follow pregnant females or search the habitats most preferred by gazelles when they start to give birth, such as grasslands near an oasis, watersheds, or thickets near seasonal rain pools. At this time female gazelles will be at their most vulnerable and they become very weak and agitated. The hunters also use the males to track females and wait till they are ready to give birth in order to trap them and collect the new-born gazelles. Many males and females are killed after that, while the young gazelles are sold for high prices to be raised as pets (Figs. 5-6). This reflects the most unethical treatment of animals in Iraq which is increasing due to the absence of scientific knowledge and awareness and weak implementation of the hunting laws which prevent all hunting during the breeding season.

Huge efforts, advice and guidelines have been proposed to the Iraqi authorities in order to conserve and protect the last few populations of antelopes in Iraq especially at a time when Iraq is currently in the process of becoming a signatory state to the Convention on International Trade in Endangered Species of Fauna and Flora (CITES).

Monitoring wildlife trade also led recently to an observation of a small herd of Fallow Deer *Dama dama mesopotamica* at local animal markets in Baghdad on 26/9/2010. After further investigations with local hunters and shop owners, the source of those animals remain unknown, but they are assumed to be imported from neighboring countries. The recent surveys did not detect any in northern mountains, but it is possible a few still exist in the remote areas in Kurdistan region.

Acknowledgements
I would like to thank my colleagues in Nature Iraq for their continuing support and advice, Dr. David Mallon for his comments and support and Hanna A. Rezha for her notes on gazelle observations in Kurdistan.

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Fig. 1. Map of Iraq.

Factors influencing the spatial distribution patterns of the Four-horned Antelope in lowland Nepal

by Krishna Pokharel* and Ilse Storch, Faculty of Forest and Environmental Sciences, University of Freiburg, Germany
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Summary
The tribe Boselaphini which is believed to have emerged in India around 6.54-9.64 million years ago (Bibi 2007) includes only two genera, *Tetracerus* and *Boselaphus* and both are monospecific, and endemic to Indian sub-continent. The four-horned antelope (*Tetracerus quadricornis* Blainville, 1816) also known as "Chausingha or Chauka" is found only in India and Nepal while *B. tragocamelus* is also found in Pakistan besides India and Nepal (Burton 1898). Four-horned antelope is assessed as 'Vulnerable' on the IUCN Red List, with a decreasing population trend (Mallon 2008). It is the only antelope species to possess two pairs of horns.

The four-horned antelope (hereafter FHA) is one of the least known mammal species in Nepal and its management is largely hampered by a lack of basic information. Therefore, this study investigated FHA distributional patterns and highlighted specific habitat variables associated with its presence. This research was done as an MSc thesis within the Forest Ecology and Management Programme at the University of Freiburg, Germany.

The study was carried out in Babai valley, Bardia National Park (28023'0"N, 81030'0"E). Systematic line transects, 200m apart, were used to record FHA presence and assess the use/available habitat variables which were believed to influence the occurrence of FHA. A total transect length of 187km was covered; this involved spending a total of 356 hours in the field for data collection from March to May 2010. FHA middens were the only field sign taken into account during sign surveys (Fig. 1). All habitat variables were measured within a 20m radius. The data gathered were then used to develop the distribution pattern and assess the habitat factors influencing the four-horned antelope occurrence at the study site. As this was the first study regarding this species in Nepal, automatic cameras were also used to ensure its presence in the study area.

Logistic regression analysis was used to estimate the resource selection probability function. During the field study, 219 out of 1146 sample plots were found to be used by FHA and only 23 individuals were sighted. The mean percentage distribution of sample plots that had been used by FHA was found to be 17.638 ± 19.202 indicating a clumped distribution (S2/ = 20.904).

Figure 1. The different structure of FHA pellets that were recorded during the field study.

Out of 11 explanatory variables, 4 were found to be significantly associated with the occurrence of FHA. According to the best-fit model, hill sal forest and mixed deciduous hill forest were selected more often than the other available vegetation associations. For example, hill sal forest and mixed deciduous hill forest were selected is 5.73 and 3.5 times more than floodplain grassland and streambed, respectively. FHA also selects areas that have shorter trees but taller grass; thus an increase in grass height by 1 cm would increase the probability of FHA selecting that resource by 0.3%, while the probability would decrease by 5% with an increase in tree height by 1m. Moreover, the probability of finding FHA in an area which is not being used by chital (*Axis axis)* is more than twice as high as in areas utilized by chital (Table 1).

	B	S.E.	Wald	Sig.	Odd ratio/ Exp(B)
Terai sal forest	.286	.387	.547	.459	1.331
Moist mixed riverine forest	-.862	.666	1.676	.195	.422
Hill sal forest	1.746	.356	24.059	.000	5.734
Mixed deciduous hill forest	1.276	.319	15.970	.000	3.583
Tree height	-.051	.014	13.698	.000	.950
Grass height	.003	.001	6.949	.008	1.004
Chital	.817	.222	13.510	.000	2.264

Table 1. Estimated coefficients for the Resource Selection Function (RSF) habitat model for Four-horned Antelope. All other variables, such as slope, shrub height, human sign and fire, which were not significant, were excluded from the model by backward stepwise regression methods.

Figure 2. A male FHA camera trapped near Chitale Fatah (325m) (left), and in Shivapura (434m) at night (right). Both came to visit their midden.

Figure 3. Left - A pair of FHA (male and female) with their young returning to the forest after visiting the water source; and right - an adult female licking earth at Ratamate Khola.

In Babai valley, natural resources such as food, water resources and cover are not distributed uniformly. Besides this, there is a relatively high level of inter-specific competition from chital, sambar (*Cervus unicolor*), wild elephant (*Elephas maximus*) and muntjac (*Muntiacus muntjak*) in the lower region. The lower, flat area is also the habitat of tiger (P*anthera tigris*). These might be the main reasons for the uneven and clumped distribution of FHA in the hilly area of Babai valley where there are relatively shorter tree species, low inter-specific competition from other ungulates and low predator pressure. In addition, there are numerous perennial water sources, though they are localized in gorges.

The preferred habitat of FHA in their home range is for hill sal forest and mixed deciduous hill forest. In addition to those two vegetation associations, the height of grass is also positively associated with the occurrence of four-horned antelope while presence of chital (Axis axis) and tree height are negatively associated. The antelope is most abundant in hilly terrain with deciduous forest which is subject to occasional fires. Besides this, poaching appears to be a critical threat. Thus, future conservation plans should focus on controlling the human-induced fires and improving the economic condition of local people to reduce illegal activities.

Figure 4. a. Anterior horns and molar and premolar teeth of FHA (collected and submitted to NTNC, BCP, Thakurdwara) found on the crest of Southern Churia hills in Shivapura. b. view of Babai valley in Shivapura

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Antelopes on Stamps

by David Mallon

Antelopes have featured several times on postage stamps in several African countries, but a 1942 set from Liberia is particularly notable for the inclusion of uncommon and neglected species (below), such as royal antelope (*Neotragus pygmaeus*), zebra duiker (*Cephalophus zebra*) and Jentink's duiker (*C. jentinki*) as well as bushbuck (*Tragelaphus scriptus*) and water chevrotain (*Hydroptes inermis*). Some of the names are also rather interesting: the descriptive and original 'white-shouldered antelope' for Jentink's duiker and the rarely-used 'harnessed antelope' for bushbuck, similar to the French antilope harnaché. The species is known as 'red deer' in Liberia - and royal antelope is sometimes referred to as 'rabbit'.

Publications

Identifying priority areas for the conservation of antelopes in the Republic of Guinea, West Africa, using the complementarity approach by David Brugière

ABSTRACT: The Republic of Guinea has one of the highest diversities of mammal species in West Africa. However, its protected area network is poorly developed and little quantitative information has been available to help guide national conservation strategies. I therefore examined the distribution of antelopes and related species (families Bovidae and Tragulidae) across 17 sites, including four protected areas, to determine how the existing protected area network contributes to the conservation of antelope species and where action should best be focused for the conservation of this group. A total of 21 species of antelope have been recorded in the 17 sites; four of these species are absent from the four protected areas. An iterative heuristic complementarity approach was used to determine an irreplaceability index, which accounts for both species richness and species rarity, for each of the sites. The Kankan Faunal Reserve and Nimba Strict Nature Reserve have the second and fourth highest irreplaceability indices, respectively. The two other protected areas have moderate to very low irreplaceability indices, showing that they protect species widespread throughout the 17 sites. The Ziama Forest has the highest index (because it contains a high number of species and of globally threatened species), highlighting the significance of this site. I discuss the importance of the other sites and the threats affecting antelopes in Guinea, and make recommendations to improve the study and conservation of antelope species in the country.

For more information about this article go to:
http://journals.cambridge.org/abstract_S0030605311000391

Biographical sketch
DAVID BRUGIÈRE is a tropical ecologist. After working on the ecology and conservation of rainforest biodiversity in Central Africa for 7 years he was appointed the principal technical adviser of two EU-funded protected area projects in Guinea, from 2000 to 2004. He is now working as biodiversity project officer at BRLi consulting company, France. He is a member of the IUCN/Species Survival Commission Primate and Antelope Specialist Groups.

Modeling habitat quality of the mountain nyala Tragelaphus buxtoni in the Bale Mountains, Ethiopia

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ABSTRACT: Populations of the endangered mountain nyala *Tragelaphus buxtoni* are significantly threatened by the loss of critical habitat. Population estimates are tentative, and information on the species' distribution and available habitat is required for formulating immediate management and conservation strategies. To support management decisions and conservation priorities, we integrated information from a number of small-scale observational studies, interviews and reports from multiple sources to define habitat parameters and create a habitat quality model for mountain nyala in the Bale Mountains. For our analysis, we used the FunConn model, an expertise-based model that considers spatial relationships (i.e., patch size, distance) between the species and vegetation type, topography and disturbance to create a habitat quality surface. The habitat quality model showed that approximately 18,610 km^2 (82.7% of our study area) is unsuitable or poor habitat for the mountain nyala, while 2,857 km^2 (12.7%) and 1,026 km^2 (4.6%) was ranked as good or optimal habitat, respectively. Our results not only reflected human induced habitat degradation, but also revealed an extensive area of intact habitat on the remote slopes of the Bale Mountain's southern and southeastern escarpments. This study provides an example of the roles that expert knowledge can still play in modern geospatial modeling of wildlife habitat. New geospatial tools, such as the FunConn model, are readily available to wildlife managers and allow them to perform spatial analyses with minimal software, data and training requirements. This approach may be especially useful for species that are obscure to science or when field surveys are not practical [*Current Zoology* 58 ( ): – , 2012].

For a PDF of this paper, go to:
http://www.actazool.org/site_media/onlinefirst/downloadable_file/2011/12/09/8_Modeling_habitat_quality.pdf

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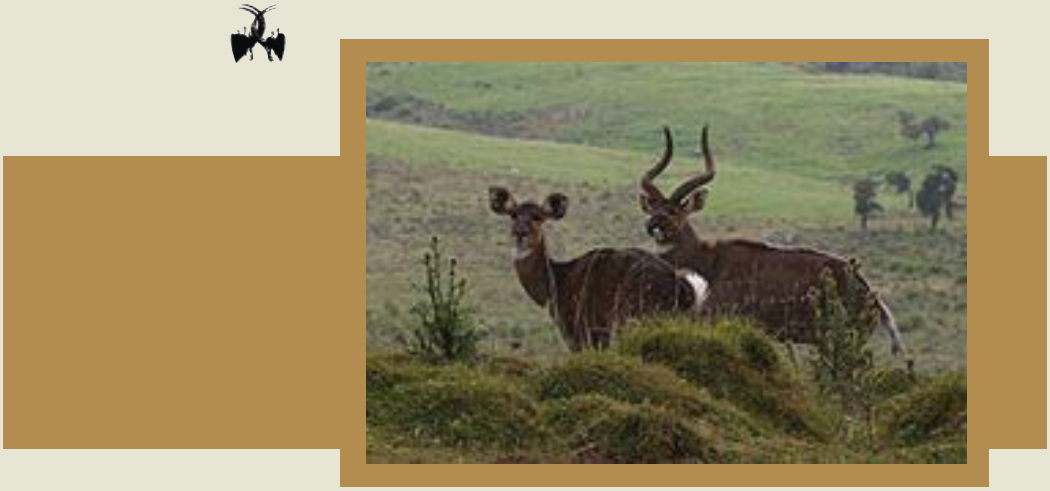

Comparative phylogeography of African savannah ungulates[1] - *Molecular Ecology (2012)*

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ABSTRACT: The savannah biome of sub-Saharan Africa harbours the highest diversity of ungulates(hoofed mammals) on Earth. In this review, we compile population genetic data from 19 co-distributed ungulate taxa of the savannah biome and find striking concordance in the phylogeographic structuring of species. Data from across taxa reveal distinct regional lineages, which reflect the survival and divergence of populations in isolated savannah refugia during the climatic oscillations of the Pleistocene. Data from taxa across trophic levels suggest distinct savannah refugia were present in West, East, Southern and South-West Africa. Furthermore, differing Pleistocene evolutionary biogeographic scenarios are proposed for East and Southern Africa, supported by palaeoclimatic data and the fossil
record. Environmental instability in East Africa facilitated several spatial and temporal refugia and is reflected in the high inter-and-intraspecific diversity of the region. In contrast, phylogeographic data suggest a stable, long-standing savannah refuge in the south.

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[1]This manuscript is dedicated to our friend and colleague Peter Arctander, who retired from his position as professor at the Department of Biology, University of Copenhagen, in 2011. Peter initiated DNA laboratories in Copenhagen and at Makerere University, Uganda, which is still very active today. He pioneered phylogeographic research on African ungulates, devoting so much effort to developing the infrastructure necessary to achieve many of the studies that form the basis of this review; his major contributions to the field will be appreciated for many years.

Serosurveillance for Foot-and-Mouth Disease in Mongolian Gazelles (Procapra gutterosa) and Livestock on the Eastern Steppe of Mongolia - *Journal of Wildlife Diseases*, 48(1), 2012, pp. 33–38

by Sanjaa Bolortsetseg,[1] Shiilegdamba Enkhtuvshin,[1] D. Nyamsuren,[2] Wendy Weisman,[3] Amanda Fine,[1] Angela Yang,[4] and Damien O. Joly[5,6]

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ABSTRACT: Foot-and-mouth disease (FMD) is a highly contagious, viral disease that affects most ruminant and porcine species, and periodic outbreaks on Mongolia's Eastern Steppe affect Mongolian gazelles (*Procapra gutturosa*) and livestock. During 2005–08, we collected sera from 36 and 57 calf and adult gazelles, respectively, and from adult domestic animals sympatric with the gazelles, including 138 sheep (*Ovis aries*), 140 goats (*Capra aegagrus hircus*), 139 Bactrian camels (*Camelus bactrianus*), and 138 cattle (*Bos taurus*). Our goal was to determine whether the prevalence of the antibody to foot-and-mouth disease virus (FMDV) in gazelles declined relative to previous estimates in the absence of FMD outbreaks. Overall, 2.0% (95% CI 0.7–3.3%, *n*=555) of the four livestock species were antibody-positive for nonstructural proteins of FMDV (FMDVNS), whereas 30.3% (95% CI 26.5–34.1%, *n*=555) had antibodies for structural proteins (i.e., vaccination-derived antibodies). Seven of 57 free-ranging gazelle calves (7.5%, 95% CI 1.6–12.4%) were FMDV-NS positive. None of 36 adult gazelles sampled in 2008 were antibody-positive for exposure to FMDV, indicating a significant decline ($\chi^2$518.99; P<0.001; df=1) in antibody prevalence among gazelles from the same area during a livestock outbreak in 2001. The episodic nature of FMD outbreaks on the Eastern Steppe, Mongolia, with evidence of FMDV exposure in gazelles only during or following concurrent outbreaks in livestock, suggests that FMDV may spill over into the gazelle population during livestock outbreaks and that successful control of FMD on the Eastern Steppe requires a focus on control in livestock populations through vaccination.

For the complete article: http://www.jwildlifedis.org/content/48/1/33.full.pdf

Antelopes in the News

Sable shenanigans: how Zambia's sable population is falling prey to unscrupulous traders

by Ian Michler

In Zambia's newest national park live more than 200 sable antelope. Coralled in conditions that are far from ideal, the animals have languished there for almost three years; the victims of bureaucracy, unscrupulous operators and a disregard for conservation. Ian Michler reports

In November 2009, *Africa Geographic* published a notice warning of the illegal importation of sable antelope *Hippotragus niger*, most likely of the subspecies *H. n. kirkii,* from Zambia and Malawi into South Africa. With a number of wildlife breeders reputed to be involved, there were murmurings of animals being smuggled, some bound by their feet, across international boundaries in light aircraft using unregistered airstrips and via road shipments through small or remote border posts. During the first half of 2010 there were subsequent reports in the wider press of a deal involving the sale of sables by the Zambian Wildlife Authority (ZAWA) to a South African consortium. These accounts also covered disputes between government and private-sector agencies over the importation of these animals and the subsequent transfer (without notice) of three officials from the South African Department of Agriculture, Forestry and Fisheries – apparently for refusing to sign permits authorising the sables' irregular importation.

Almost three years have passed since the ZAWA deal, yet the animals remain coralled at Lusaka National Park on the outskirts of the Zambian capital. Now numbering around 210, they are split into pens, some dismally small, that divide breeding herds from single adult bulls. The story of why they languish in such conditions is one of red tape and squabbles over the spoils that involves ministers from both countries and their respective officials, a host of businessmen, wildlife traders and breeders, their agents and middlemen, and a collection of veterinary scientists and game-capture specialists.

On 6 May 2009, a company called Swanvest 234, acting on behalf of a South African consortium based in the Northern Cape province, paid US$734 000 (a sum well below the market price) to ZAWA for 153 sables. In the months that followed, the animals were captured, supposedly from Kafue National Park, by ZAWA and a South African game-capture company. By September, all 153 had been relocated to holding pens in Lusaka Park for quarantine purposes. In the meantime, the Swanvest 234 group, operating under the name Ecological Management Services (EMS), sent a document to the South African Department of Agriculture, Forestry and Fisheries outlining how and why it wanted to import the 'Western Zambian sables' for breeding purposes at a facility called Wolwefontein just outside Kimberley.

However, because Zambia is regarded as a high-risk area for foot-and-mouth (FMD) and other infectious diseases, there are no protocols for importing sable into South Africa, and state veterinarians rejected the proposal. With the clock ticking on its investment, the Swanvest 234 group then appealed directly to the Minister of Agriculture, Forestry and Fisheries, Tina Joemat-Pettersson, who coincidentally also hails from the Northern Cape, to ask for her 'favourable consideration of this application'. According to police sources, Swanvest 234 also had in place a plan B, which was to use a Boeing 737 to fly the animals in under cover of darkness to an airstrip near Zeerust in the North West Province. The suspicion was that the animals would then be 'laundered' by distributing them across farms within the greater region. The flight never happened, possibly because of a tip-off that the airstrip had been staked out.

By December 2009 there was a brief hint of hope for the importers when the Minister, going against the findings of her own departments and using, in part, recommendations from the same vet employed by the Swanvest 234 group, made public her intention to allow the sables to be imported into South Africa. Joemat-Pettersson planned to have a protocol written and, to this end, the sable deal had been discussed during bilateral talks with the Zambians two months earlier. Again there was an immediate court application to have the importation blocked. Opposition came from various government and private-sector quarters, including Joematt-Pettersson's own deputy minister, a group of veterinarians and, most significantly, the Red Meat Industry Forum, which lists a number of local sable breeders among its members. This time there were also claims that advisors and family members close to the Minister had been cut into the deal to influence or even help fast-track her decision. These allegations were countered by the consortium and others who claimed that the opposition was being promoted and funded by existing South African sable breeders. Allegedly already carrying Zambian bloodlines, the breeders supposedly wanted the importation blocked to avoid competition in what had become a highly lucrative market.

The court ruled that the Minister and her department had to undertake a thorough veterinary analysis of the sables and provide a risk assessment on FMD. This analysis was duly done and concluded that the sables would not pose a significant biosecurity risk to South Africa. It's a result that lends some credence to the belief that disease legislation was used in a deliberate attempt to block the importation. During the same period, the Swanvest 234 group was facing another serious issue relating to its appointed purchasing agent, Ed Kadzombe. Kadzombe, a Zimbabwean citizen with close connections to the political and business elites of his home country, is no stranger to controversy when it comes to trading in wildlife.

No doubt realising the value of the sables to be far greater than the US$734 000 paid to ZAWA, he decided to claim full ownership for himself through a company called Nkwazi Resources Investments.

Court cases were brought in both South Africa and Zambia with the former finding in favour of the South Africans in June 2010. Now, sources say, the sables' legal owners, Swanvest 234, are seeking other ways of getting their money back. Reputedly, they initially demanded that ZAWA reverse the deal, then offered the animals for sale below their current market prices. In the meantime, animals are being bred in the Lusaka Park holding facility, raising concerns in a number of quarters that young antelopes will be smuggled out in small consignments.

The sables' eventual fate notwithstanding, the current mess highlights a number of issues. Why did ZAWA officials sell the animals for so much less than the market price? Insiders suggest that, at the time of the sale, the lot of 153 antelopes had a true market value closer to four times the US$734 000 paid. (In October 2008, a single sable bull was sold on the South African market for a staggering R3-million or US$370 000.) With those values likely to be even greater now, it's no wonder that the South African consortium was happy to 'donate' two white rhinos as part of the deal. Given that this was a straight commercial transaction with no conservation or ecological parameters, surely ZAWA should have ascertained an approximate value of the animals before selling them? One cannot help but ask if any of the officials were due to benefit in their individual capacities from the deal. More recently though, there has been a dramatic change in ZAWA's fortunes, which may in turn affect the fate of the sables. Within a week of winning the October 2011 general election, Zambia's president, Michael Sata, fired its entire board and dissolved the organisation.

While seen in some quarters as a heavy-handed solution to the increasingly problematic authority, for many in Zambia's conservation community the move could not have come sooner. There were even suggestions that Sata take a closer look at the circumstances surrounding this particular deal. Regardless of market values and the machinations of the respective authorities, it is the total disregard for the subspecies classifications of sables – and the consequent genetic contamination – that really worries conservationists. Biologists generally recognise four subspecies or races of sable, based on morphological and behavioural differences as well as the pattern of distribution. Although making genetic distinctions is more challenging, the preliminary work that has been done on these four groups to date seems to validate the subspecies classifications. Or, as Pedro vaz Pinto, a biologist and sable expert based in Angola, puts it, 'At least, we can identify four different genetic populations that mainly coincide with the recognised subspecies boundaries.'

While understanding the genetics of species and subspecies is vital for taxonomy, it also places an obligation on the conservation world to protect the integrity of these classifications. Vaz Pinto says: 'A strong effort should be made to ensure that viable natural populations of recognised subspecies are maintained. The different gene pools are the result of thousands of years of adaptation to different environments and reflect the uniqueness of the various populations.' Vaz Pinto also notes that 'natural populations (and subspecies) are often porous and may contain contact zones. However, there is no obvious natural hybridisation occurring between the previously mentioned recognised races of sable antelope.' And herein lies the crux of the conservationists' concerns: deals such as the one between ZAWA and the South African consortium ignore biology and are highly likely to result in ongoing genetic contamination of the recognised subspecies.

In the scramble for the longest horns, unscrupulous breeders and traders, mostly from South Africa, make every effort to get hold of *H. n. kirkii*, a subspecies that does not naturally occur south of the Zambezi. Once in the country, the antelopes are either sold on auction or moved to established breeding facilities. The authorities have undertaken investigations involving a number of farms in the Free State, Northern Cape, KwaZulu-Natal and Limpopo provinces, but as yet no prosecutions have been made. Vets and biologists have also voiced their concerns about the growing contamination within a number of herds that are being bred in captivity. If this process is allowed to continue, the contamination will become irreversible, a genetic cesspool. To add insult to injury, sellers make all sorts of claims about the genetic makeup of their stock in order to achieve higher prices.

With the cross-breeding of *H. n. kirkii* and *H. n. niger* well under way, there are fears that the breeders and hunters are now after the giant sable, the most prized trophy of all. Biologists involved in sable conservation relate stories of untold attempts by individuals and organisations that ostensibly want to assist in the conservation efforts, but whose real interest lies in gaining access to the surviving population. As the geographical spread indicates, the Angolan subspecies occurs far from any of the others, and genetic testing done to date supports its classification. But this has not stopped rumours and claims that the bloodline may already be found in South

Africa. If true, given the lack of road infrastructure within Angola, there are only two ways this could happen. Either sables are being flown out in small aircraft or someone is stealing sperm. It is not inconceivable that once access to the animals is gained, adult males are darted, sperm is drawn and placed in vials of liquid hydrogen to be smuggled out.

Officials from SADC and Angola who issue tenders for wildlife work in that country need to be aware of this possibility, and should not award tenders to companies involved in sable breeding. Should giant sables be stolen for cross-breeding purposes, their endemic status – their most valuable and distinguishing conservation attribute – will be threatened. Lastly, as is so often the case when wildlife is reduced to a commodity, the welfare of the 210 sables is of little or no consideration to the traders. According to a number of ecologists and veterinarians who have seen my photographs, the conditions under which these antelopes are being kept are unacceptable. Not only are the enclosures overcrowded and too small (South African state veterinarians also made note of this in their feedback to the Minister), they should never have been allowed to remain confined in this state for almost three years. Clearly, there is an urgent need for concerned organisations to get involved and lobby both the Zambian and the South African authorities for their immediate release.

http://www.theecologist.org/green_green_living/out_and_about/1246201/sable_shenanigans_how_zambias_sable_population_is_falling_prey_to_unscrupulous_traders.html

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Angola's Giant sable makes a triumphant comeback

by John Frederick Walker - SWARA

The huge, green Angolan Air Force MI-8 transport helicopter thunders over our heads as it circles the forest clearing in Cangandala National Park. As it descends, its powerful downwash flattens the field of strawyellow grass. Game guards, police, villagers, biologists and a camera crew Angola's Giant sable makes a triumphant comeback start moving, then sprint toward the helicopter, even before the huge rotors stop turning.

On board is the national animal of Angola, a splendid, black bull of a subspecies thought by many to be extinct: H. niger variani, the Giant sable antelope. Drugged, blindfolded, kneeling on a stretcher and held steady by game guards gripping his knurled sweeps of horn, he twitches and works his jaws. The crowd of handlers, alternately arguing and hushing each other, stumble and shuffle as they move the 500-pound antelope from the cargo bay to the back of a pickup for the brief ride to the holding boma of the newly fenced breeding sanctuary. He'll join the copper-coloured female sables previously darted and transported there. By the time the capture operation is over, his instant harem will number nine. This is the climax of a dramatic effort to save a critically endangered antelope. The rescue of this iconic animal, organised by Angolan biologist Pedro Vaz Pinto, came just in time: he estimates there might be less than 100 of these magnificent creatures left.

To understand what this all means for Angola, you have to go back a century.

In 1909, Frank Varian, a British engineer in charge of constructing a railway across Angola, reported that sable antelopes with record-length horns had been shot some 300 miles inland. It was the first published mention of the last great African quadruped to become known to the outside world, recognised as a sub-species in 1916. Tantalising photographs of bulls taken in the 1920s revealed for the first time their breathtaking horns (reaching 60 inches in length) and sculptural proportions. Overnight, the Giant sable was transformed into the ultimate trophy, and it was relentlessly pursued by big-game hunters and museum collectors before being given a measure of protection by the Portuguese colonial authorities.

Two parks — Cangandala National Park and the larger Luando Strict Nature Reserve just to its south — make up the sable's known range. But by the mid-1970s, it had nearly vanished, swept up in the horrific civil war that followed Angola's independence and finally ended in 2002. With its habitat turned into a war zone, the country's parks unstaffed and poaching rife, many Angolans feared that their palanca negra gigante lived on only in its majestic profile shown on thecountry's postage stamps, currency, the tail fins of the country's airline, and the jerseys of its soccer team.

Still, some biologists, like Pedro Vaz Pinto, refused to give up. The Lisbon-trained researcher is environmental adviser to the Catholic University of Angola's Centre for Scientific Research and Studies

Vaz Pinto and the giant sable "shepherds" hold a tranquilized female in the boma.

and head of its Giant Sable Conservation Project. Recognising that one of the reasons for the failure of several high-profile but abortive postwar attempts to capture the animal on film was insufficient field research, he began a "shepherds" programme with the Songo people at the edge of Cangandala park.

The Songo share the sable's habitat and have a traditional respect for it, making them ideal game guards for the neglected park. In 2004, with their help, Vaz Pinto set up remote cameras with infrared triggers near natural salt licks.

Pedro Vaz Pinto, head of the Giant Sable Conservation Project, readies a radio collar

In early 2005, he was rewarded with the first images of Giant sables taken in over two decades. One, a photo of a herd that included a pregnant female, was hailed as proof of the sub-species' survival. But careful study of the images from his growing bank of remote cameras soon revealed a grim sub-story: the formerly viable populations of Giant sable and roan in the park were reduced to remnants — and were interbreeding. "After everything that the Giant sable has endured," Vaz Pinto lamented to me in 2008, "now some of them could actually be bred out of existence." The only way to ensure a future for Cangandala's Giant sables, Vaz Pinto realised, would be a captive breeding programme in their natural habitat.

That meant isolating surviving Giant sable females from opportunistic roan bulls as well as the hybrids. And he'd have to bring in a Giant sable bull from the Luando Reserve, where the greatest population of palancas negras had always been found — even though, at that point, he had no direct evidence there were any left there. With the biological clock ticking away for the Giant sable females, Vaz Pinto raised funds and organised an expedition in August, 2008 to collar at least part of Cangandala's mixed herd. But the helicopter crew failed to show up and the mission was doomed. Nobody had to point out to him that if the next expedition failed, there might not be enough Giant sables left to make another attempt worthwhile. But Vaz Pinto's luck — and with it the Giant sable's — changed.

A year later, with critical funding from Angolan energy companies and the aid of the Ministry of the Environment and Angolan military, he was able to put together the full-scale expedition needed. He recruited a crack wildlife capture team (including veterinarian Pete Morkel), veteran field biologists Richard Estes (who conducted a year- long study of the Giant sable in 1969-70) and Jeremy Anderson, a dozen-strong support group and twice as many shepherds — and pulled off a conservation triumph.

Vaz Pinto later described his feelings after touching a living (but tranquilized) Giant sable. "It was a very special moment to grab and feel those massive and spectacular horns for the first time. It was no longer a creature of myth – it was there, bones, flesh and horns."

In fact, locating, darting, tagging and sometimes collaring these sables became almost routine on the expedition. The shepherds gathered around our camp's thatched dining-hut in the early evenings as we reviewed photos and video footage on our laptops, hoping to glimpse their animal. They cheered and laughed at a sequence showing Vaz Pinto leaping back as one darted palanca negra gigante bull lurched to its feet with unexpected speed after the antidote was administered. At the end of the operation, when the bull and the females had been released into the sanctuary, hopefully to produce calves by the following year, we had time to reflect on the antelope's future.

A stark reminder of the dangers the giant sable still faces: Vaz Pinto shows game guards poaching snares.

That the Giant sable deserves protection, and not just because of its cultural importance, is beyond doubt. The questions raised by some about the antelope's sub-species status have been laid to rest by recent genetic research confirming its distinctiveness and silencing those who claim there's little difference between it and the typical sable found in neighboring Zambia. Still, Vaz Pinto was careful to collect DNA samples (in the form of ear snips) to supplement the teeth and skins that are still being studied in museums.

The Giant sable's return seems assured, as long as habitat loss and poaching, the twin scourges of African wildlife conservation, are kept firmly under control.

http://johnfrederickwalker.files.wordpress.com/2010/09/giantsable-swara.pdf

John Frederick Walker is the author of *A Certain Curve of Horn: The Hundred-Year Quest for the Giant Sable Antelope of Angola.* His latest book is *Ivory's Ghosts: The White Gold of History and the Fate of Elephants.*

A number of photos of leucistic wildlife are presented on the Wildife Extra site: www.wildlifeextra.com

Leucistic impala phtographed on the Kruger National Park - *courtesy Wild Magazine*

Leucistic reedbuck on Isimangaliso Wedtlands in South Africa - *photo by Debbie Cooper*

Leucistic kob in Murchison National Park in Uganda - *photo by Adam Riley*

A Giant sable bull darted, tagged and collared in Luando Reserve.

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