

GNUSLETTER

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FROM THE EDITOR...

This Special Edition of GNUSLETTER represents a unique cross section of the Antelope Specialist Group membership. Working in diverse regions in Africa and Asia the bios and reports provided here by 26 ASG members places an important face on the ASG's antelope research, management and conservation efforts.

From rainforest to desert, mountain plateau's and grass plains, the diversity of antelopes is well represented by these ASG members, describing their work in their own words.

We hope you will find this GNUSLETTER both interesting and enlightening, a snapshot of the Antelope Specialist Group in 2010.

Steve Shurter, ASG GNUSLETTER

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Philippe Chardonnet
ASG Co-Chair

Philippe Chardonnet, veterinarian specialised in tropical countries, spent 20 years working as researcher with IEMVT (*Institut de Médecine Vétérinaire Tropicale*) and CIRAD (*Centre International de Recherche en Agronomie pour le Développement*), then nearly 10 years up to now as Director of IGF Foundation (*Fondation Internationale pour la Gestion de la Faune*), a Paris-based NGO devoted to wildlife conservation in developing countries. For his first experiences as an expatriate veterinarian, he was posted for 5 years in rural development projects supporting traditional livestock herders in Guinea Bissau, Burundi and Rwanda. After completing his veterinary thesis in New Zealand on deer farming, he was hired for 2 years by the New Caledonian authorities to set up and develop an innovative deer farming industry under tropical conditions, and then moved for 3 years to Southeast Asia and the Indian Ocean region, still developing sound deer farming industries. In the meantime, he created and directed the CIRAD wildlife research unit which developed steadily and is still active today. He also set up the West and Central African Wildlife Veterinary Unit within the Programme for the African Rinderpest Campaign of the African Union Inter African Bureau for Animal Resources.

His experiences led him to a number of countries for working on a range of topics and wildlife species, *e.g.* community-based wildlife management (*e.g.* contribution to the CAMPFIRE program in Nyaminyani and Guruve Districts in Zimbabwe; investigations on bushmeat management in CAR; development of Grasscutter farming in the Congo basin, etc.); field operations on specific taxa (*e.g.* mass capture of Rusa deer in New Caledonia; rescue of Marsh deer with netgun in Brazil; capture and collaring Elephant, Giraffe, Buffalo and many antelopes throughout Africa); assessment of the conservation status of the African Lion in Benin, CAR, Mozambique, Tanzania; conflict mitigation for land users in eastern CAR, Jaguar and Puma in Brazil, Lion and Elephant in Africa, Kulan in Turkmenistan; rehabilitation of degraded protected areas such as Gilé National Reserve in Mozambique; creation of new protected areas (*e.g.*: a reserve for the Karatau Argali in Kazakhstan, a communal nature reserve in the “cotton belt” of northern Benin); development of sound mechanisms for the sustainable use of wildlife, whether “breeding systems” (ranching and farming) or “hunting systems” (traditional and tourism); capacity building of wildlife veterinarians; institutional support to wildlife authorities (*e.g.* program for restructuring the tourism hunting industry in Mozambique); organization of congresses and workshops such as the 6th International Wildlife Ranching Symposium in 2004 in Paris.

Philippe is member of the Antelope Specialist Group for many years (how many? ...he does not even remember!). His ambition as ASG Co-chair with David Mallon is to develop the world expertise of antelope specialists and to better involve the international community in conservation & development issues related to antelopes (as well as to Giraffe, Okapi, African Buffalo and Water Chevrotain). He is personally committed to the conservation of some of the above-mentioned taxa, *e.g.* conservation of the central African Giant Eland and Bongo in Central African Republic (first immobilizations -from the ground- and collaring of both species in the wild within their original habitats); reintroduction of taxa (*e.g.* translocation of Scimitar-horned Oryx and Addax in Tunisia and Niger, rehabilitation of the herbivore community in Gilé National Reserve in Mozambique); research on the ecology of the African Buffalo (field investigations in W Regional Park in West Africa, in Niassa National Reserve in Mozambique, etc.). He is currently planning to set up a specific “African Buffalo Interest Group” within ASG.



Chardonnet (right) with Richard Kock



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Dave Mallon
ASG Co-Chair

Dr David Mallon is a large mammal ecologist and Associate Lecturer in the Department of Biological Sciences at Manchester Metropolitan University, UK. He has over 25 years experience of field work, mainly in Central Asia, China, the Himalayan region, the Caucasus and the Middle East. This has involved biodiversity assessment and monitoring, protected area evaluation, training and capacity building, and community co-management and included projects on Przewalski's gazelle, saiga, and Arabian oryx. In July 2010 he completed a rapid assessment of the status of antelopes in Somaliland.

He has been carrying out IUCN Red List assessments of antelopes since 1989 and was co-compiler of Part 4 of the Antelope Action Plan, covering North Africa, the Middle East, and Asia. He was ASG's Regional Chair for Asia and the Middle East for several years, before becoming Co-Chair, along with Philippe Chardonnet, in 2004. He is also the ASG Red List Focal Point, with lead responsibility for assessing antelopes for the IUCN Red List.

He has a strong interest in strategic planning, especially for threatened species and is a member of the SSC Species Conservation Planning Sub-committee. He is also a member of the IUCN Red List Committee.



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D. Mallon at Qinghai Lake, China



Jeremy Anderson



Jeremy Anderson is a founding partner of International Conservation Services a South African based company that specializes in wildlife conservation and ecotourism planning for sustainable development. He has more than forty years of field experience. His more recent focus has been in the identification, planning and rehabilitation of protected areas, including Trans-frontier parks, and in finding solutions to management of human-wildlife conflict in under-developed areas and the identification of ecotourism opportunities. He has extensive practical experience in having worked from Game Ranger through to Director level.

During his service in the Rhodesian Dept of National Parks and Wildlife management he was responsible for the extension service to the fledgling Game Ranching Industry that was based on the sustainable utilization of antelope. He then worked on the ecology of Nyala in Zululand and the management of human-lion conflict.

He finds this field experience particularly useful in the tasks of identifying and creating new opportunities and in solving practical problems. He has been directly involved in coordinating the planning, development and management of a number of protected areas including Pilanesberg National Park. In the course of this work he has managed the rehabilitation of degraded land, the provision of essential infrastructure, the recruitment and training of staff, resolution of human wildlife conflict and the re-introduction of more than eight thousand animals, mainly antelope but including pachyderms and lion.

Geographically he has worked in most southern Africa countries, the Middle East, North Africa, Sri Lanka and China. He has been involved in efforts to conserve the last on the Giant sable in Angola and is currently involved in projects involving antelope in the Middle East and Libya. The latter will involve the large scale restoration of indigenous antelope species.



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Lkhagvasuren Badamjav

From 2010 I have changed my work place from the Institute of Biology, Mongolian Academy of Sciences, where I served for last 29 years as a wildlife biologist, to WWF Mongolia Program Office as a Conservation Programme Director. I am dealing with conservation issues of wildlife, particularly antelopes in Mongolia and I gained my PhD degree in 2000 on Mongolian gazelle ecology and conservation issues. In Mongolia we have only 3 species of antelopes: Mongolian gazelle, goitered gazelle and the saiga antelope. The Mongolian gazelle is surviving still in big numbers, but the saiga antelope and the goitered gazelles are facing significant reductions in their numbers due to natural factors (desertification, severe climate conditions etc.), and human related impacts such as pasture degradation, competition for water and food resources, and most importantly due to illegal hunting for meat (goitered gazelle), trade for horns (saiga). To overcome the existing threats to antelopes especially the illegal hunting, the WWF Mongolia Programme Office in cooperation with the State Inspectorate Agency has established several Mobile Anti Poaching Units (MAPU) in the country, and these teams proved to be the most efficient tools to combat an illegal hunting, especially of endangered species like the saiga antelope.



To know the current population status of the Mongolian and goitered gazelles, we did a nationwide population assessment in 2009 involving expert from WCS, Dr. Samantha Strindberg and we used Distance Sampling method which showed that in Mongolia we have about 5.7 mln Mongolian gazelles and just over 12000 goitered gazelles. To have rigorous and reliable data on numbers and population trends, it was suggested to do the same kind of assessments regularly and the monitoring system should be placed in critical areas. The current situation with the goitered gazelles showed that the distribution area is highly fragmented, the populations are going down, and immediate conservation actions must be taken to stop the poaching and loss of habitat.

The saiga antelope situation is a special concern in Mongolia, because of its too small and fragile number thus very vulnerable conditions. Because the poaching of males for horns is the biggest human related threat to this remaining subspecies, the WWF Mongolia Programme Office is taking different kinds of actions including the establishment of community based educational programmes in saiga range provinces, technical and financial assistance and supervision of local saiga rangers, as well as continuous technical and financial support to above mentioned MAPU teams.

Mongolia is facing now a serious severe winter (dzud) condition in most parts of the country, which is affecting not only the livestock and rural people, but the wildlife as well, including the antelopes. To help to overcome the situation, we promoted the wildlife assistance programme in cooperation with the Ministry of Nature, Environment and Tourism, Mongolia and other environmental organizations and sent hay to the critical areas, where the saigas are in danger, including transportation costs. Until today, we spent already more than 20000 USD, including the government aid, for this action and are ready to spend more if needed.

The Mongolian gazelles in north-eastern region of the country are also facing difficulties to find good pastures and conditions, and making long distance movements and migrations into Russia, where the situation is better. The barbed-wire fences along the borders are making their movements almost impossible causing mass mortality. Nevertheless, the Russian border troops in the area opened the fences and "allowed" the gazelles to enter into the country. According to data provided by Dr. Vadim Kiriliuk, the vice-director of Daurisky Zapovednik, Russia, more than 40000 gazelles entered Dauria, while about 70000 gazelles are in the vicinities of the border, where the situation is more or less suitable. The poaching still remains the main threat to Mongolian and goitered gazelles.

The fast growing developments of mining industry in Mongolia brought big challenges to environmental issues, including the habitat loss and disturbance of the wildlife. Obviously, the most affected animals are herbivores, especially antelopes. Special attention must be paid to infrastructure developments in surrounding areas of the mining sites, where the construction of railroads and highways are planned. To not repeat the previous mistakes, under supervision of scientists and experts, the Ministry of Nature, Environment and Tourism of Mongolia is initiating the project proposal to determine the migration routes of ungulates in a mining area (south Gobi), where the railroad to China will be constructed. The goal of the project is to recommend to the railroad company to consider suitable under and/or overpasses where needed along the railroad and pay attention to critical habitats (calving and rutting areas) within the mining site.



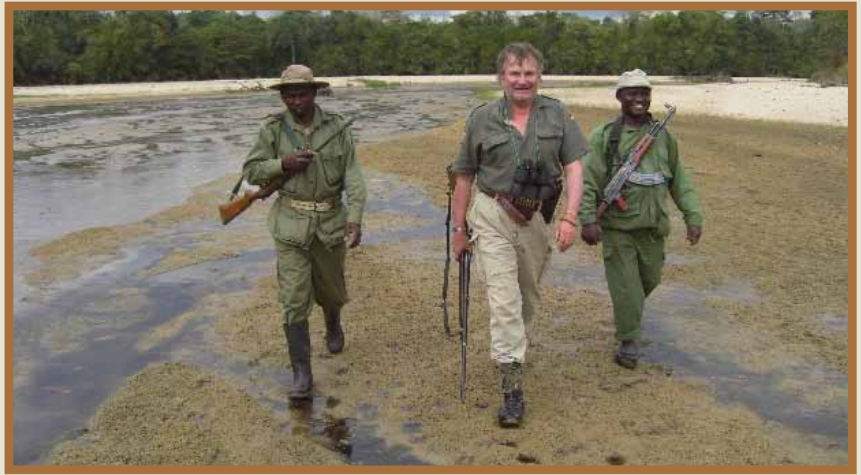
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Rolf Baldus



I am an economist who worked for nearly 30 years as a staff member of a German Ministry. For 13 years I was deputized to a technical aid agency. During that time I worked as Government advisor and I managed wildlife programmes in Tanzania, in particular in the Selous Game Reserve. I was involved in the rehabilitation of the reserve and its management. I further assisted in the creation of the Saadani National Park, the development of Community Based Natural Resources Management and specialized conservation programmes, e.g. for rhinos and elephants. In different positions I have later been involved to set up conservation programmes in the Southern Caucasus and Central Asia and this included antelopes, in particular the saiga.

Meanwhile I have retired from Government service, and I live presently as a writer on conservation and hunting topics in Bonn/Germany.

I have specialized in the sustainable use of natural resources, self-help organizations, the integration of rural communities into conservation and the management of protected areas and wildlife.

As far as antelopes were concerned the Selous and its environs hosted some of the largest antelope populations in Africa. Whereas my work was on bio-diversity conservation in general, antelope issues ranked high in my work. We conducted a good number of aerial censuses, oversaw the hunting of antelopes, supported specialized research on diseases and undertook research on antelope distributions and migrations between Selous and Niassa Game Reserve/Mozambique, which led to the creation of a wildlife corridor between the two protected areas. In cooperation with the Berlin based Institute for Zoo and Wildlife Research we conducted genetic and other research on the sable antelope along the East African coast and established that they were of the Roosevelt sub-species. We researched Tanzanian antelope data and provided them for Rod East's African antelope survey. I worked as an advisor for many Tanzanian institutions and individuals dealing with antelope conservation in different parts of Tanzania.

Presently I am the President of the Tropical Game Commission of the International Council for Game and Wildlife Conservation (CIC). In this function I work and network on policy issues of hunting and other sustainable uses of wildlife, including antelopes, mainly in tropical countries.



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Jakob Bro-Jørgensen

Dr. Jakob Bro-Jørgensen is a behavioural ecologist whose research since 1995 has focused on antelope behaviour, ecology and evolution. He is currently an RCUK Research Fellow at the Mammalian Behaviour & Evolution Group at the University of Liverpool.

From 1995 to 1997, Bro-Jørgensen studied the basic ecology and behaviour of the eastern giant eland (*Tragelaphus derbianus gigas*) in the savannah woodland belt of Northern Cameroon (MSc, University of Copenhagen). Based on the findings from various hunting concessions, as well as from the Benoué and Bouba Ndjidah national parks, the study presented recommendations for sustainable management of the network of hunting concessions in the area.

Since 1998, Bro-Jørgensen has been running the Mara Antelope Research Programme in Masai Mara National Reserve in Kenya (initially also in the Serengeti National Park, Tanzania) (PhD, UCL/University of London). The Mara programme has mainly concentrated on topi antelopes (*Damaliscus lunatus*) and the common eland (*Tragelaphus oryx*). The study on topi antelopes has investigated the evolutionary origin of the species' arena-breeding system ('lekking') and has found evidence of active female mate preferences and female mate competition for central lek males (Bro-Jørgensen 2002, PNAS 99:9290ff; 2007, Curr Biol 17:2157ff). Bro-Jørgensen has also investigated the usefulness of vegetation indices based on remote-sensing by satellites (NDVI) to explain antelope spatial ecology (Bro-Jørgensen et al 2008, Oecologia 158:177ff; Pettorelli et al 2009, Am Nat 173:698ff). Other studies have focused on acoustic communication, where topics include the topi's use of false alarm snorts in mate deception (Bro-Jørgensen & Pangle 2010, Am Nat 176:E33ff) and the function of multiple signalling in eland antelopes (Bro-Jørgensen & Dabelsteen 2008, BMC Biology 6:47). The Mara Antelope Research Programme, which is carried out in collaboration with the Kenya Wildlife Service and the Narok County Council, contributes basic information on antelope ranging patterns for use in the management of the Masai Mara National Reserve and surrounding conservancies.

In 2003 to 2004, Bro-Jørgensen was the manager of the Bushmeat & Forest conservation programme at the Zoological Society of London, and during this time he was particularly involved in (i) conservation of antelope species threatened by bushmeat trade in central Africa, and (ii) protected area management in the Democratic Republic of Congo, focusing on the eastern national parks of Virunga and Garamba. In addition to his field activities, Bro-Jørgensen has done comparative studies of antelope evolution which show that bovid horns have evolved through sexual selection (Bro-Jørgensen 2007, Evolution 61:1316ff) and that small body size in bovids are selected for to increase manoeuvrability in closed habitats (Bro-Jørgensen 2008, Oikos 117:729ff). Together with Dr David Mallon, Bro-Jørgensen is organizing a two-day symposium on antelope conservation at the Zoological Society of London which is scheduled for 17 & 18 November 2011.

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Daniel Cornélis

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My area of expertise is related to the emerging “movement ecology” discipline. My activities mainly focus on the ecological factors driving space use and mobility of large African ungulates, in particular African buffalo. Using telemetry devices (GPS collars) and new models of spatial analysis, I contribute to identify the processes underlying movements and space use patterns in wildlife.

In W Regional Park (Niger, Burkina Faso, Benin), I studied how exogenous factors (surface water, watersheds, primary production, vegetation types) and endogenous factors (water dependence, space sharing) jointly affect the dynamics of space and habitat use by West African savannah buffalo (*Syncerus caffer brachyceros*). In contrast to Cape buffalo (*S. c. caffer*), little was known for this subspecies which occupies the north-western edge of the whole species geographical range. Seven breeding herds were monitored for 3–20 months in 2007 and 2008 with collars providing GPS locations at least every 3 hours. I showed how the spatiotemporal dynamics of both forage and water resources interplay to shape seasonal home ranges and stimulate inter-seasonal directional movements. At smaller scale and higher sampling rates (i.e. daily movements monitored at fix intervals of 10 minutes), and through path retracements, I analyzed the feeding ecology and the activity patterns of breeding herds. I finally examined the effects of seasonal variation in nutrition and gastro-intestinal parasitism on stress levels (as indicated by fecal cortisol).

In Southern Africa (Greater Limpopo Transfrontier Conservation Area - GLTFCA), my work focuses on the mobility of wild ungulates involved in epidemiological cycles of zoonoses, and the spatial interactions between wild and domestic animals (health hazards, conflicts for space and resources). Buffalo is known to be one of the main species responsible for the maintenance and potential spread of diseases through the GLTFCA (among which bovine tuberculosis). My objective is thus to contribute to improve the understanding of buffalo movements across the national borders of the GLTFCA (South Africa, Zimbabwe, Mozambique), and interactions with livestock, in order to assess the risks of disease transmission. For this purpose, 30 buffaloes and 24 cattle heads have been equipped with GPS collars since 2008, in collaboration with southern African partners.

Incidentally, I centralize at Cirad a tissue databank dedicated to the revision of the phylogeographic structure of African buffalo at the continental scale.

Daniel Cornélis

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Daniel Cornélis (right) works with fellow ASG member Moumouni Ouedraogo on a West African savannah buffalo in Niger.



Husam El Alqamy

I have been working in biological Conservation since 1998. Started as wildlife biologist in the national Parks of Egypt and developed a passion towards antelope species specially dorcas gazelle. I developed a monitoring program for the species that targets its range in south Sinai and provide annual estimates of density using Distance Sampling methods. Also been doing camera-trapping to identify the surviving species of the mammal fauna of Sinai. The findings of this program were used to model the distribution of the endangered Nubian ibex in Sinai. Accordingly core areas and corridors were identified for conservation.

Currently I am working for the Environment Agency – Abu Dhabi, UAE. I am in charge of monitoring the progress and establishment of a newly introduced herd of Arabian oryx. The species is currently dependant on conservation measures but hopefully it will proceed to a surviving free ranging species. The monitoring involves daily ecological observations and genetic investigation to maintain the genetical traits of the founder pool and to ensure a balanced flow to future offspring.

I have recent interest in systematic spatial conservation planning. I hope to be able to use the currently available powerful tools to prioritize the conservation needs in the Arabian Oryx Protected Area in a scientifically sound way that incorporates the biological sensitivities and the interests of other stakeholders without compromising the effectiveness of conserving the natural resources.

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Richard D. Estes



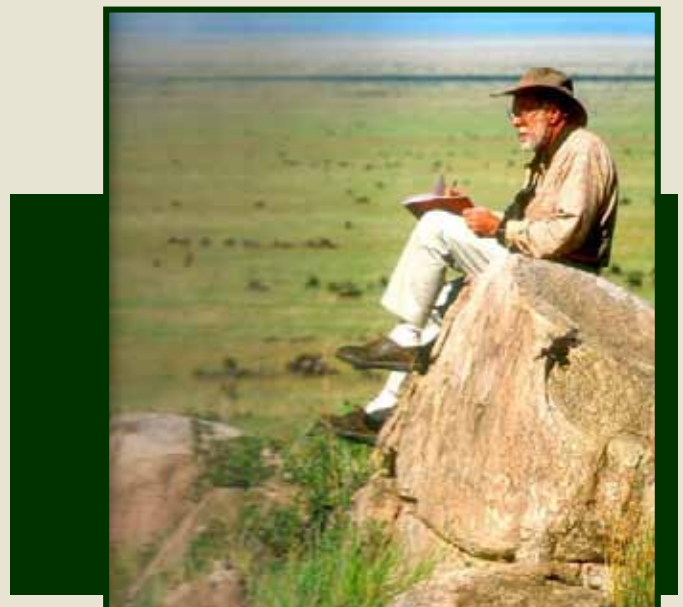
- ASG Chairman/Co-chairman 1978-2005
- Life Member, Species Survival Commission
- Research Associate, Smithsonian Institution, National Zoo Center for Research and Conservation
- Associate, Harvard Museums of Natural History
- Trustee, Rare Species Conservatory Foundation



Research and Conservation History

- **1959-1960** Co-leader, IUCN/SSC Burma Wildlife Survey.
- **1962-1965**..PhD research on wildebeest and other large mammals of Ngorongoro Crater and Serengeti National Park.
- **1968-1970** Two-year field study of sable antelope (*Hippotragus niger*) and subspecies *roosevelti*, *kirkii*, *niger*, and *variani*
- **1978-1981** Serengeti Research Institute, continuing study of wildebeest and associated antelopes.
- **1996-2002** Research in Ngorongoro Crater to explain declining numbers of wildebeest and other “plains game”.
- **2001-2004** Co-principal Investigator, Smithsonian Scholarly Studies Program: grant to study The causation of reproductive synchrony in the Serengeti wildebeest.
- **2000-2002, 2008** Travel to Angola to participate in efforts to save the giant sable.
- **2009** Participated in successful effort to capture nine giant sable cows and put them together with a bull inside a fenced enclosure in Cangandala NP in effort to restart reproduction.
- **2005-2010** Summer jobs as resident naturalist at lodges in the Masai-Mara and Serengeti.
- **1980-2005** Editor-publisher of ASG GNUSLETTER, Vol. 1-25.
- **1991** Publication of **The Behavior Guide to African Mammals**.
- **1993** Publication of the **Safari Companion**.
- **2009** Publication of **Status of wildebeest in the wild 1967-2005** (with Rod East) by Wildlife Conservation Society.
- Currently writing book entitled, **The Gnu’s World**.

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Julian Fennessy

Conservation Planning for Giraffes Kicks Off

To many people, giraffes may not seem to be in need of focused conservation attention. However, giraffes are facing increasing pressures that have impacted on their numbers and distribution in Kenya and elsewhere across the continent. There are currently a total of nine sub-species of giraffes naturally occurring in the African continent. Kenya is the only country with three of these sub-species present. Other countries have either one or two sub-species. Therefore, Kenya is the epi-centre for giraffe speciation.

Over the past decade, giraffe numbers in Africa have suffered at least a 30% drop in population as a direct result of habitat encroachment, habitat loss, habitat fragmentation, severe poaching, increasing human populations and human-wildlife conflicts.

Rothschild's giraffe

The Rothschild's giraffe (*Giraffa camelopardalis rothschildi*) is the second most endangered giraffe sub-species with less than 670 individuals remaining in the wild. Once wide-ranging across western Kenya, Uganda, and southern Sudan, it has now been almost totally eliminated from most of its former range and now only survives in a few small, isolated populations in Kenya and Uganda.

In Kenya, all known wild populations of Rothschild's giraffe have been extirpated by agricultural development and remnant populations are confined to National Parks, private properties and other protected areas where they have been translocated. These remaining populations are isolated from one another and are not interbreeding.

Kenya is home to about 60% of the global population of wild Rothschild's giraffe with Ruma National Park having the single largest meta-population (130 individuals) in the country. Lake Nakuru National Park has 65 individuals, Soysambu Conservancy 63, Kigio Wildlife Conservancy 32, and Giraffe Manor-Karen, Mount Elgon National Park, Murgor Farm in Iten, Mwea National Reserve, Sergoit-Kruger Farm in Iten, Kitale Area Farm and Nasalot Game Reserve all with populations of less than 20 individuals.

Reticulated giraffe

Reticulated giraffes (*Giraffa camelopardalis reticulata*) are widely found in northern Kenya and in Somalia. Data on the number and range of reticulated giraffe is limited and incomplete, with as few as 3,000 - 5,000 individuals remaining in the wild. This estimate represents a small fraction of the 28,000 reported to have existed only a decade ago suggesting that the sub-species has recently suffered a major and rapid decline giving rise to concern about its long-term persistence. As an example, estimates for Laikipia District are consistent with a pattern of decline: 1977 - 6,398; 1990 - 5,419; 1994 - 2,118; 1997 - 2,903.

Masai giraffe

The Masai giraffe (*Giraffa camelopardalis tippelskirchi*) occur in southern Kenya i.e. Amboseli, Tsavo and the Masai Mara ecosystems and throughout Tanzania. The Masai giraffes have relatively stable populations compared to the other sub-species in Kenya although reports that their numbers have also suffered in recent years have been highlighted. Current surveys and recent estimates are being compiled for the Masai population and hopefully some more positive news will prevail.

Conservation planning for giraffes

Given Kenya's heritage in terms of giraffe diversity and speciation, it is fitting that we develop a national conservation strategy dedicated to giraffes. The National Giraffe Conservation Strategy for Kenya will provide national guidance on the conservation and management of all three sub-species across Kenya. The guidelines will define the role of the government, conservation partners and other stakeholders whilst raising awareness about the plight of giraffe and highlight the generally declining population trends occurring within Kenya.

Kenya Wildlife Service constituted a National Giraffe Conservation Task Force (NGCTF) to steer the process of formulating the National Giraffe Conservation Strategy. The NGCTF has held two meetings to discuss the key features of the Strategy, specific challenges and risk factors facing each of the sub-species. A two day retreat of the NGCTF is planned for July 2010 to further consolidate the background information for the sub-species and set the stage for a national stakeholder's workshop. The national stakeholder's workshop is expected to take place towards the end of 2010. The workshop will develop a vision, goal and strategic objectives for the Strategy. The workshop will also provide an opportunity to update numbers and distribution of giraffes in Kenya, as well as incorporate the inputs and views of stakeholders. Activities, indicators and timelines will also be outlined against each strategic objective.

The conservation planning process is supported by funding from Kenya Wildlife Service (KWS), Giraffe Conservation Foundation (GCF) and African Fund for Endangered Wildlife (AFEW).



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Martha Fischer

Martha Fischer, BSc Animal Science, University of Missouri-Columbia, started out her career as an Antelope Area keeper at the Saint Louis Zoo in 1986 and has enjoyed serving as the Zoo's Curator of Mammals/Ungulates and Elephants since 1996.

As the Curator for the Zoo's Antelope Area and River's Edge, Martha works alongside 2 Zoological Managers, 20 full-time Keepers, 4 part-time Keepers and several Interns to care for the animals and habitats of the Zoo's Antelope Area and River's Edge. These areas are home to 26 species of ungulates (125 individuals), 12 marsupials, 8 Asian elephants, 22 small carnivores, 24 birds and thousands of fish. The Saint Louis Zoo is caring for, breeding and studying ungulates and elephants responsibly under the guidance of the Association of Zoos and Aquariums (AZA) cooperative programs with the long-term goal of conserving these species in zoos and in the wild into the future.

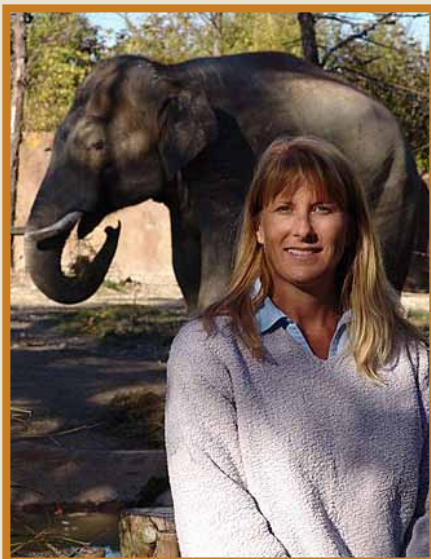
The Saint Louis Zoo values and encourages its employees to provide service to the zoo profession and to AZA. As such, Martha is an active participant in AZA's programs. She chairs two AZA Taxon Advisory Groups (TAGs) - Antelope & Giraffe TAG and Equid TAG and serves as the Coordinator of two AZA Species Survival Plans (SSPs) - Grevy's Zebra SSP and Speke's gazelle SSP. Internationally, Martha is a member of the IUCN Specialist Groups for Antelope, Equids and Wild Cattle, is Vice-President of the Board of Directors of the International Elephant Foundation and serves as the Chair of the Board of Trustees for the Grevy's Zebra Trust.

In 2004, the Saint Louis Zoo launched its WildCare Institute which takes a focused approach to helping save ecosystems around the globe. Martha champions one of the twelve centers within the WildCare Institute by serving as the Director for the Center for Conservation in the Horn of Africa. This Center was established to provide *in situ* and *ex situ* conservation support for wildlife of the Horn of Africa.

In recent years, the countries in the Horn of Africa have endured enormous hardships from drought, famine and political turmoil and outside assistance is often needed to nurture and grow their fledgling conservation efforts. The Center for Conservation in the Horn of Africa supports these efforts by linking dedicated conservationists at zoos with those in the field and fostering partnerships to provide long-term support to wildlife programs in Kenya, Ethiopia, Eritrea and Djibouti. Center activities are supporting conservation efforts for several unique Horn of Africa species, such as the Grevy's zebra, mountain nyala, Speke's gazelles, African wild ass, African elephant and other Horn of Africa wildlife.

Martha has a special interest in the conservation of mountain nyala in Ethiopia. Through its Center for Conservation in the Horn of Africa, the Saint Louis Zoo's WildCare Institute is helping to build capacity and fund-raise for projects in Ethiopia. The Zoo also financially supports its Ethiopian partners to implement research, training and conservation education projects aimed at conserving mountain nyala. The immediate goal is to help committed Ethiopians realize their dream of building a formal conservation program for mountain nyala from the ground up, and the training and experience these local partners gain in the process is hoped to have even wider applications and implications for wildlife conservation across Ethiopia in the future.

Martha also champions the WildCare Institute's Elephant Conservation Program that was established to the conservation of Asian and African elephants in human care and in the wild. In close cooperation with the International Elephant Foundation and the Northern Rangelands Trust, the WildCare Institute supports *in situ* conservation and welfare initiatives that will secure viable wild populations of Asian and African elephants.



Jens-Ove Heckel



After an agricultural apprenticeship and temporary occupation as zookeeper, Jens-Ove Heckel, studied veterinary medicine in Hanover, Germany. He worked as assistant zoo veterinarian at the Zoological and Botanical Garden Stuttgart, Germany and later served as zoological or wildlife veterinary consultant in several German institutions and in Uganda. In 2000, Jens-Ove Heckel was appointed as director and zoo veterinarian of Zoo Landau in der Pfalz, Germany.

Since nearly 20 years, Jens-Ove Heckel works as honorary project coordinator for East Africa and Arabia and as board member of the Zoological Society for the Conservation of Species and Populations (ZGAP), Germany. In 1994 he was invited to become member of the IUCN/SSC/Antelope Specialist Group and since 2002 he volunteers as regional coordinator of the Antelope Specialist Group for the Horn of Africa region (Djibouti, Eritrea, Ethiopia, Somalia and Sudan). The Horn of Africa is an important hotspot with regard to antelope biodiversity. Several species and subspecies are endemic to this region. Due to different reasons the conservation status of many of these is still poor.

Jens-Ove Heckel and members of the subgroup initiated, coordinated or advised a number of field surveys in Djibouti, Somalia and Ethiopia. Further its aim is to collect any data on the historic and current distribution and conservation status of ungulate species and subspecies relevant to this region. Members of the subgroup assisted in the re-assessment of the Red List status. Jens-Ove Heckel is liaison partner to the Sahara-Sahelo Interest Group (SSIG) and Sahara Conservation Fund (SCF), with partly overlapping interests in Antelope conservation.

A subgroups' web page has been established since several years and can be visited under <http://neaasg.org>. The web page primarily is intended to be a continuously updated and extended, general source of information to the general public and to Antelope specialist group members. Further it is a tool to highlight the great importance of the Horn of Africa region for global biodiversity conservation with special focus on ungulates.

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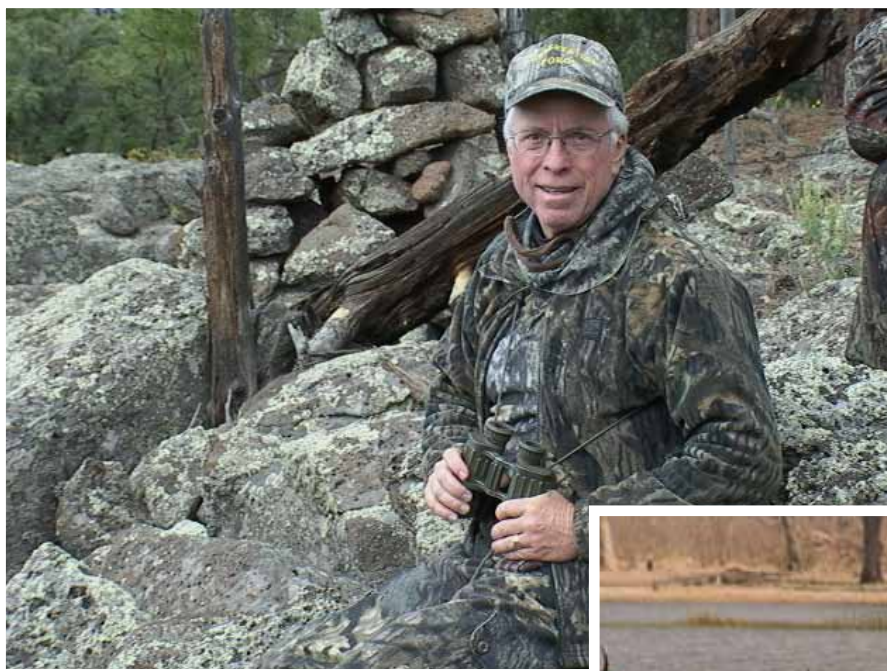
John J. Jackson, III



John J. Jackson, III - Chairman of Conservation Force for 12 years, President of the Sustainable Use Commission of CIC for a decade, also a member of the Deer Specialist Group of IUCN. John long ago initiated, organized and has long funded antelope-specific projects for Black-Faced Impala in Namibia, Red Lechwe in Namibia, Zambia and Botswana, Mt. Nyala in Ethiopia and general game across Africa.

Through Conservation Force and other NGOs on which he serves, John partners with many hunting operators, local communities and conservation NGOs worldwide to build and maintain antelope game numbers and habitat. As a 501(c)(3) charity, Conservation Force serves as a partnering conduit for donors that wish to contribute to antelope conservation projects. Example: John serves as Treasurer of the Cullman & Hurt Community Wildlife Project (now Robin Hurt Foundation) in Tanzania and many similar hunting-based conservation partnerships throughout Africa. In those projects the hunting clients are provided the opportunity through Conservation Force to make tax-deductible contributions that are dedicated exclusively to conservation and management projects in the respective communities and countries. The CBNRM projects have included CAMPFIRE, Chobe Enclave Conservation Trust, Pilanesberg, NIASSA Reserve, ADMADE, LIFE Plus Project, Tchuma Tchato, et al. The partners have included IPHA, APHA, PHASA, NAPHA, TAHOA, as well as WWF and WCS.

Conservation Force also has *ex situ* antelope projects in the USA that generate funds for select antelope species in their countries of origin. John administers and has available grant funds for Red Lechwe and Arabian Oryx projects to further the survival and perpetuation of those species in the wild.



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Aili Kang

Wildlife Conservation Society China Program

Efforts to understand more about the Tibetan Antelope

The Chang Tang Landscape, bordered in the north by the Kunlun and Arjin Mountains and the south by the Gangdise and Nyainqentanglha mountains, is an enormous expanse of rugged wilderness. It represents one of the last largely undamaged rangelands in the world. Within it, the 298,000 km² Chang Tang National Nature Reserve is the second largest terrestrial reserve in the world. Reserved as the last and largest wilderness area in China, the grassland hosts a variety of free ranging wild ungulates, including Tibetan antelope (or Chiru, *Pantholops hodgsonii*), Tibetan wild ass (*Equus kiang*), Tibetan gazelle (*Procapra picticaudata*), wild yak (*Bos grunniens*), blue sheep (*Pseudois nayaur*), and Tibetan Argali (*Ovis ammon hodgsoni*).

The chiru is a flagship species for the Chang Tang Landscape. Its distribution and migration help define the landscape. Chiru were estimated to number over a million animals more than 100 years ago. Because of extensive hunting during the 1980s, numbers decreased and were estimated at under 80,000 by Schaller (1998). Along with the establishment of wildlife protection laws and reserves, and confiscation of guns, the status of wild animals has been improved. However, constrained by the vastness, remoteness, and harsh environment of their habitat and limited methodology, the population status in Chang Tang largely remains unknown. In order to support conservation and management, WCS carried out different studies to collect and update more information on this species from 2005.

During June and July 2005, researchers from WCS, Beijing University and Xinjiang Forestry Institute selected the west Chang Tang chiru population as a target and conducted a study in its calving ground in the west of Kunlun Mountain Region. Vegetation samples were taken to analyse the food habits and 12 radio collars were used to study the movement of young chiru within the calving ground. Analysis of chiru food plants showed no marked difference in nutritive values at this season between the calving grounds and the southern range. It remains unclear why chiru migrate to that site (Schaller et al. 2005).

The uninhabited northern Chang Tang is a large region that had never been surveyed for wildlife in winter and where rangelands are too poor to support pastoralists. Wellby (1898) traversed this area (between 35°-36°N) during summer 1896. WCS staff and local co-workers from Beijing University, Tibet and Qinghai Forestry Bureaus and the Tibetan Plateau Institute did a survey along Wellby's general route, from 34°33'N, 80°31'E to 35°30'N, 93°42'E. The actual cross-country travel distance was 1,692 km. The region was uninhabited except for one household at the beginning of the transect. We tallied 5,999 chiru within a 2 km strip (1 km on either side of our travel route) or 1.77 chiru/km² and with a local variation of 0.03-9.21/km². Chiru in Chang Tang region appeared to have congregated at some sites for the December rut. It remains unclear to which migratory population these females belong and where they calve and where the males are at other seasons (Schaller et al. 2007).

From July 2007, Wildlife Conservation Society got support from EU-China Biodiversity Programme and launched "Chang Tang Biodiversity Conservation and Nature Resource Sustainable Use Project". The project aims to improve understanding and management of biodiversity in the Chang Tang region. One output of the project is to understand the status of wild ungulates, especially chiru. Therefore, WCS team, in cooperation with the Tibetan Forestry Bureau, prefecture and county forestry bureaus conducted several surveys on population distribution and status of wild ungulate species. Most of those surveys used intensive, road-based line transects both inside and outside nature reserves. Direct counts and GPS locations of all observed ungulate species were recorded. We divided the total surveyed area into 2641 survey grids of 625 km² each to indicate population density. The observation records showed the south end of distribution of chiru is along 30°. Additionally, a team from the Institute of Zoology, Chinese Academy of Sciences, conducted a survey in November-December 2008 and obtained records on chiru south nearly to 29° N.

The biggest survey took place in the winter of 2009 and covered about 22,027km². We counted more than 65,000 chiru in 185 grids, recorded their demographic composition and found 70.61% of the resident population ranging outside the nature reserve in contrast to 99.98% of the encountered migratory population located inside. Schaller (1998) estimated that the total number of chiru in China was around 75,000-80,000. Our surveys show an obvious increase in chiru numbers. It is the best evidence for China's conservation effort on the species.

However, demand from international illegal trade in chiru wool has not disappeared. With the development of vehicle and local traffic systems, the pressure to maintain anti-poaching activities is still high. Additionally, two new threats to chiru occurred. One is fence building which blocks the migration and movement of chiru in certain area, causes direct injuries and helps predators and poachers to catch them. The other is growing pasture demands from the increasing human population and their livestock, which cause overgrazing on the grassland and cause pasture competition between livestock and chiru.

Chiru, living in remote Chang Tang without human disturbance, can recover and offer us magnificent opportunity to study, conserve and manage the species.

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Richard Kock

Dr. Richard Kock, Head Wildlife Health Programme Zoological Society London. 30 years as a veterinarian working on wildlife (27 years with ZSL), based in East Africa, 8 years setting up a veterinary unit (now department) of the Kenya Wildlife Service and 7 years working with African Union Inter African Bureau for Animal Resources. At IBAR working on a range of diseases of wild artiodactyls (rinderpest, peste des petits ruminants, foot and mouth disease, tuberculosis, anthrax, RVF) with additional experience in the West, Central and Southern African regions, Middle East and in South Asia on health and conservation projects. Richard's doctoral thesis at the University of Cambridge describes, for the first time, the epidemiology of rinderpest in buffalo (*Syncerus caffer*) and observations on other species.

His extensive field experience, research and publications contributed to improved anaesthesia of ungulates and carnivores, (e.g. the first use of butorphanol in wild perissodactyls and first successful chemical immobilisation of free-ranging mountain nyala (*Tragelaphus buxtoni*), white eared kob (*Kobus leucotis*) and giant eland (*Taurotragus derbyanus gigas*), the application of alpha 2 agonist antagonist combinations before commercial application of these chemicals and studies of the physiology and safe use of etorphine in combination with sedatives in a range of ungulates, including many antelope species). He has been involved in a series of important conservation translocation and reintroduction exercises with antelope, including the 1990s reinforcement of hirola (*Beatragus hunteri*) antelope in Tsavo National Park. Considerable scientific information was gathered during this exercise including veterinary and genetic information, the latter contributing significantly to the re-classification of the species as the only survivor of the genus *Beatragus* and not *Damaliscus* as previously thought. He has contributed a number of papers to reintroduction literature.



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Currently Richard is working out of London, running the ZSL wildlife health programme, with in addition responsibility for the King Khalid Wildlife Research Centre in Saudi Arabia on behalf of the ZSL (a 22 year old project which he was involved in developing in the 1980s) – this project works on conservation science and health of primarily gazelles and oryx. KKWRC's primary purpose is captive breeding and reintroduction, of mountain Gazella gazelle and sand gazelle (*Gazella subgutturosa marica*) and as a research centre also provides diagnostic and scientific support to protected area management, and provides training. He has a particular interest in conservation initiatives for the hirola, hippotragine and gazelline antelope and a focal interest on the diseases of wild artiodactyls, especially buffalo. He is working with KWS and other partners in Kenya on conservation initiatives for hirola and east African roan antelope (*Hippotragus equinus langheldi*) including, a new sanctuary approach for hirola. He is supporting the current initiatives on desert antelope reintroductions notably scimitar oryx, mainly providing advice on translocation (providing a lead on a new IUCN guideline on antelope reintroductions that is planned as part of the series) and on health aspects.

François Lamarque

François Lamarque, DVM, is Program Officer of the International Foundation for the conservation of Wildlife (IGF Foundation). Before joining IGF in 2008, François worked for the French National Hunting and Wildlife Agency (ONCFS) where he was in charge of the International programs. He has a thorough knowledge of African wildlife management acquired through his previous positions of Wildlife Advisor of the French Ministry of Cooperation for Africa based in Ouagadougou (Burkina Faso) between 1989 and 1994 and teacher at the Garoua Wildlife School (Cameroon) between 1983 and 1989.

Since more than 25 years, François Lamarque has been working in Africa with a focus on mammals. His particular interest for antelopes began during his stay in Northern Cameroon when he collaborated to the Chapter regarding this country of the Antelopes Global survey compiled and published by Dick East in 1990. For that he was invited to join IUCN-SSC/ASG for a couple of triennium. From then, he carried on collecting data on antelopes on the occasion of his field trips either professional or private; these observations were included in the Field Guide of the big mammals of the WAP complex: W national park (Benin, Niger, Burkina Faso), Arly national reserve (Burkina Faso), Pendjari national park (Benin) that he published in 2004. Since 1999, François has been focusing on Sahelo-Saharan Antelopes (SSA). First, he contributed to the identification of the FFEM SSA project in, Chad, Mali, Mauritania, Niger and Tunisia. Then he organized and carried out surveys in Banc d'Arguin National Park (Mauritania) and the Tamesna region in North-East Mali where he confirmed the survival of a small and threatened population of dama gazelles in 2005; he was then invited to join again IUCN-SSC/ASG. These activities regarding SSA lead him to become a member of the Sahara-Sahelo Interest Group (SSIG) as soon as 2000 and the vice-chairman of the Saharan Conservation Fund (SCF) when the organization was created in 2005. François Lamarque is currently working on the feasibility of the reintroduction of Scimitar-Horned Oryx in the Gadabeji reserve in Center-North Niger. He is also involved in field projects of protected areas rehabilitation (in Mozambique) or creation (in Benin) considering the restoration of the antelopes' population.

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Tracking dama in South Tamesna © Stéphane Bouju

Eline Lorenzen

I am a postdoc at the Centre for GeoGenetics, University of Copenhagen, and use population genetics—the study of genetic variation and genetic evolution within species—to study extant and extinct megafauna taxa. In particular, my interest lies in uncovering the genetic responses of species to past climate changes.

We have used population genetic data to gain insights into the evolutionary histories of African antelopes including impala, waterbuck, kob, Grant's gazelle, eland, and African buffalo. How did current levels of diversity arise? What is the evolutionary significance of recognised subspecies – are they genetically differentiated? In several cases, the research has added significant new knowledge to previous definitions of species limits, subspecies delineations, and management units.

We have found concordant patterns of regional genetic structuring across species (eland, impala, waterbuck, kob) suggesting similar evolutionary scenarios for savannah antelope across the continent. We have also found convincing evidence that previous climate changes had major demographic impacts on dry-adapted species (African buffalo). Hybridization was confirmed between subspecies (defassa/common waterbuck), or was not evidenced by genetic data (black-faced/common impala). We have also observed introgression between subspecies (white-eared/Uganda kob), and genetic data have revealed cryptic speciation (Grant's gazelles).

Although I no longer work *per se* with African antelope, I continue with population genetic studies of megaherbivores. At present I am using large-scale population genetic datasets to elucidate the relative impacts of humans and climate on the evolutionary trajectories of extinct and extant Late Pleistocene megafauna.

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Pascal Mésochina

Currently working as Field Officer at the International Foundation for the Conservation of Wildlife (IGF Foundation), where I'm mostly involved in national surveys of lion conservation status surveys, I also operate as the webmaster of the Antelope SG website.

I have gained extensive field experience in mammal conservation, management and monitoring while I worked as research engineer in France, as mammal curator in Saudi Arabia as well as since I have joined the IGF Foundation staff.

In France, I was in charge of the development of a tool of diagnosis of dysfunctions between hunting plan and population of deer (*Capreolus capreolus* and *Cervus elaphus*) at the National Game and Wildlife Agency. In Saudi Arabia, my main responsibility lied in the management of a captive herd of about 200 arabian oryx (*Oryx leucoryx*) as well as their reintroduction into the wild. I also took charge of the monitoring of the reintroduced populations of oryx and sand gazelles (*Gazella subgutturosa*). My interest in arid-zone antelope monitoring pushed me to test a new approach based on oryx summer shading behaviour; a paper about this subject has recently been published in **GNUSLETTER Vol. 28.2**. Partially based on these monitoring results, a strategic plan has been proposed to Saudian authorities to manage their metapopulation of Arabian oryx (captive and reintroduced).

While my main interest has now switched to carnivore conservation and management, I do not forget that carnivores need well preserved populations of prey to survive, so that I'm still deeply concerned with the fate of antelopes!

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E.J. Milner-Gulland



I am Professor in Conservation Science at Imperial College London. My research group's website is www.iccs.org.uk. The antelope species that I work on is the saiga antelope, *Saiga tatarica*. I have been working on the saiga since 1990, through a period of immense socio-political upheaval in its range area, which has had profound effects on the species' ecology and conservation status. The saiga is a migratory species found in four populations of the nominate subspecies in Russia, Kazakhstan and Uzbekistan, and a small population of subspecies *S.t. mongolica* in western Mongolia.

When I first started working on the saiga it was a little-known and abundant game species, and my research in the 1990s was at first on the demography of the species and sustainable hunting, and later on ecological questions relating to transmission of parasites and disease between saigas and livestock and on rangeland dynamics. However, in the late 1990s, after the collapse of the Soviet Union, we observed a dramatic collapse in the population, which by 2002 led to the saiga's uplisting from Near Threatened to Critically Endangered on the IUCN red list. This virtually unprecedented plunge in conservation status was caused by the saiga experiencing a >95% decline in population size caused by poaching; doubly concerning as the starting population was already relatively heavily exploited by state-run hunting.

My work since then has been much broader in focus and has included direct conservation action and building of collaborative networks as well as scientific research. We have continued fundamental research on the species life history and movement patterns, but also worked on questions in social science, such as the differences in knowledge of and attitudes to saigas of people subject to different conservation interventions and the potential

of participatory monitoring for local engagement and generation of ecological data. New research start will evaluate the feasibility of a biodiversity offset programme for the oil and gas industry in Uzbekistan, with the saiga as its flagship, and will examine in more detail the incentives for saiga poaching and methods to improve law enforcement, both of which projects are in collaboration with FFI and the Institute of Zoology in Uzbekistan.

I have combined my research with implementing conservation projects on the ground, particularly in Russia. In 2006, I and my colleagues in the saiga range states founded the Saiga Conservation Alliance, which produces a biannual e-bulletin, Saiga News, in 6 languages, as well as providing small grants and building capacity for conservation and science in the range states. This organisation provides a forum for anyone interested in saigas to collaborate and exchange ideas and experience. You can find out more at www.saiga-conservation.com. Right from the very start of my work on saigas I have been very grateful for the support and encouragement of the IUCN SSC's Antelope Specialist Group, and particularly David Mallon. The ASG facilitated the technical meeting that provided scientific advice for the signing of the MOU on saiga conservation under the Convention on Migratory Species in 2006, for example. I think the saiga is a great example of how the ASG can work in partnership with individuals and other organisations to support the conservation of endangered species.



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Moumouni Ouedraogo

Moumouni Ouedraogo has a doctorate in agricultural and biological engineering, graduate of the University Faculty of Agricultural Sciences of Gembloux, Belgium. Zootechnicien agropastoralism-training, as a first assistant at the International Center for Research and Development on Livestock in sub-humid zone (CIRDES) in Burkina Faso for 5 years. Also as one of the leaders of the research unit “Livestock and Environment”.

It was as a researcher at the Scientific Enrichment Project Game Ranch Nazinga of 1999 to 2003 which led to his thesis on the population dynamics of buffalo and waterbuck. President of the NGO Natureplus Burkina “and the” Association for Rescue Craft, Culture and Ecology in Africa (CAAS) and associated specialists as a member of the antelopes to the IUCN (International Union for Conservation of Nature), he was a researcher in the counterpart project Hétérogénéité spatiale mobilité and large animals, a research component developed by CIRAD in the regional park of the W (Benin, Burkina Faso, Niger). Teacher-researcher at the University of Ouagadougou, and is now representative of the Foundation African Wildlife Foundation for the complex transfer of the W-Arly Pendjari (WAP). The objectives of the foundation are to reverse trends of degradation, through the fruits of a healthy and productive nature in which communities participate in managing, maintaining and leverage without destroying. The program of work areas of intervention of Mr. Ouedraogo can be summarized below:

- land conservation and habitat: AWF seeks to conserve land through proper planning, management and use of these with a focus on the identification and protection of the corridors fauna, including the promotion of cross-border cooperation;
- conservation of species and Applied Research: supporting applied research and conservation programs for priority species, including lions, elephants and antelopes disturbed ecology. AWF intervention in university education is the foundation of a vital partnership for the improvement of scientific resources in Africa;
- the creation of conservation enterprise: AWF supports local communities through income generating activities (ecotourism, livestock management and fisheries, traditional crafts, non-timber forest products, etc..) Improvement of people’s income allows AWF to create and maintain strong public support for conservation initiatives;
- skills development and capacity building: AWF works with protected area managers and local communities to improve their skills in land management and promotion of conservation activities;
- Policy and Good Governance: AWF works with government partners to develop and support the political strategies that promote participation of local and village structures in conservation and sustainable development through better utilization of natural resources

We are currently involved in the three countries, Benin, Burkina Faso and Niger. Our work currently focuses on: improving water points in the W Park, the promotion of the solar systems, support for anti poaching, support for seasonal adjustments, capacity building in bordering villages, [ecotourism] chain development compatible with conservation, etc.



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Moumouni Ouedraogo (left) works with fellow ASG member Daniel Cornélis on an West African savannah buffalo in Niger.



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Steve Shurter

Steve Shurter is the Director of Conservation at White Oak Conservation Center based in Florida, USA which focuses on managed breeding, research, training, and field conservation programs for threatened species. The Center specializes in hoofed mammals such as rhinos, wild equids, okapi and antelopes (giant eland, gerenuk, eastern bongo, Nile lechwe, dama gazelle, roan antelope). They work closely with zoo partners in the US and internationally in support of comprehensive species-based conservation programs, with the ultimate goal of sustaining populations of wildlife and their habitats. Shurter develops and oversees White Oak's programs, linking the Center's species based efforts with related field conservation projects, providing technical and financial support. As a member of SSC Specialist Groups he liaises with scientists and wildlife managers worldwide to assist with conservation planning for endangered hoofed mammals and to promote conservation projects. As a long time member of the Antelope Specialist Group Shurter currently edits and produces the ASG **GNUSLETTER**.

White Oak Conservation Center operates the Okapi Conservation Project based in the Democratic Republic of Congo, partnering with the Institute in Congo for Conservation of Nature (ICCN) to protect and manage the Okapi Wildlife Reserve (OWR). The OWR represents a significant block of rainforest (14,000 km²) in the Ituri Forest and is listed as a World Heritage site, created to conserve the important cultural and biodiversity of the forest, including a significant population of okapi (4000-6000, WCS census Hart, 2006).

With Shurter's leadership the Okapi Project focuses on program areas of wildlife protection, conservation education, community assistance, agro-forestry, and alternative livelihoods. The protection program includes support for ICCN rangers of the Okapi Wildlife Reserve as they work to deter illegal activities such as agricultural encroachment, mining, bushmeat hunting and ivory poaching, which are serious threats to the forest and wildlife. The education program includes teams of educators working in and around the Okapi Wildlife Reserve to create an understanding of the importance of conserving the forest and wildlife, and to engage communities in the stewardship of their rich natural resources and heritage. Community Assistance, Agro-forestry, and Alternative Livelihoods all work to help communities and families, providing tools and technical assistance to enhance their lives, creating a direct link between okapi and wildlife conservation efforts with benefits to their families, in this poor, war torn country.

As an endemic of the DR Congo the okapi is the symbol for conservation in the country, an icon representing the wildlife and diversity of the forests of the Congo basin. Efforts are currently underway to gather information on the remaining wild populations of okapi in the DR Congo, but we do know that poaching for bushmeat and pressure on the forests are causing serious declines in some local okapi populations. The Okapi Conservation Project works with zoos around the world, promoting the okapi as an ambassador for the Ituri Forest and providing direct support for the management of the Okapi Wildlife Reserve.



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*Steve Shurter and Stephanie Rutan produce and edit **GNUSLETTER** at White Oak Conservation Center.*

Chris Thouless

I am currently working for SNV (Netherlands Development Organisation) on sustainable tourism and conservation in Laikipia and Samburu Districts in Northern Kenya.

In the 1980s I worked for Saudi Arabia's National Commission for Wildlife Conservation and Development, based at the King Khalid Wildlife Research Centre. I was initially responsible for sorting out a mixed captive population of mountain and sand gazelles and Arabian oryx (many of which were infected with tuberculosis), to prepare them for reintroduction programmes. Later I carried out surveys for surviving gazelle populations - particularly sand gazelles on the edge of Nafud desert and the mountain gazelles of the Farasan Islands. I also did some work on social behaviour and taxonomy of gazelles, and described the Farasan gazelle as a distinct sub-species (an issue that is under debate). In the 1990s I worked for the Department of Wildlife and National Parks in Botswana as the Senior Wildlife Biologist responsible for research and monitoring in the Kalahari ecosystem. I studied the long-distance movements of antelopes, particularly wildebeest, hartebeest and eland, with respect to the changes that had occurred since the major droughts of the 1980s and the construction of veterinary fences. Surviving wildebeest populations had relatively small home ranges and in some cases appeared to be water dependent, while eland had home ranges in excess of 20,000 sq km but were largely confined to protected areas. The whole structure of the antelope guild had changed, with higher numbers of sedentary species, particularly gemsbok, and reduced numbers of the mobile species.



There is a strong link between tourism and antelope conservation in northern Kenya since tourism here is dependent on wildlife, and antelope are a key component in the ecosystem, providing much of the species diversity as well as prey for charismatic predators such as lion and the increasing population of wild dog. Laikipia is particularly interesting for antelope, since it is one of the few remaining ecosystems outside formal protected areas where long-distance movers such as eland are still free to roam, and is the stronghold for the reticulated giraffe, which is now considered by some authorities to be a distinct species. Laikipia is a mixture of large scale cattle ranches and community owned group ranches, while Samburu to the north is mostly community-owned. Although overall wildlife numbers have increased in Laikipia over the last twenty years, there has been a decline in some of the less common species, such as Thomson's gazelle, hartebeest, eland and waterbuck. This may be a result of competition with bulk grazers such as zebra or because of increasing numbers of predators, especially lions. The status of the Laikipia hartebeest, a distinct intermediate form between the Lelwel and Coke's hartebeest, is of particular concern since its numbers have declined from over 3,000 to a few hundred in the last 15 years. Another potential, but poorly understood, threat to antelope is the proliferation of game-proof fences, many of which have been erected to provide security for rhino sanctuaries. It is possible that the fragmentation of the landscape created by the fences has reduced the ability of antelope to respond to rainfall in the area, which is scattered both in time and space. I am working with two local organisations, the Laikipia Wildlife Forum and the Northern Rangelands Trust (based in Samburu), to identify and deal with conservation issues in the area.



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Pranav Trivedi

Tibetan Gazelle (*Procapra picticaudata*) Conservation Programme in Ladakh, India**Introduction**

The high altitude region of the India Himalaya harbours one of the richest assemblages of mountain ungulates anywhere in the world. Several of these species are globally threatened and battle the problems of low numbers, fragmented populations, trans-boundary issues, habitat loss and poaching. Among the smallest species in this assemblage is the Tibetan Gazelle or Gowa (*Procapra picticaudata*) frequenting the seemingly barren and high altitude, cold desert region of the Trans-Himalaya in Ladakh and Sikkim. Inhabiting the rolling mountain slopes of the Chagthang plateau in eastern Ladakh and northern Sikkim along its global distributional edge, this species is on the brink of local extinction; with less than 100 individuals left in the wild. During the early twentieth century, Tibetan Gazelle ranged over almost the entire 20,000 km² Changthang plateau in Ladakh. This was reduced to a mere 1,000 km² in 1980-90. A similar precipitous decline in its numbers as witnessed in its range had also taken place. This was brought about by hunting by the nomadic Tibetan refugees and Indian armed forces following the Sino-Indian war in 1962. Later, increasing pressure from livestock as the Hanle basin is a prime pashmina (Cashmere) production region aggravated the situation and prevented its recovery even after hunting was brought under control in 1980s. Surveys and studies carried out by us between 2000 and 2005 provided useful information on habitat use, quality and ecological problems of the Tibetan Gazelle. It was also established that sizable population of the gazelle now survives only on the Kalak Tar Tar (KTT, also called Kalang Tar Tar) plateau in the Hanle river basin in eastern Ladakh.

**Conservation Programme**

One of the urgent and important tasks following the studies was to free some areas from livestock grazing to provide better forage and suitable habitat for recovery. Hence, we carried out discussions with local pastoralists and they agreed to set aside a small area of about 1 km²



on the KTT plateau as a grazing-free reserve. The local communities are being compensated for the loss of grazing area on an annual basis. Although representing merely 2.5 % of the total area of KTT, the reserve was an important step towards conservation of the species. KTT covers an area of c. 40 km² consisting of trans-Himalayan pastures between the altitudes of 4,750 and 5,050 m. Gowa is found across the plateau. After setting up of the reserve at KTT following the signing of an agreement between villagers and NCF/SLT, we appointed two guards/observers to monitor the population of Tibetan Gazelle on KTT. The highest number of Gowa reported so far since 2007 for the KTT region is 31, while for the reserve exclusively the number is 21 (roughly 20 % of the population of species in India!). An earlier reliable estimate of the numbers was by Otto Pfister who recorded 68 individuals in 1996. Last year (2009) we recorded the presence of two fawns accompanying two adult Tibetan Gazelle females close to the reserve, while one of the guards spotted six fawns. This is a positive sign for recovery of the population in Ladakh. We are also monitoring the Kiang population at KTT. This year onwards, we intend to monitor aspects of plant composition, cover and diversity within and outside the reserve. We also intend to conduct

surveys in other potential localities with Tibetan Gazelle presence in Ladakh. Long-term recovery plan will entail a natural or facilitated dispersal of the species to new areas and bringing more area under grazing-free domain. We also developed awareness material in the form of a table-top photoframe that has been distributed to different stakeholders in the region.

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Nathalie Van Vliet

Just Call Them! - Monitoring Duiker Populations Using a Standardized Call Derived from a Traditional Hunting Practice

Population trends and long term surveys are necessary to manage duikers, small forest antelopes heavily harvested for food and income in Central Africa. To monitor changes over time in population size, managers and researchers generally use indices of abundance. However, existing survey methods for duiker species have several limits. Classical dung counts are plagued with species identification errors while dung counts with genetic identification of the species require skill and budget demanding. Net hunts and capture–recapture methods require large and skilled teams. Day time visual counts require heavy protocols with high sampling effort to produce reliable estimates. Indeed, encounter rates are very low because of duiker’s shy behaviour and dense understorey vegetation.

In several regions of the Congo Basin hunters traditionally use the call of an endangered duiker to attract other surrounding duikers. We have explored the possibility to standardize this call method to improve day time transect counts. The call imitates a distressed duiker and triggers surrounding duikers to either run towards or approach discreetly the call point. The method was tested as a survey method in previous duiker surveys, but our work in Ngotto (CAR) and north east Gabon is a first attempt to standardize it for monitoring purposes.



Our results show that the call is particularly efficient for the most common duiker species (diurnal: *P. monticola*, *C. callipygus* and nocturnal: *C. dorsalis*). The diurnal species respond similarly to the call in remote and less hunted or in close and heavily hunted areas and do not change behaviour close to the villages. Unlike carnivores, duikers show no habituation to the call: the same animal can respond to the call, run away, and come back again once or twice, within the 4 min of the call. Offtake records in north east Gabon show that for *P. monticola* and *C. callipygus*, the proportion of individuals killed using the call was significantly higher during the main dry season than during the main rainy season. The rate of responses registered in Ngotto was also higher during the main dry season. Even though hunters use the call indifferently in all seasons, the dry season is likely to offer better conditions for the call. Our experience in the field shows that animals that respond to the call are often more easily detected by the observer during the dry season because the litter is dry and approaching animals make more noise. Compared with day time visual counts, the call ensures more reliable species identification (animals are seen for a longer period of time and their body is observed almost entirely), and increases the number of contacts, therefore counterbalance the difficulty caused by vegetation density in classic diurnal counts. This method can also be easily appropriated by local communities in participatory duiker surveys because it is derived from a traditional practice used in most of Central Africa.



However, the call has also several limitations that must be taken into account while choosing a survey method: 1. The call requires either an experienced hunter willing to make the call or the equipment to transmit a recorded call. 2. For a given time, the call does not significantly increase the number of observations. Therefore, when multi-species surveys are to be carried out, other methods can be more accurate. Further studies are necessary to determine the area surveyed per call point for density estimations.



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Pedro Vaz Pinto

Pedro Vaz Pinto – Angolan, graduated in 1993 with a Forest Engineering degree and specialization in Natural Resources Management from the Agronomics School in Lisbon, and is currently inscribed for a PhD on Conservation Biology at Oporto University; he coordinates the Giant Sable Conservation Project, at the Research Center of the Catholic University of Angola.

His main focus for the past 7 years has been on the giant sable antelope (*Hippotragus niger variati*), endemic to Angola and critically endangered. There are less than 100 left in the wild, and there's never been any taken out of the country. When he launched the project back in 2003, the main objective was proving that this subspecies had survived the civil war that had ravaged the country for twenty years. The animal was known to occur in just two protected areas in central Angola, and was never found outside Cangandala NP and Luando Nature Reserve, but their status was uncertain and was feared extinct by many. Long tracking on foot and aerial surveys with military choppers and microlights produced no definitive results for almost two years, but success was finally achieved with the publication in 2005 of the first photographs of giant sable since Richard Estes' in 1982. These photos resulted from trap cameras that had been mounted to monitor salt licks in Cangandala NP.



The good news didn't last long as it became apparent that the Cangandala population was reduced to one single herd and worse, in the absence of bulls (poached) the females had been hybridizing with conspecific roan antelope since at least 2001. By the end of 2008 the situation was desperate as in Cangandala there was a total of 9 pure females and 12 hybrids and no pure sable male. The only positive element was that poaching was now under control and the hybrids seemed to be sterile. In the much larger but remote Luando reserve, the situation wasn't also bright: several surveys recorded no sable, and 15 trap cameras kept producing photos of antelope other than sable (mainly roan, waterbuck and duikers), while poaching was out of control. In early 2009 a group of giant sable was finally located as result of a positive mtDNA tested from dung samples.

In August 2009 an ambitious game capture operation managed to capture all pure females, separating them from the hybrids and roan, and released inside a 400ha fenced sanctuary that had been specifically built for the purpose in Cangandala NP. A sable bull was then captured in Luando reserve and successfully translocated to the sanctuary.



Pedro's work has been mainly addressing crisis management, and currently focuses in monitoring the captive herd in Cangandala and the known group in Luando via field observations and remote-tracking (a few sable have been equipped with VHF and GPS/GSM collars) while assisting the Government to provide basic law enforcement and management to these protected areas. His research is focusing on surveying the reserve attempting to locate new groups with non-invasive techniques, intensifying the coverage by digital trap cameras and identifying the species from mtDNA extracted from dung samples; and a special effort is being put on genetics, which is expected to include, for the first time, the identification of msat markers for *Hippotragus*.

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Jake Veasey

Dr. Jake Veasey is the coordinator for the European Endangered species Programme (EEP) for the Eastern Bongo and the Head of the Department of Animal Management and Conservation at Woburn Safari Park; possibly the biggest *ex situ* conservation facility in Europe with a particular focus on megaherbivore conservation. Jake's academic background is in animal welfare science, behavioural ecology and conservation biology. He is experienced in both *in situ* and *ex situ* conservation and keen to see more effective integration of *ex situ* conservation efforts to *in situ* conservation activities. He constructed the African Ungulate Conservation Centre at Woburn which currently houses six critically endangered African ungulate species.

In 2008 Jake went to assist the Bongo Surveillance Programme and Kenya Wildlife Service in carrying out a Population Viability Assessment for the Eastern or Mountain Bongo. The mountain bongo is found exclusively in Kenya and is restricted to four completely isolated populations; Eburu, Mount Kenya and Mau Forests and the Aberdare National Park; the stronghold for the species. Population estimates for the entire wild population range between 65 and 130 animals. Based on a variety of assumptions provided by the Bongo Surveillance Programme, a Vortex simulation reveals there is an 89% chance of extinction of all wild bongo in Kenya within 50 years with a mean time to total extinction of 30 years. Extinction in Mau and Eburu would be expected to occur within well under a decade based on the current set of assumptions relating to estimated harvesting rates, habitat loss and the current low population sizes. This makes the eastern bongo possibly one of the most endangered large mammals south of the Sahara. However, with a complete cessation of habitat loss and harvesting, the chances of extinction within 50 years fall to 12%, but, even under this optimistic scenario with an expanding population of bongo, ~13% of the CURRENT genetic diversity will be lost in that 50 year period, on top of the estimated 15% or so that has been lost in the previous 50 years; highlighting the need for an effective and global metapopulation management to coincide with effective protection.

Following on from this provisional analysis, working with the Kenya Wildlife Service, the Bongo Surveillance Programme and Rhino Ark, we aim to first stem the decline of bongo in Kenya and to develop a mechanism of securing the remaining precious genetic diversity left in the wild. To achieve this we need to enhance the levels of protection afforded to bongo and their habitat, make the most of future reforestation programmes for the expansion of bongo habitat and finally instigate a global metapopulation management plan for the eastern bongo.

By measuring wild and captive genetic diversity through faecal DNA analysis and selectively potentially reintroducing genotypes rare or absent in the wild from captive populations, possibly through the use of embryo transfer technology, we believe we can help secure vital genetic diversity crucial to retain evolutionary flexibility as well as numbers of bongo on the ground. We believe that if successful, this project would be the first time that the principles of small population management have been applied simultaneously to wild and captive populations with captive genotypes being specifically selected to enhance wild genetic diversity through the use of embryo transfer technology as required. Such a methodology could provide a blueprint for the management of other endangered fragmented populations, particular for species for whom a healthy captive population exists.



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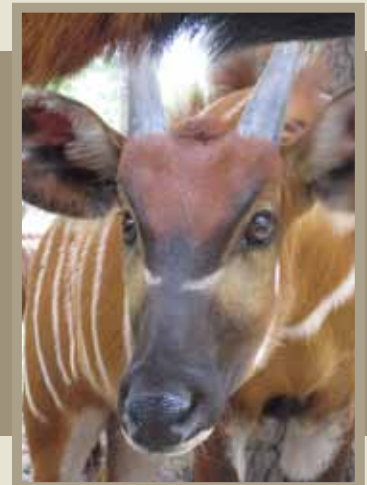




Photo of black-faced impala by Rod East

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