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ANTELOPE SPECIALIST GROUP

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FROM THE EDITOR...

Welcome to the first volume of GNUSLETTER in 2012. We apologize for the delay in posting this, and have been gathering information for most of the latter half of the year 2011 for inclusion. Along with the ASG Chairs, we decided to wait for the completion of the recent ZSL Antelope Conservation in the 21st Century Symposium prior to publishing. Therefore this volume includes various reports and information covering a good portion of the year. Our apologies to authors who submitted material earlier for their long wait for publication. Nevertheless we are confident you will find Vol 30 #1 to be informative while representing a strong cross section of antelope work and news.

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In this Issue...

From the ASG Chairs . . .

- Antelope Specialist Group and strategic planning, D. Mallon
- Handbook of the Mammals of the World taxonomy, D. Mallon
- When is an Oryx Wild?, D. Mallon

From the Gnusletter editor . . .

- This issue: Giraffe Specialist Group: An okapi perspective, S. Shurter
- ASG Meeting, November

Recent Reports

- Zakouma NP Wildlife Aerial Surveillance Report
- Beira Behavioral Ecology, D. Mallon, A. Jama
- Goitered Gazelles Non Monophyly, T. Wacher, T. Wronski
- Phylogeography of Saharan and Arabian dorcas gazelles, H. Lerp, T. Wronski
- NRT Research and Monitoring – Hirola, J. King

Publications

- Okapi DNA Study, D.Stanton, L. Penfold
- Bohor reedbuck in Bale Mountains, Ethiopia, A. Afework, A. Bekele, M. Balakrishnan
- Duiker demography and dispersal in northern Congo, M. Mockrin
- Duiker dung decay and population estimate implications, T. Breuer, F.B. Mavinga
- Kafue Flats lechwe population status, W. Chansa, G. Kampamba
- Tanzania puku decline. C. Bonnighton, M.D. Steer, J. Lamontagne-Godwin
- Sitatunga feeding patterns, M. Tweheyo, B. Kacebonaho, N. Turyahabwe
- New book: *Distance Sampling for Monitoring Gazelle in Sainai, Egypt*, H. El Aqamy

Antelope in the News

- Arabian Oryx IUCN Vulnerable listing (Guardian.co.uk)
- Phoenix Zoo 50 Years of Arabian Oryx (J. Schaul)
- Ancient Syrian gazelle capture bomas (BBC)
- Damagram, CMS newsletter
- Saiga breeding success in China (Xinhua)
- Kazakhstan Saiga (Central Asia Today)
- South Sudan wildlife (NPR)
- Giraffe in serious danger, (The Citizen -Tanzania)
- Blue Antelope Correspondences (bluebuck), www.blueantelope.info

From the ASG Co-Chairs ...

Antelope Specialist Group and strategic planning

ASG has been involved with strategic planning for antelopes for more than 25 years – ever since the group was founded. The first of the four volumes of the IUCN Antelope Action Plan (Antelopes: Global Survey and Regional Action Plans) was published in 1988, compiled by the late Rod East, as were the next two, covering all of sub-Saharan Africa. All four parts of ASAP as well as the African Antelope Database 1998, can be downloaded from the ASG website.

A second aspect of ASG's strategic planning work is the regular compilation of IUCN Red List assessments which are critical in assessing species' extinction risk, and work on international agreements with CITES and the Convention on Migratory Species (CMS).

The Antelope Action Plans are a valuable resource, summarizing antelope status by range state and region. They incorporate contributions from many ASG members and those working on the front line of conservation, and information including the 'grey literature'. However, as is the case with many other IUCN Action Plans, they did not always set out clear priorities for action or where conservation action and resources should be concentrated.

In 2006, SSC set up a Species Conservation Planning Task Force to review all forms of conservation planning for species and to prepare a renewed set of planning guidelines. The ASG Co-Chairs were both members of this Task Force. The guidelines were published in 2008 as Strategic Planning for Species Conservation: a Handbook - which described the Species Conservation Strategy (SCS) concept – and a shorter Overview document, as a basic introduction. Both these volumes will be available soon on the ASG website.

The SCS approach is based on widely-accepted strategic planning principles and provides a framework linking a long-term vision through a logical structure to detailed action on the ground. SCS is designed to be flexible in order to encompass the very wide range of possible species planning scenarios at global, regional and national levels and to cover single or multiple species.

SSC then established the Species Conservation Planning Subcommittee to take primary responsibility for strategic species planning within SSC and advise and assist Specialist Groups to undertake planning for those species within their remit. The SCPSC is chaired by Mark Stanley Price (an ASG member) and David Mallon is also a member of the subcommittee.

The SCS planning principles have already been applied to Saiga antelope through CMS, and used in drawing up an Arabian Oryx Conservation Strategy in Abu Dhabi in 2007 and at a national Hirola conservation strategy workshop organized by Kenya Wildlife Service in June 2011. A workshop on antelopes and other species in Djibouti is scheduled for March 2012 and strategic planning for duikers in the Upper Guinea Forest and several other species is under discussion.

In the longer term, ASG intends to initiate conservation strategies and action plans for all threatened antelope species, in conjunction with SCPSC. ASG is also ready to work with ASG members and/or other organizations on all aspects of antelope planning at global, regional or national level. Please approach either SCSP or the ASG co-Chairs to discuss any strategic planning ideas and proposals.

- David Mallon

Just published: *Handbook of the Mammals of the World. Vol. 2 Ungulates.* Lynx Edicons. Chief Editors Don E. Wilson and Russell A, Mittermeier.

This is the second of a planned series of eight volumes covering every one of the world's mammal species. Like Volume 1 (and the companion series Handbook of the Birds of the World) it is large, comprehensive, beautifully produced and liberally illustrated with high quality photogtaphs. One of the most noteworthy features concerns a completely new classification of the Bovidae, in which 279 species are recognized, compared with the 143 listed in the last edition of *Walker's Mammals of the World* (2005). The number of antelope species has risen from 97 to 204. Some eye-catching examples of the new arrangement include sitatunga (now five species), bushbuck (eight), blue duikers (10), and klipspringers (11). The genus *Gazella* is rearranged yet again, with several subspecies and forms raised to species level. In the case of the non-antelope taxa within ASG's remit, African Buffalo is split into four species, but the Giraffe stays one.

The new classification and the rationales are based on a new book *Ungulate Taxonomy* by Colin Groves and the late Peter Grubb, which is due for publication later in 2011. A more detailed account and discussion of this taxonomy will appear in the next issue of GNUSLETTER, once the details in the book have been considered.

When is an Oryx Wild?

The IUCN Red List status of Arabian oryx *Oryx leucoryx* was downlisted to Vulnerable in June 2011 following slow but steady increases in the reintroduced populations and a release in Wadi Rum,

Jordan, in 2009. This was the first time that any mammal – perhaps any species - had moved from being Extinct in the Wild to Vulnerable and the reassessment consequently received much publicity including a press release from IUCN.

This change in status also provoked a number of critical comments and questions, some of them from ASG members who have been directly involved in oryx and other reintroductions. The essence of these concerns was whether all the reintroduced oryx could be considered truly 'wild', either because they were in fenced reserves or because of the level of management - provision of food, water, shade - or a combination of both.

The issue of 'what is wild'? is thus important for redlisting but also has a more general philosophical relevance for antelopes and other species. The issue will occur more frequently as reintroductions continue to take place, but could also apply to situations where natural subpopulations are restricted to isolated Protected Areas which may be fenced and/or intensively managed.

Two reserves that harbour reintroduced populations of Arabian Oryx are entirely fenced: Mahazat as Sayd in Saudi Arabia (2244 km^2) and Umm al Zumoul/Arabian Oryx Reserve in Abu Dhabi (10,000 km^2). However, many PAs in Africa are also fenced, including some that are much smaller than 10,000 km^2. Indeed, most antelopes occurring in South Africa are confined within fences of some kind, either in PAs, game ranches or hunting concessions. So, if fencing alone were enough to disqualify an animal population from being considered 'wild', then very few antelopes in southern Africa, including several endemic species would be eligible for the Red List.

The second point is management of oryx (or other animals) post-release, such as provision of supplementary forage, water, shade and veterinary care. It is normal practice to provide food and or water at early stages of a release while the animals acclimatise to their new environment, so it may seem straightforward to assess when reintroduced animals have become completely independent and at this point declare them 'wild'. However, provision of shelter, food and water is a common feature of many conservation programs. In South Asia, uncontaminated animal carcases are left out in 'vulture restaurants' to address the crash in vulture populations due to poisoning by diclofenac. In Indian Tiger Reserves, concrete-lined pools are constructed to ensure tigers have access to water. There are many places where nestboxes are installed for birds and bats, and supplementary food, water or salt licks are provided for a range of species. Should all animal populations that rely to some extent on artificial nest sites, shelter or additional food and water be regarded as not fully wild? Many more species depend on regular or intensive intervention to maintain or promote preferred habitats or to control predators. Should these too be regarded as not fully wild? And if so, where exactly is the line to be drawn?

So defining 'wild' becomes more complex than it may at first seem. Firstly, at what point do reintroduced animals become wild, and on which criteria? Secondly, do 'natural' populations dependent on management intervention reach a point at which they are no longer considered fully wild? Eligibility for assessment on the IUCN Red List may be a useful surrogate for 'wild'.

The background context is one of decreasing 'wildness' as large mammal populations become restricted to smaller habitat patches, increasingly isolated and protected by fences. A further consideration is that if reintroduced populations could never be regarded as wild, the overall incentive to carry out reintroductions may be reduced.

Redford *et al*. (2011) propose five categories of animal populations (captive managed, intensively managed, lightly managed, conservation dependent, and self sustaining), though do not address directly the question of wildness. They define intensively managed as animals that 'rely on direct human intervention at individual and population levels'. This definition does not apply to most or all Arabian oryx - though 'lightly managed' probably does.

A second antelope species, Scimitar-horned oryx *Oryx dammah*, now has several reintroduced populations in North Africa that receive different levels of management. One site, Dghoumes in Tunisia, is fenced on only three sides, so oryx are free to move outside the release site. It could therefore be argued that the species may be eligible for reassessment from its current status of Extinct in the Wild to Critically Endangered. Such a move would no doubt be controversial.

Clearly ASG needs to define which animals should be considered for Red List assessment (=wild). This summary is intended to stimulate discussion. Please send any comments or views either specifically on the two oryx species, or the issue in general, direct to Gnusletter or to the Co-chairs.

- *David Mallon*

Reference

Redford, K.H., Amato, G., Baillie, J., Beldomenico, P., Bennett, E.L., Clum, N., Cook, R., Fonseca, G ., Hedges, S., Launay, F ., Lieberman, S., Mace, G.M., Murayama, A., Putnam, A., Robinson, J.G., Rosenbaum, H., Sanderson, E.W., Stuart, S.N., Thomas, P. and Thorbjarnarson, J. (2011). What does it mean to successfully conserve a (vertebrate) species? *BioScience*, 61: 39-48

Giraffe Specialist Group – Okapi Perspectives

by Steve Shurter

Yes, okapi and giraffes are part of the Antelope Specialist Group umbrella (along with pronghorns, water chevrotains, and African buffalo – there is a joke that we should be the Lost Ungulate Specialist Group!). This seemingly odd cast of ASG characters (when compared with dibatag, lechwe, oryx and hartebeest) is worthy of ASG focus and increasingly, actions for their conservation. The Giraffe Working Group has been particularly active, and with partners, has organized meetings and are supporting conservation activities for related giraffe projects in Africa. Julian Fennessy, International Giraffe Working Group and Giraffe Conservation Foundation Trustee, and a host of other giraffe specialists deserve kudos for their efforts to implement and highlight this work.

It has come to pass that the members of the International Giraffe Working Group (IGWG) are keen to build on their progress, forming as a designated giraffe Specialist Group (SG), on the one hand because they are not antelopes, but mainly because of the recent plight of giraffe populations in Africa, with some subspecies now listed as 'endangered' – with more in the pipeline. It has been conveyed that the giraffe specialists feel the timing is now appropriate to increase awareness for giraffe with numbers and ranges dwindling.

Mike Hoffmann, Senior Scientific Officer IUCN SSC, and ASG Chairs Mallon and Chardonnet have had discussions as to this potential in consideration of resources, leadership, and specialists. One big question in all this - where does the okapi fit into a giraffe specialist group scenario? To date, there has not been any crossover between the current Giraffe Working Group with okapi people, conservation or research, and okapi actions have not been on the giraffe specialist's agenda. To be fair, the okapi (and okapi people) live in another African forest world, so while there may be similar concerns of okapi population losses in the DR Congo as well as the need for increased awareness, this forest giraffe doesn't share a lot in common with its tall African plains cousin.

In Mike Hoffmann's words representing the IUCN SSC position: *"There is not much in the way of opposition to the idea of spinning giraffes out of the ASG. Certainly, the IGWG has been very active, and has pushed forward several initiatives (including hosting the recent successful Giraffe Indaba and the newsletter Giraffa). However, (the SSC Chairs office) is very reluctant to do so to the exclusion of the related Okapi. We already have in excess of 30 mammal Specialist Groups that cover all extant taxa (indeed, it is the only group of species for which we have complete coverage), and with each additional group that we create there is a small, but nonetheless incremental, cost incurred in terms of support from the Chairs office and IUCN Global Species Program. Given the tremendous gaps in coverage in other taxa (even in some other vertebrate groups, never mind plants and inverts) we have to think very strategically and carefully about the establishment of new SSC structures and what we hope to achieve by formalizing them."*

Understandably, this requires dialogue amongst okapi and giraffe specialists, with the ASG and the SSC. Despite increased cooperation in recent years, and planning for range wide assessments the okapi community is certainly not organized at any level, compared with the efforts of the Giraffe Working Group. Could this be the stimulus needed for both giraffe and okapi groups to engage and thrive? With apologies to the chevrotain, pronghorn and African buffalo crowds – perhaps they are the next with focus groups. Stay tuned.

ZSL Antelope Symposium – November 2011

The long awaited ZSL symposium Antelope Conservation in the 21st Century: From Diagnosis to Action was held on November 17th and 18th at the ZSL offices at the Zoo in Regents Park. Organized by Jakob Bro-Jorgensen of the University of Liverpool and David Mallon ASG Chair, the symposium was well attended by 113 registered participants. The presenters included a diverse and distinguished group of international scientists, professors, students, researchers, zoo managers and conservationists, nearly all working with antelope related projects and conservation issues.

Session 1 Introduction to Antelope Biodiversity and its Conservation Status

- The current status of antelopes – a global view, David Mallon, Manchester Metropolitan University, Co-Chair IUCN Antelope Specialist Group

Session 2 Turning Habitat Loss Into Conservation-Friendly Land Use

- Challenges of preserving dynamic savannah ecosystems, John Fryxell, University of Guelph, Canada
- Hands on or hands off? Contrasting approaches to antelope management, Mike H. Night, Conservation Services, South African National Parks, South Africa
- Use it or lose it . . . . , Herbert H.T, Prins, Resource Ecology Group, Wageningen University, The Netherlands
- Antelope abundance and distribution: What should we expect with climate change?, Grant Hopcraft, Groningen University, Netherlands

Session 3 The Challenge of Conserving Ungulate Migrations in a Changing World

- Conserving the great antelope migrations in the nation building process of the Republic of South Sudan, Paul Elkan, Wildlife Conservation Society, South Sudan Program

- Nomadic long distance movements of Mongolian gazelle, Thomas Mueller Biodiversity and Climate Research Centre, Frankfurt, Germany

Session 4 Coexisting With Livestock

- The evolution and conservation of hartebeest, L.M. Gosling, University of Newcastle, University of New Castle upon Tyne, UK

- Antelope Diseases – the "Good, the Bad, and the Ugly", Richard Kock, Department of Pathology and Infectious Diseases, Royal Veterinary College, UK

Featured Speaker
Challenges to the survival of the giant sable antelope, *Hippotragus niger variani*, Richard D. Estes, Founder Chair IUCN Antelope Specialist Group, Research Associate Smithsonian Conservation Biology Institute, US.

Session 5 How to Counter Over Harvesting

- Importance of Bushmeat Consumption in Africa John Fa, Durrell Wildlife Conservation Trust, ICCS Imperial College London, UK

- Evaluating the feasibility of alternative bushmeat management options, Noelle Kumpel Zoological Society of London, UK

- Engaging local people to counter overharvesting: the case of the saiga antelope, E.J. Milner-Gulland, Imperial College, London, UK

Session 6 Sport Hunting and Game Ranching – Threats or Solutions

- Wildlife ranching: promoting best practices for enhancing conservation benefits., Philippe Chardonnet. Fondation IGF, France, Co-Chair IUCN Antelope Specialist Group

- What is the scope of trophy hunting in antelope conservation? Opportunities and pitfalls, Nils Bunnefeld, Imperial College London, UK

Session 7 New Techniques in Antelope Conservation

- Genetic tools for antelope conservation, Helen Senn, WildGenes Laboratory, Royal Zoological Society of Edinburgh, Scotland, UK

- The use of camera trapping to monitor threatened duiker species, Olivia Needham, Zoological Society of London, UK

- The application of landscape genetics in the conservation of the endangered mountain nyala (*Tragelaphus buxtoni*) in the southern highland regions of Ethiopia., Anagaw Atickem, University of Oslo, Norway

- From molecules to management – using population genetics in the conservation of sub-Saharan savanna antelope, Eline Lorenzen, Centre for GeoGenetics, Natural History Museum, University of Copenhagen

Session 8 Reintroductions – When and When Not?

- The fall and rise of the scimitar-horned oryx, Tim Woodfine, Marwell Wildlife, UK

- Desert antelopes. Where there's life there's hope, John Newby, Sahara Conservation Fund

- Reintroduction as an antelope conservation solution, Mark Stanley Price, University of Oxford UK.

Posters
The reintroduction of Arabian oryx to the AlWusta Wildlife Reserve, Oman: 30 years on., Mansoor Al Jahdhami, Mohammed AlBalushi, Salah Al-Mhdhoury and Halitham AlAmri Office for Conservation of the Environment, Diwan Royal Court. Po Box 246, P.C. 100, Muscat, Sultanate of Oman

Arid Land Antelope Research and Conservation at Al Ain Zoo, Abu Dhabi, United Arab Emirates., Lisa Banfield, Arshad Toosy, Mike Maunder, Andrea Putnam, Al Ain Zoo, Abu Dhabi Rob Ogden, Helen Senn , WildGenes Laboratory, Royal Zoological Society of Scotland, UK

The value of participatory monitoring in the conservation of migratory ungulates: a case study of Saiga antelope., Henrietta Chilton, Imperial College, London, UK

Genetic assessment of the Arabian oryx founder population in the Emirate of Abu Dhabi: an example of evaluating unmanaged captive stocks for reintroduction., Husam Al Alqamy, Egyptian Governmental Affairs, Cairo, Egypt, Helen Senn, Mary-Francis Roberts, Ross McEwing, and Rob Ogden , Wildgenes Laboratory, Royal Zoological Society of Scotland, UK

Decline of dorcas gazelle in Sinai, Egypt, Husam Al Alqamy, Alaa Ismail, Abdulla Nagy and Adnana Abdul Hameed, Egyptian Enviromental Affairs Agency, Cairo, Egypt

Present and future of the Western Derby Eland, Karolina Kolackova, Pavla Hejcmanova; Magdalena Zackova, Pavla Vymyslicka and Pavel Brandl. Derbianus Czech Society for Wildlife , Prague Czech Republic, Czech University of Life Sciences, Prague Zoo

The phylogeography of Saharan and Arabian dorcas gazelles: Implications fo the conservation of a threatened taxon., Hannes Lerp, Department of Ecology and Evolution, University Frankfurt/Main, Germany, Torsten Wronski, Tom M. Butynski, King Khalid Wildlife Research Center Saudi Wildlife Commission, Riyadh Kingdom of Saudi, Zoological Society London, UK Markus Pfenninger and Martin Plath, Molecular Ecology Group, Biodiversity and Climate Research Centre, University Frankfurt/

Main, Germany,

Population genetic analyses refute the species status of Farasan mountain gazelles (Gazella gazelle), Hannes Lerp, Department of Ecology and Evolution, University Frankfurt/Main, Germany, Torsten Wronski, King Khalid Wildlife Research Center Saudi Wildlife Commission, Riyadh Kingdom of Saudi, Zoological Society London, UK, Markus Pfenninger and Martin Plath, Molecular Ecology Group, Biodiversity and Climate Research Centre, University Frankfurt/Main, Germany.

The Tora hartebeest (Alcelaphus buselaphus tora) notes on the appearance and conservation status of this little known and possibly extinct sub-species of hartebeest., Peter Luptak, Bojnice Zoo, Slovakia, Jens Ove Heckel, Zoo Landau in de Pfalz, Germany

Matching observations and reality: the effects of observation error on monitoring of an harvested antelope community in the Serengeti, Tanzania, Anna Nuno, Nils Bunnefeld, E.J. Milner-Gulland Imperial College, London, UK

Filling the gaps: linking ex situ research and in situ conservation Nicola Pegg, Andrew Bowkett, Whitley Wildlife Trust, UK

Addax conservation in the wild: status update Niger, Thomas Rabeil, J.E, Newby, Sahara Conservation Fund, USA, V. Turmine, Smithsonian Conservation Biology Institute, Front Royal, VA, USA, T. Wacher, Zoological Society of London, UK

Genetic diversity of Arabian oryx, Helen Senn, Robb Ogden, WildGenes Laboratory, Royal Zoological Society of Scotland Husam El Aqalmy, Environment Agency, Abu Dahbi

Using modeling to identify potential reintroduction sites for scimitar-horned oryx., V. Turmine, P. Leimgruber , Smithsonian Conservation Biology Institute, USA, T. Rabeil, J.E.Newby, Sahara Conservation Fund, USA

Determinants of diet selection in critically endangered Western Derby eland in the conservation breeding enclosure, Fathala Reserve, Senegal, Karolina Kolackova, Pavla Hejcmanova; Magdalena Zackova, Pavla Vymyslicka and Michal Hejcman Derbianus Czech Society for Wildlife , Prague Czech Republic, Czech University of Life Sciences

Catastrophic die-off of globally threatened Arabian oryx and sand gazelle in the fenced protected area of the arid central Saudi Arabia, M. Zafar-ul Islam, Moayyad Sher Shah, Ahmed Boug, National Wildlife Research Center, Taif, Saudi Arabia

A plan to reduce the risk of mass mortalities of reintroduced animals in the Mahzat as-Sayd Protected Area in Saudi Arabia., M. Zafar-ul Islam, , Ahmed Boug, National Wildlife Research Center, Taif, Saudi Arabia, Cody Knutson, National Drought Mitigation Center, University of Nebraska, Lincoln, NE, USA

IUCN Antelope Specialist Group Meeting November

by Steve Shurter

ASG Chairs David Mallon and Philippe Chardonnet took advantage of the gathering of antelope experts at the ZSL symposium and convened a meeting of 20 Antelope Specialist Group member participants and observers for a day of ASG related discussions on November 19. The Zoological Society of London graciously hosted the ASG meeting at their offices and Mike Hoffman Senior Scientific Officer at IUCN was present to provide input from the SSC. ASG priorities for the next decade:

Priority taxa / regions / ecosystems

D. Mallon and P. Chardonnet lead these discussions following a red list priority database which Mallon developed. Although it was not possible to develop a comprehensive list of actions with the limited participants and time, the ASG antelope databases was reviewed briefly with particular discussions being expanded for some species. The ASG intent for the future will be to prioritize a list of projects for the coming years (2012-2015) and look to develop resources and mobilize partners. Mallon will continue to maintain the ASG antelope database as a dynamic document including regular ASG review against Red List criteria.

The following ASG priority antelope species were discussed in more detail during the meeting.

Nile Lechwe

P. Elkan (WCS South Sudan Program) reported on recent surveys in South Sudan and Ethiopia that indicate that 10,000 +/- Nile lechwe still exist, comparable if not down slightly in numbers from 1982 surveys, although not as widely distributed in South Sudan. Threats include continued armed conflict in N. lechwe areas, oil exploration and/or pollution, and the potential for the Jonglei Canal initiative through 30% of lechwe habitat. Activities and needs include Nile lechwe specific surveys (if conflict allows) PhD student support for lechwe researcher Paul Dmitri.

Hirola

T. Butynski (King Khalid Wildlife Center, ZSL) provided an update on the current situation with hirola in Kenya. The hirola population continues to decline and recent surveys indicate 300 +/- all in Kenya. Current activity by the Northern Rangelands Trust and Kenya Wildlife Service has established a decent protected area at the Ishaqbini community near the Tana River Primate Reserve. Monitoring and protection activities are in place but indicate that the hirola's shift from a nomadic to a sedentary species have enabled lions to predate heavily on the remaining small hirola population. A project is underway to exclude the predators placing the remaining Ishaqbini hirola in a fenced reserve (130 animals – see J. King's report GNUSLETTER 30 Vol 1). The NRT is leading fund raising efforts for the fencing project. A small translocated population still exists in the Tsavo National Park but these hirola have not increased significantly in numbers. It was suggested that an additional population should be created and placed under intensive management to help stop the decline of the hirola.

Ader's Duiker
Andrew Bowket (Whitley Wildlife Trust) provided updates on his survey work in Kenya in the Boni Forest. Camera trap surveys revealed relatively good densities of Ader's duiker in the Boni Forest and is probably an indication of a generally healthy Ader's duiker population in that forest. Additional surveys are needed for similar coastal rag areas in Tanzania which may harbor additional populations of Ader's duiker.

Abbot's Duiker
Andrew Bowket reported on his preliminary survey work for Abbot's duiker in the southern highlands of Tanzania. The Abbot's duiker is nowhere common although Tanzanian authorities claim numbers are increasing. Priorities are to document the Abbot's duiker distribution and conduct genetic studies to understand the various populations.

Dambari - Zimbabwe
A. Bowket reported that the Whitley Wildlife Trust continues to operate the duiker field station in Dambari and reports that they are open to research and support partnerships.

Building partnerships between* in situ *and* ex situ *conservation:
- Conservation breeding community best contribution to *in situ* efforts?
- Integration with ASG or its members contribute to *ex situ* activities (SSPs/EEPs etc)

ASG matters
- Red List (priorities for reassessment)
- Gnusletter (ideas for content; special issues)
- ASG updates (time for a new one?)
- Antelope database (adopting the AED model for some species?)
- Website

Antelope Specialist Group Structure
The historic ASG structure, which previously included regional chairs, has largely been discontinued, due to inactivity within many of the ASG sub-regions. The current ASG co-chair system has been organized to enhance communication and encourage activity in all regions, with focus in both Africa and Asia, including Francophone and Anglophone interests.

Two ASG structural initiatives currently being discussed. The Giraffe Working Group has requested the SSC and ASG to review their request for Specialist Group status within IUCN (see Okapi Perspectives – GNUSLETTER 30 Vol 1).

A second initiative relates to a proposal to form an African Buffalo initiative group. P. Chardonnet is working with colleagues to enhance African buffalo conservation efforts through good will and initiatives, which would benefit from the formation of a formal working group. They plan to develop the membership while including more range state representatives, with a target of 20 or so active participants, and a structure to develop activities for the African buffalo across their range. Stay tuned to GNUSLETTER as the initiative develops, or contact P. Chardonnet if you have specific questions.

ASG Members
It was discussed that more range country antelope specialists should be encouraged to participate actively with ASG. In many countries, particularly in Africa, potential ASG advocates do not currently have the networks and external connectivity to adequately represent their work and antelope conservation challenges on an international level. It was suggested that current ASG members take a mentoring role to encourage increased participation from range state individuals, ultimately to broaden the ASG reach and reinforce the ASG impact. ASG Co-Chairs D. Mallon and P. Chardonnet plan to review the current membership with this in mind, as they make invitations to new members during the next triennium.

Taxonomy
Recent publications suggesting significant changes in antelope taxonomy have prompted numerous and lengthy discussions in the ASG. With a goal of conserving as much antelope biodiversity as currently exists, the ASG will look to develop a taxonomic advisory group, in consideration of evolutionary significant units, potential political response and legal obligations.

What is Wild?
This antelope related question was raised following the Red List down listing of the Arabian oryx in 2011, based on IUCN criteria. It has been suggested that reintroductions of oryx in various range states, does not constitute a truly wild population (ie fenced reserves, water sources and food supplements, etc). Other arguments state that nearly all antelope populations are managed at some level, and in the future, this management will only intensify. Certainly this is a larger question for IUCN and others to address, but it does have implications for resource allocation and red list evaluation for antelopes and the ASG. Understandably no solution was arrived upon during this meeting, however it was agreed to continue the dialogue, perhaps in a public forum such as GNUSLETTER, to address and refine ASG guidelines, perhaps with the Reintroduction Specialist Group.

GNUSLETTER*/Marketing/Website*
The ASG newsletter GNUSLETTER will continue to be published twice per year. The discussion of a peer reviewed journal approach for GNUSLETTER publications was introduced, however the group agreed that the historic informal format adopted for GNUSLETTER, including reports and news, should be continued for the time being. Themed issues will be developed for the future and all reports submitted will continue to be reviewed by committee prior to publication.

The current ASG website through the IUCN site is functional and provides access to ASG publications and GNUSLETTER archives. It was suggested that a more interactive website might better showcase ASG members and projects and could be used as a fund raising tool. It is recognized that website design and domains require time, money and a dedicated site manager. If and as ASG prioritizes an improved website function, a partner and/or volunteer and funds would need to be acquired.

Recent Reports

Dry Season Aerial Total Count Zakouma National Park, Chad, Report by: Darren Potgieter, Satangar Dogringar, Bechir Djimet, Sebastien Lamoureaux (pilot)

Financed by the Wildlife Conservation Society, African Parks Network, the European Union and the Government of Chad – *Ministère de l'Environnement et des Ressources Halieutiques.*

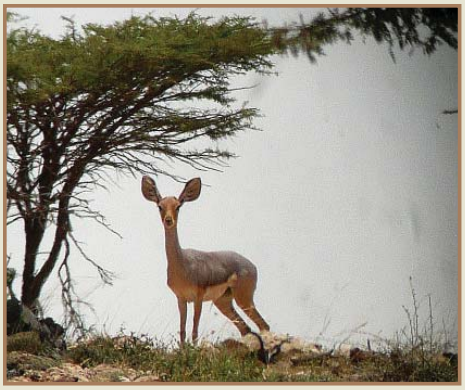
Summary
An aerial total count of Zakouma National Park was conducted between 2 and 6 April 2011. The entire park and a small portion of the eastern periphery (3326 Km2) was covered in 5 consecutive days with a total of 34.1 hours of flying. The survey was conducted at an altitude of 300ft (92m), with a strip width of 300m on either side of the Cessna 182 aircraft, giving an interval of 600m between parallel transects. All species were found to be increasing in population or to be at least stable, with the exception of elephant. The estimates of wildlife species are as follows: 454 elephants, 7610 buffalos, 753 giraffes, 714 roan antelope, 1177 tiang, 1752 hartebeest, 943 waterbuck, and 250 ostriches. Elephant carcass data confirms a decrease in poaching in the park, however elephant numbers continue to decline. This decline is due to some poaching inside the park as well as one, or combination, of two possibilities; 1) continued poaching outside the survey zone where elephants spend the wet season, or 2) that not all the elephants returned to the park this year after the wet season.

A note on beira *Dorcatragus megalotis* marking behaviour in Somaliland, David P. Mallon and Abdi A. Jama

Beira *Dorcatragus megalotis* is a species of small antelope endemic to the Horn of Africa. Its main area of distribution is in Somaliland and the Puntland region of Somalia, extending to extreme south-east Djibouti and very small areas of neighbouring Ethiopia. Its IUCN Red List status is Vulnerable (Heckel *et al*. 2008).

Very little information on beira in Somaliland has been published since the account by Drake-Brockman (1910). Beira were one of the target species on a rapid assessment survey of the status of antelopes in Somaliland. The survey took place 3-18 July 2010 and was carried out by the two authors and a small support team. The route covered approximately 2000 km and took in all major habitats from the Djibouti border in the west to Daallo Forest close to the border with Puntland in the east. The itinerary was completed using a 4WD vehicle, with foot transects carried out at study sites.

Beira were observed at 4 sites, their field signs were found at 2 others, and local reports of presence were obtained at 3 more. Subsequent surveys by AAJ have recorded beira at 4 more sites. The sites ranged from 600 to 1450 m. Most sites consisted of dry, flat-topped hills with steep stony slopes and scattered trees (*Acacia etbaica, A. tortilis* and *Commiphora spp*) (above), a habitat described as typical for beira by Drake-Brockman (1910).



Observations at a known site near Hargeisa, originally located by AAJ, were used to confirm identification of field signs. Beira fecal pellets are cylindrical, 9-13 mm long and 5-6 wide, and mostly pointed at one end. They are distinctive in shape and readily distinguished from those of sympatric antelopes which are rounder and fatter and also have a small point:. Salt's Dikdik *Madoqua saltiana* pellets are much smaller, 5 mm or less, while those of Speke's *Gazelle gazella spekei* and Gerenuk *Litocranius walleri* are much larger.

Beira droppings were sometimes scattered or in loose lines, but were more often found in small clumps or in latrines. It was clear from differential aging of the droppings that the same latrine may be reused at different times.

Droppings were frequently associated with small scrapes in the ground. Giotto et al. (2008) referred to male beira scraping the ground vigorously with their forefeet but did not describe the appearance of the scrapes. The scrapes found during the survey consisted of a small area cleared of loose stones variously measuring 10-25 cm, and with the scraped up stones or earth in a small pile at the back. Droppings or a clump of droppings were deposited on top of this pile. Sometimes two scrapes were positioned back to back, with the scraped material in the centre (PIC).

A few clusters of 4-5 scrapes were seen, where droppings and urine had been liberally scattered on top (PIC), forming a latrine. Many scrapes were made along plateau edges at the top of the slope. It is tempting to conclude these had a territorial marking function and that scrape clusters indicated where ranges abutted each other, but on the basis of prolonged observations, Giotto and Gerard. (2009) did not find a pattern of latrines made along territorial boundaries.

On 7 July, a group of 4 beira near Dir Mara' (09049'02"N, 44051'21"E) was observed for three hours, using 10x binoculars and a 20-45x telescope. The animals (an adult male, two females and young male) were first located at 10h20, grazing on the plain at the foot of a scree slope, at 1410 m. They moved slowly up the slope, grazing as they went and on three occasions browsed on Acacia and Commiphora bushes. At mid-slope they stopped to graze and rest.

The adult male moved a short distance away from the group, prospected an area, and began making scraping movements with both forefeet. The scraping continued for about 2 minutes. Then it squatted right down on the scrape, with body held almost vertically (Fig. x) and remained there for 30 seconds, apparently defecating. It stood up, walked around, urinated on the scrape and moved away. A female approached the site, sniffed, and also appeared to defecate on top. The male returned, also sniffed and again urinated and briefly defecated. The same actions were repeated, but more briefly, 15 minutes later. This behaviour closely matches the 'urination-defecation sequence' described for beira in Djibouti by Giotto et al. (2008) and Giotto and Gerard (2009).

Acknowledgement. The field survey was carried out with the help of grants from the Mohammed Bin Zayed Fund to AAJ and DPM.

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African or Asian Siblings? Phylogenetic Analyses imply Non-Monophyly within the Goitered Gazelles

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Within the genus Gazella the taxonomy is uncertain and new molecular techniques cause doubt on a classification based on morphological traits alone, which are in most cases the only available source of taxonomic information. One example for this is the goitred gazelle (*Gazella subgutturosa*). Vassart *et al*. (1995) stated that the genus *Gazella* is still paraphyletic since *G. subgutturosa* could be a sister taxon of Antilope, sharing two unique centric fusions in their chromosomes which suggest the possible need to revive the genus *Trachelocele*. Other studies investigating morphology or DNA sequences see the goitered gazelle still within the genus *Gazella* and reject a genus *Trachelocele*. Apart from that, differences within the

species were only addressed by using morphological traits.

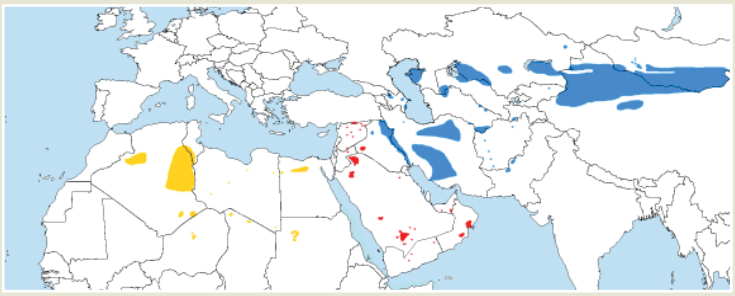

Figure 1. Distribution of Reem (Gazella marica, red), Goitered gazelle (G. subgutturosa, blue) and Slender-horned gazelle (G. leptoceros, yellow) according to IUCN antelope survey reports (East 1988a, b; Mallon and Kingswood 2001)

The goitered gazelle (*Gazella subgutturosa*) is distributed from Oman across the Arabian Peninsula to southern Anatolia in Turkey (Mallon and Kingswood 2001). It occurs east of the River Tigris/Euphrat basin, north into the Caucasus and across Iran into Turkmenistan. Following the steppes of central Asia it inhabits the Takla Makan, Tarim basin and Sianking of China and extends further eastwards into central Mongolia where it gets replaced by *Procapra gutturosa*, the Mongolian gazelle (Groves 1985; Kingswood and Blank 1996; Mallon and Kingswood 2001). The Arabian sand gazelle (*G. s. marica*) is the most south-western subspecies occurring on the Arabian Peninsula north to the River Tigris/Euphrat basin and into southern Turkey. Today's distribution is limited to a few (protected) areas in the UAE, Oman, Syria, and Turkey and probably in Jordan and western Iraq (Mallon and Kingswood 2001). In Saudi Arabia it is restricted to four protected areas (Al-Khunfah, Harrat al-Harrah, Mahazat as-Sayd and Uruq Bani Ma'arid; for a review see Cunningham and Wacher 2009).

The sand gazelle was first described as a full species (*Gazella marica*; Thomas 1897) and later subsumed within the slender-horned gazelle (*Gazella leptoceros*) inhabiting the sand dune systems of northern Africa (Ellerman and Morrison-Scott 1951). Subsequently, G. marica was considered a subspecies of *G. subgutturosa* based on morphological and karyological similarity (Groves and Harrison 1967; Kingswood et al. 1996, 1997). More recently, Hammond et al. (2001) suggested that the two "subspecies", i.e., *G. s. subgutturosa* and *G. s. marica* are more distantly related than previously thought but this observation was either ignored or overseen in recent literature.

In a recent study (Wacher *et al*. 2010) the phylogenetic relationships between *G. s. subgutturosa* from east of the Euphrates/Tigris basin and those from the Arabian Peninsula (*G. s. marica*) were reanalysed using sequence variation of a mitochondrial marker (cytochrome b) obtained from samples of wild sand (*G. s. marica*) and goitred gazelles (*G. subgutturosa*) of known origin, from museum specimens, as well as from captive-breeding stocks. The findings support the interpretation of Ellerman and Morrison-Scott (1951), while conflicting with the grouping pattern inferred from a comparison of skull structure and horn conformation (Groves and Harrison 1967). Our data, therefore, reinforce the observation made by Hammond et al. (2001), i.e., that the two "subspecies" *G. s. subgutturosa* and *G. s. marica* are more distantly related than previously thought. The Arabian subspecies (*G. s. marica*) is apparently more closely related to the north-African species *G. leptoceros* and *G. cuvieri*, suggesting that *G. s. marica* and *G. s. subgutturosa* have evolved independently and that *G. s.marica* is the ecological equivalent of *G. leptoceros* on the Arabian Peninsula.

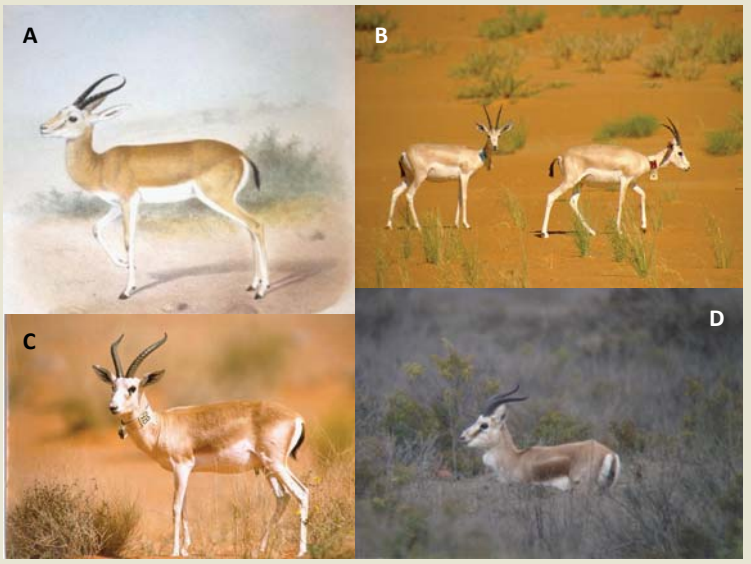

Figure 2. A) Male Gazella marica Thomas, 1897 in Sclater & Thomas (1898); B) Female Gazella marica re-introduced into Uruq Bani Ma'arid Protected Area in south-central Saudi Arabia, note long, slender horns; C) Male Gazella marica in Uruq Bani Ma'arid Protected Area, Saudi Arabia; D) Male Gazella subgutturosa subgutturosa in Shirvan Nature Reserve, Azerbaijan. © KKWRC

The genetic difference within the goitered gazelles (*G. subgutturosa*) implies two distinguishable groups: the goitered gazelle (including the subspecies *G. s. subgutturosa*, *G. s. yarkendensis*, *G. s. sairensi*s and *G. s. helleriana*) on the one hand and the Arabian sand gazelle (*G. marica*) on the other. Furthermore, these two groups seem to belong to different clades of gazelles: the goitred gazelle clusters with the Bennett's gazelle or Chinkara (*G. bennetti*), indicating an Asian origin of this taxon, while the Arabian sand gazelle appears to be closely related to the north-African species *G. leptoceros* and *G. cuvieri* and therefore indicating an African origin.

Female *G. s. marica* show consistently long horns unlike generally hornless *G. s. subgutturosa females* (Groves and Harrison 1967), while specimens from the region between the Euphrat/Tigris basin and the Zagros Mountains of Iran are reported to present a mix of characters. Consequently, this zone has been considered a hybrid zone (Groves and Harrison 1967, Kingswood and Kumamoto 1988). Sampling from the putative hybrid zone was very limited but samples clustered with specimens from Chinese Turkistan and Afghanistan suggesting that either no overlap zone exists, or only male-biased introgression occurs.
Despite the limitations of analysing mtDNA data only, the sand gazelle appears to form a more distinct conservation unit than might have been expected; in this sense restoration to full species status

with the name *G. marica* (Thomas 1897) may be the most helpful solution with respect to future conservation management and legislation for the *marica-, leptoceros- and subgutturosa*-grouping. The genetic differences described in Wacher et al. (2010) have a major impact on the conservation efforts of the Arabian sand gazelle, forming a distinct conservation unit and the original concern to avoid mixing this putative 'subspecies' with *G. s. subgutturosa* in captivity was fully justified (Greth et al. 1996, Kingswood et al. 1997).

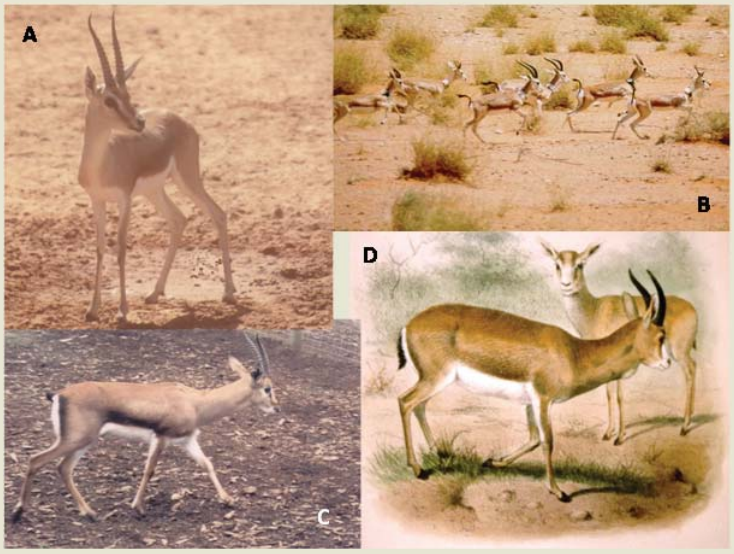

Figure 3. A) Male Gazella leptoceros at Prince Ahmed Farm, Riyadh, Saudi Arabia; B) Group of Gazella marica re-introduced into Uruq Bani Ma'Arid Protected Area, Saudi Arabia; C) Gazella cuvieri at Noble Private Collection, Canada; D) Male and female Gazella subgutturosa subgutturosa in Sclater & Thomas (1898), note horn-less female. © KKWRC

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The phylogeography of Saharan and Arabian 'dorcas' gazelles: implications for the conservation of a threatened taxon

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Figure 1. Dorcas gazelles at King Khalid Wildlife Research Centre, Saudi Arabia. Photo: M. Klein

Dorcas gazelles (*Gazella dorcas*, Fig. 1) occur in a wide variety of habitats (Lafontaine et al. 2006), from Sahelian savannahs to sand and gravel deserts, while avoiding hyper-arid areas and the upper elevations of the central-Saharan massifs (Wacher *et al*. 2004). Populations of dorcas gazelles are in dramatic decline where hunted and livestock numbers are high, but remain comparatively stable in areas with traditional pastoralism (Lafontaine *et al*. 2006; Wacher & Newby 2011). Historically, dorcas gazelles were distributed from Morocco and Mauretania in the west to the Horn of Africa in the east, and also occurred on the Sinai Peninsula and into the Levant (Fig. 2). On the Arabian Peninsula, representatives of this taxon were described as a separate species, the Saudi gazelle (*G. saudiya*; Rebholz *et al*. 1991; Hammond *et al*. 2001). *Gazella saudiya* is nowadays considered extinct by the IUCN/SSG (2009).

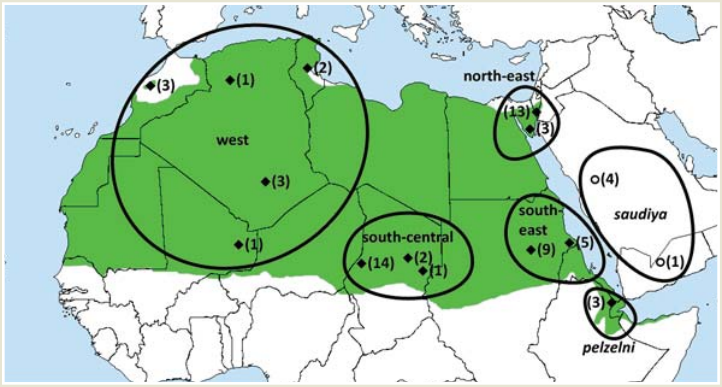

Figure 2. Distribution map of Dorcas gazelles (G. dorcas, green shade) according to IUCN antelope survey reports (East 1988a, b; Mallon and Kingswood 2001) including sampling locations of wild specimens of Dorcas (◆) and Saudi gazelles (O). Numbers in brackets indicate number of samples. Circles delineate 'groups' according to the most likely grouping scenario.

Conservation efforts for dorcas gazelles include the prohibition of hunting and establishment of protected areas (Lafontaine et al. 2006). Breeding centers are taking actions to preserve dorcas gazelles, but a general lack of phylogenetic and phylogeographic information hampers progress (Hammond *et al*. 2001). Several subspecies of dorcas gazelles were described on the basis of phenotypic variation such as fur coloration, horn shape and length, and other morphometric measures (*e.g*., Groves 1969, 1981; Yom-Tov *et al*. 1995), but genetic differentiation is poorly documented, and the presumed taxa seem to show no obvious ecological or behavioral differences congruent with the proposed taxonomic classification (Lafontaine *et al*. 2006). In this situation, phylogenetic and phylogeographic investigations using molecular techniques allow important insights into the evolutionary history of a given taxon that are of immediate importance for conservation management plans.

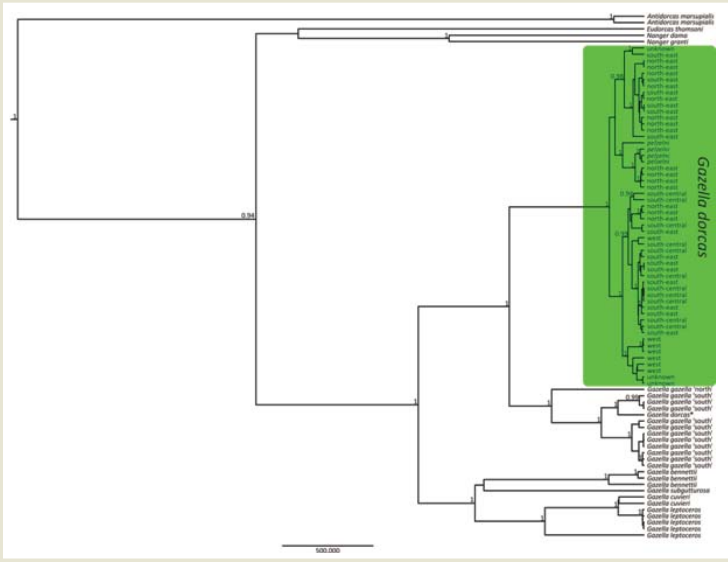

Figure 3. Phylogenetic tree based on the complete cytochrome b gene with reported posterior probability values larger than 0.9. Dorcas gazelles are shaded in green except for one presumed G. dorcas sample (*) from Arava Valley, Israel, which clustered within the G. gazella 'south' clade (the sample seems to have been misidentified).

Lerp *et al*. (2011) investigated sequence variation of the mitochondrial cytochrome *b* gene and control region of 73 dorcas gazelles and Saudi gazelles sampled throughout their geographic range (Fig. 2). Those sequences, plus sequences from other gazelle species were used for Bayesian analyses in order to infer a phylogenetic tree. The tree uncovered dorcas gazelles as a reciprocally monophyletic group with a sister-group relationship to the mountain gazelle (*G. gazella*, Fig. 3). No statistically significant support was found for any geographic structure within *G. dorcas* that would justify a division into subspecies. Therefore, dorcas gazelles can be regarded as one Evolutionarily Significant Unit (ESU).To further detect the most likely natural grouping of the sampling sites on a population genetic level, a series of AMOVAs was conducted. This analysis found strongest support for a genetic structuring into six groups (Fig. 2). The information from the latter analysis was then used to infer statistical parsimony networks (Fig. 4) of which one comprised more animals but less sequence information per animal (Fig. 4a) and vice versa (Fig. 4b). The analyses found no clear geographic pattern within the sampled dorcas gazelles. Haplotype sharing was particularly pronounced between the groups 'south-central' and 'south-east'. The authors interpreted these areas as the possible ori-

gin of the species. The '*pelzelni*' group has two lineages, of which one is more closely related to dorcas gazelles from the 'north-east' group (Figs. 2, 4b). In the case of Saudi gazelle ('*saudiya*' group), Lerp *et al*. (2011) detected two private haplotypes, which is in agreement with findings of Hammond *et al*. (2001).

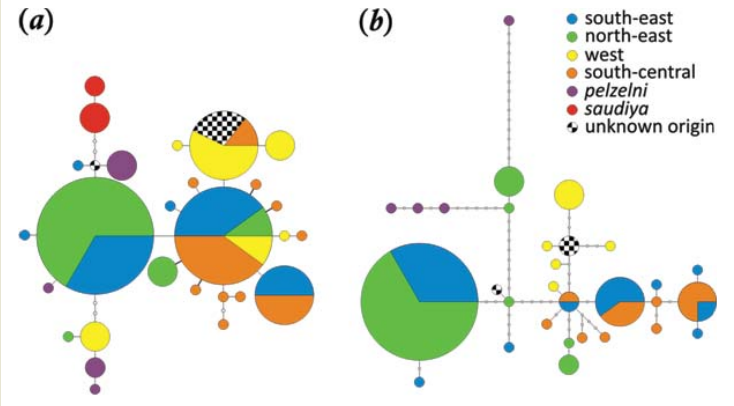

Figure 4. Statistical parsimony network based on (a) a 412 base pair fragment (73 sequences) and (b) the complete cytochrome b gene (57 sequences). Each circle represents a different haplotype, whereby circle size is proportional to the number of individuals in the data set with that haplotype (legend size represents one animal). The color indicates the origin of the samples (see legend). Smaller open circles represent missing haplotypes. Connecting lines correspond to one mutational step.

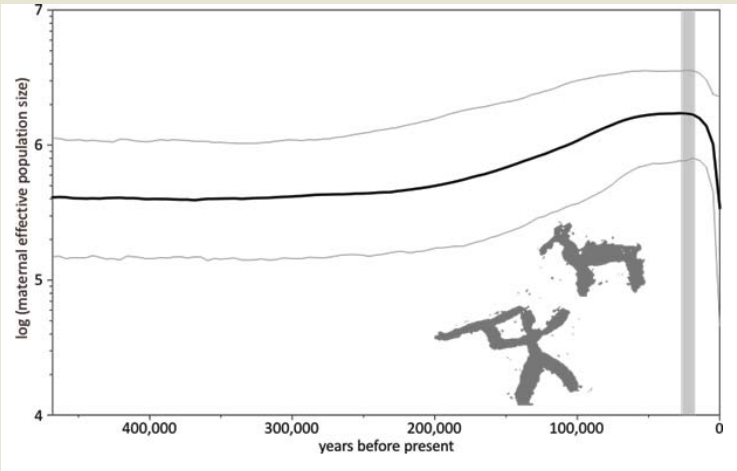

Figure 5. A Bayesian Skyline Plot showing maternal effective population size (mean and 95% confidence interval) based on 1,612 base pair concatenated cytochrome b gene and mitochondrial control region sequences of 53 dorcas gazelles over time. The gray shaded area marks the onset of the decline in effective population size. Inserted figure shows a hunting scene from ancient Saharan rock art illustrating the cause of the population decline.

The maternal effective population size of the species was also reconstructed. The calculation using a coalescent approach showed a steep population decline starting about 25,000 years before present (Fig. 5, grey shaded area). This date coincides with the first records of long-range hunting weapons in Africa and the Middle East (Nentwig 2007).

Until recently it was not clear whether several isolated, geographically separated populations (regarded as subspecies) of dorcas gazelles evolved independently around the centre of the Sahara, or whether a single large, contiguous, *G. dorcas* population exists. Several subspecies of dorcas gazelles have been described on the basis of phenotypic variation resulting in as many as ten trinomial names. The phylogeographic analysis of Lerp *et al*. (2011), however, found no geographic pattern of genetic structure and, thus, places doubt on the validity of these subspecies. Their interpretation is in agreement with the most recent classification suggested by Habibi (2011) based on the strict application of the 'Phylogenetic Species Concept'.

For the purpose of conservation, classifications should ideally be based on a comprehensive overview of biology, ecology, demography and biogeography (Williamson 1996). Classifications at the subspecies level have sometimes been criticized for the seemingly irrelevant criteria used in describing them and because of their frequent lack of biological significance (Greth *et al*. 1996). On the other hand, ignoring local adaptation phenomena in conservation programs can lead to outbreeding depression or maladapted genotypes being released into nature and, therefore, to the decline or even extinction of taxa (Ryder 1986, 1987). Under what circumstances is the mixing of threatened (potentially locally adapted) populations with other populations justified? Lerp *et al*. (2011) suggested that dorcas gazelles from across northern Africa can be viewed as one ESU, but their study was not designed to detect potential local adaptation phenomena, as no adaptive trait divergence of ecological characters was considered in their study. Still, based on the finding of pronounced haplotype sharing throughout regions Lerp *et al*. (2011) argued that local adaptation seems unlikely to play a major role.

For conservation management purpose the question arising from these results is whether dorcas gazelles from different parts of their range can be mixed in captivity and whether dorcas gazelles from south of the Sahara can be used to re-establish populations north of the Sahara (*e.g.*, in the well-protected areas of Tunesia and Egypt)? It is most certainly always recommended (for reasons outlined above) to breed populations from different geographic origins separately—if feasible. In the case of dorcas gazelles, however, mixing of different stock may be of lesser concern, should small numbers of individuals per population in captive breeding programs dictate that mixing populations is the better solution than running into problems from severe inbreeding. Also, based on the interpretation that local adaptation phenomena likely play a minor role, reintroduction programs might be based on animals from other than the original area of occurrence if necessary. However, in the case of *G. d. pelzelni* (and, theoretically, '*G. saudiya*', which, however, has probably gone extinct), taxa showing private haplotypes, it is recommended not to breed them with other *G. dorcas*, and re-introduction into areas outside of the historic range of G. *d.pelzelni* or '*G. saudiya*' should be avoided.

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Aerial survey of critically endangered Hirola by Dr. Juliet King, *julietking@nrt-kenya.org*

Over 12,000 km^2 in a remotepart of north-eastern Kenya from the Somali border in the east to the Tana River in the west and the Boni forest in the south, four aircraft spent eight days flying transects spaced every kilometre, searching for the critically endangered Hirola antelope (*Beatragus hunteri*).This was this most intensive survey undertaken since the mid 1990s to estimate the remaining population of this species in its natural range. The survey was a collaboration between NRT, Kenya Wildlife Service and Ishaqbini Hirola Community Conservancy, and comprised three 2-seater and one 4-seater aircraft, counting teams, ground crews and GIS experts. The Hirola is likely the most endangered antelope in the world. Since NRT has been involved in Hirola conservation, through our support to the Ishaqbini conservancy, it has become evident that despite the success of the conservancy in curbing poaching and improving rangeland condition, the resident Hirola population is not increasing. Since the start of 2010, 25 Hirola carcasses have been reported by conservancy rangers, all due to predation predominantly by lion. We believe this is limiting the growth of this population and potentially could lead to its disappearance in Ishaqbini.

The survey found only three areas with significant numbers of Hirola, and after 8 days of searching, only 245 Hirola were counted from the air. While this is likely to be a slight undercount we believe that there aren't any other significant concentrations ofHirola remaining in their natural range. As NRT, this survey has highlighted the urgent plight of this species and the need for direct conservation intervention beyond what is being done already. Our emphasis now is to develop a predator-proof sanctuary within Ishaqbini in order to secure a breeding population, sourcing herds from both the core Ishaqbini population and outlying areas.

Published in the NRT Reserch & Monitoring Update August 2010 - July 2011

Blackbucks are Back in Nepal!

Prakash Shrestha, WTLCP-NEPAL

Blackbuck (*Antilope cervicapra*), locally known as Krishnasar, is one of the 26 protected mammals in Nepal. Once thought to be extinct from Nepal, Blackbuck was rediscovered in Khairapur area of Bardia district, in 1976.

Soon after this rediscovery, the government set aside a 488 ha area to conserve blackbuck and initiated conservation work in partnership with the local community. Thanks to these continuous conservation efforts, the number of blackbuck has increased to 251 today, a significant increase from the nine individuals that were rediscovered in 1976.

As the number of blackbuck grew, the government of Nepal declared 1,695 ha of land as 'Blackbuck Conservation Area' in 2009. The government is implementing a conservation awareness programme in the community through various publications, radio programmes, and extracurricular activities in local schools. Over 800 local people are members of four blackbuck coordination committees that are working together with government both to conserve the blackbuck and to raise their income - which is below USD1 a day- in a conservation-friendly way. Conservation organizations such as Western Terai Landscape Complex Project (WTLCP) are supporting the community with livelihood related activities such as fish farming, banana cultivation, and alternative herb cultivation.

Cultivation of alternative herbs like mint and camomile, near the conservation area has reduced human-blackbuck conflict because these herbs are unpalatable to animals and are not consumed by blackbuck; local farmers can therefore produce essential oils from these herbs that have high market value.

Currently, the blackbucks are facing a few problems that need to be addressed. Human-blackbuck conflict is one of the major problems since landless people often try to encroach and settle inside the conservation area. Moreover, there is no 'boundary wall' to prevent blackbuck leaving the conservation area or to prevent cattle and stray dogs from entering; in both cases blackbucks come under threat. To make blackbuck conservation beneficial to the community, the government is promoting ecotourism in this area. With the combined efforts by the community, conservation partner organizations and the government, we expect that this blackbuck population will thrive in Nepal.

This population was overlooked by Shrestha (2001) and also on the IUCN Red List (which currently states that blackbuck is extinct in Nepal). The Red List account will be revised in early 2012 to include the revised information (D. Mallon, in litt.).

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Publications

Microsatellite loci for the okapi (*Okapia johnstoni*) by David W. G. Stanton, Linda M. Penfold, Xiangjiang Zhan, Michael W. Bruford

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http://www.springerlink.com/content/t82r90263g00958k/

Abstract
We describe 13 polymorphic microsatellite loci for the okapi (*Okapia johnstoni*). These markers were tested with 20 samples collected from a number of populations and exhibited a mean of 6.1 alleles per locus and a mean expected heterozygosity of 0.759. All but one locus was in Hardy–Weinberg equilibrium, and no evidence for linkage disequilibrium was detected between any loci. These loci will be useful for the future study of population genetic diversity and genetic structure in this elusive and emblematic species.

Population status, structure and activity patterns of the Bohor reedbuck *Redunca redunca* in the north of the Bale Mountains National Park, Ethiopia

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Abstract
The Bohor reedbucks *Redunca redunca* (Pallas, 1767) were studied in the Bale Mountains National Park (BMNP), Ethiopia to assess their population ecology and activity patterns. The total count method was used to assess population size. Activity patterns of a herd were studied with five minutes recording intervals. There were 406 Bohor reedbucks in the study area of which 96.8% (n = 393) was confined to the Gaysay-Adelay area. The population was female-biased. Excluding juveniles, 57.1% (n = 232) was females and 33.5% (n = 136) was males. More adults (71.7%, n = 291) were observed than subadults (18.9%, n = 77) and juveniles (9.4%, n = 38). The herd size of Bohor reedbucks varied from 3 to 5. Herds were seen in aggregations of up to 59 individuals during the dry season in swamp grassland habitat. The maximum number observed in such aggregations during the wet season was 38. The diurnal activity pattern showed feeding peaks early in the morning and late in the afternoon, with resting during the mid-day. Two feeding peaks were observed in the nocturnal activity phase: one during dusk and the other around midnight. In contradiction to the general concept of occurrence of smaller herds during the dry season, the Bohor reedbucks aggregate in swamps during the dry season. They were also active during night and day time.
Key words: activity patterns, Bohor reedbuck, population status

Duiker demography and dispersal under hunting in Northern Congo

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Abstract
Duikers are the most heavily hunted species across forested Central and West Africa. Although these species form a vital food resource for people, little is known about their ecology and demography. The information available to date was collected from populations protected from hunting. However, hunting can profoundly alter demography and behaviour, such as dispersal, which in turn determine the sustainability of harvest. To address this research gap, I used radiotelemetry to examine duiker demography under hunting in Congo-Brazzaville. Among blue duikers (*Philantoba monticola*, n = 17) I found annual survival rates (0.94), immature dispersal rates (0.25), and average home ranges (5.5 ha) that largely coincided with previous research from unhunted regions. Neighbouring animals all showed some home range overlap, in contrast to previous studies which found blue duikers to be strictly territorial. Although limited by sample size, immature animals' dispersal distances were rela-

tively high (1.5 km, n = 2). Animals' dispersal rates do not appear to be greatly increased by hunting pressure, although source-sink theory depends upon high rates of dispersal to maintain the elevated and localized hunting offtakes observed around settlements. Building a fuller understanding of duiker demography under hunting, including dispersal, will be essential for conservation and management efforts.

Key words: Central Africa, *Cephalophus*, Congo, duiker, hunting, source-sink.

Dung decay and its implication for population estimates of duikers (Cephalophus and Philantoba spp.) and red river hogs (Potamochaerus porcus) in the Nouabale´-Ndoki National Park, Republic of Congo

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Mbeli Bai Study / Nouabale´-Ndoki Project, Wildlife Conservation Society, B.P. 14537 Brazzaville, Republic of Congo

Introduction

Forest ungulates, particularly duikers (*Cephalophus spp*.) and red river hogs (hereafter also called pigs) (*Potamochoerus porcus*) (Linnaeus, 1758) are preferred targets of local hunters (Yasuoka, 2006) and an important protein source in Afrotropical forests (Robinson & Bennett, 2000). Duikers can make up a large proportion of the mammalian biomass (White, 1994; Morgan, 2007) and play an important role in the rainforest (e.g. seed disperser) (Feer, 1995). Hence, their decline can have far-reaching consequences not only for the protein supply of local communities but also for tropical forest dynamics (Stoner *et al*., 2007). Unfortunately duiker and pig populations are declining throughout African forests mainly due to habitat loss and illegal and over-hunting (e.g. Barnes, 2002; Van Vliet et al., 2007) which is often facilitated by increased access through logging roads (Wilkie *et al*., 2000). Therefore, monitoring of these ungulate populations is crucial to investigate the sustainability of bushmeat harvesting and the effect of logging on them. One problem hampering a genuine assessment of the sustainability of ungulate hunting in Western Equatorial Africa is related to the difficulties of estimating their densities (Van Vliet & Nasi, 2008). Commonly used census techniques, such as aerial surveys and line transects methods using direct counts of large mammals are extremely difficult to conduct in the dense African rainforest due to the elusive nature of these animals and the associated difficulties in directly observing them (Koster & Hart, 1988; Plumptre, 2000). Therefore usually, indirect signs, such as dung, and tracks, are counted along line transects (Plumptre, 2000). Occasionally, direct observation along line transects have been applied to estimate duiker populations, but duikers often flee before they are detected and there is no consensus whether or not such flushed animals should be included (White, 1994; Lannoy *et al.*, 2003; Rovero & Marshall, 2004; Waltert et al., 2006).To determine large mammal density via indirect signsfour variables are needed that will affect the accuracy and bias of a population estimate: (i) dung decay rate; (ii) defecation rate, (iii) the detection function (when applying distance sampling methods) and (iv) the encounter rate or relative abundance of signs. Decay time varies considerably between sites and studies, thus duiker density estimates can vary by a factor of more than 100 (Van Vliet & Nasi, 2008). Here we provide new data on duiker and pig dung decay in the semi-deciduous rain forest of northern Congo with the aim to encourage studies to reveal sitebased dung decay to improve duiker and pig estimates.

The population status of the Kafue Lechwe in the Kafue Flats, Zambia

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Introduction

The Kafue lechwe (*Kobus leche kafuensis* Haltenorth 1963) is an endemic subspecies restricted to the Kafue flats (Fig. 1). Pitman (1934) estimated the population at approximately 250,000 individuals in 1931. This number has since declined over the last 75 years to about 38,000 in 2005, suggesting a significant decline of 85%. The current survey was carried out to monitor the trends. Growth in the numbers of this subspecies is exclusively through natality and not immigration. It is, therefore, critical to monitor its population performance and identify key environmental parameters responsible for the population size. Pastoralism is the major land use activity in the Kafue flats which has led to an increase of cattle keeping communities taking advantage of the rich pasture on the Kafue flats.

This multiple land use system requires monitoring particularly of wildlife species, which are more vulnerable to increasing human settlements and associated activities.

Evidence for local declines in Tanzania's puku antelope (*Kobus vardoni* Livingstone, 1857) population between 1999 and 2003

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Introduction

The Kilombero Valley in Tanzania holds c. 75% of the world's puku antelope (*Kobus vardoni*), which is an estimated 50,000–60,000 individuals (East, 1998; Jenkins, Maliti & Corti, 2003). Globally, survival of this species is closely related to this population (Rodgers, 1984; Tanzania Wildlife Conservation Monitoring, 1999), and therefore studies investigating changes in puku number in the valley are important for developing conservation management strategies for this species.

Puku is a 'Near Threatened' species (IUCN SSC Antelope Specialist Group, 2008), which is habitat specific, occupying grasslands near permanent water within savannah floodplains (East, 1998). In the Kilombero Valley, following seasonal inundation of the floodplain during the long rainy season (March–May), puku move into habitat on the floodplain periphery, such as miombo woodland (Jenkins *et al*., 2002).
A number of human activities, including livestock husbandry (Corti *et al.*, 2002; Bonnington, Weaver & Fanning, 2007) and settlement (Haule, 1997), are encroaching on these favoured floodplain grasslands in the Kilombero Valley, and other activities such as poaching (Jenkins *et al*., 2002), negatively impact the puku population of the valley directly.

Starkey *et al*. (2002) stated that there is an urgent need for surveys to be conducted in the Kilombero Valley in open areas of suitable foraging habitat and also in suitable peripheral habitat near human settlement to assess fluctuations in puku number in areas experiencing different levels of human impacts. In this paper, we describe the first ground-based study of puku in the Kilombero Valley assessing annual changes in the abundance of this species at two such localities. We report a significant decline in the relative abundance of puku at both locations over a 5-year period and discuss the possible implications for the conservation of this species in this stronghold.

Feeding patterns of sitatunga (*Tragelaphus speki*) in the Rushebeya-Kanyabaha wetland, south western Uganda

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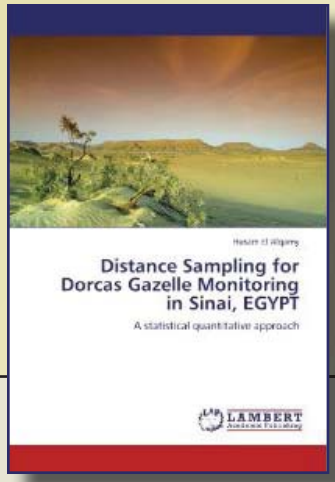
Abstract

Feeding patterns and habits of sitatunga were assessed in Rushebeya-Kanyabaha wetland between June 2006 and July 2007. Sixty transects were cut at intervals of 250 m along which sitatunga dung piles, habitats used and diet were identified from feeding signs or plant damage. Household interviews were also conducted in villages adjacent to the wetland to understand plants and crops known to be fed on by sitatunga, type of damage, frequency of sitatunga farm visits and their methods to control crop raiding. Sitatunga mostly fed on leaves (60%) and in the wetland edge (WE) habitat (49%). Forty plant species were recorded to be eaten with herbs as majority (33%) and of crops sweet potatoes were most raided. Sitatungas are basically solitary species with 73% of the sightings being of a single individual. They had mornings and late evenings as their movement peaks and preferredto feed on broad leaved plants. There were significant relationships between both habitat use and food references with seasons. We predict that because of seasonal food variations, crop raiding would increase and may result into more negative attitudes by farmers to sitatunga. More research on farmers' sensitization, population census, behaviours and ecotourism are necessary for thisspecies conservation.

Key words: feeding patterns, *Tragelaphus speki*, Wetlands

ASG Member Husam El Aqamy has recently published his book ***Distance Sampling for Monitoring Gazelle in Sanai, Egypt*** which is available through Amazon books:



http://www.amazon.com/Distance-Sampling-Dorcas-Gazelle-Monitoring/dp/3846541346/ref=sr_1_1?s=books&ie=UTF8&qid=1324091033&sr=1-1

It is the first time a species that was once classified as extinct in the wild has improved its fortunes to such an extent, the IUCN said.

Antelope in the News

Arabian 'unicorn' no longer extinct

guardian.co.uk, Thursday 16 June 2011 12.25

An antelope species, widely believed to be the source of the unicorn legend and hunted to extinction in the wild, has been brought back from the brink, conservationists said today as they unveiled the latest update on threatened species.

It is thought the last wild Arabian oryx was shot in 1972, but a successful captive breeding programme and reintroduction efforts mean its population now stands at 1,000 in its wild home of the Arabian peninsula.

It has moved from "endangered" to the less-serious category of "vulnerable" in the latest red list of threatened species, the International Union for Conservation of Nature (IUCN) said.

Razan Khalifa Al Mubarak, director general of the Environment Agency Abu Dhabi, said: "To have brought the Arabian oryx back from the brink of extinction is a major feat and a true conservation success story, one which we hope will be repeated many times over for other threatened species.

"It is a classic example of how data from the IUCN red list can feed into on-the-ground conservation action to deliver tangible and successful results."

Despite the conservation victory, the latest update of the red list reveals that of the 19 species of frogs, toads and salamanders added to the the list this year, eight are critically endangered. They include a species of harlequin toad from Peru (*Atelopus patazensis*) and a dwarf species of salamander from Guatemala (*Dendrotriton chujorum*).An estimated 41% of amphibians are at risk of extinction globally, making them one of the most threatened groups of species, with habitat loss, pollution, disease and invasive species all factors in their decline.

Elsewhere, two-thirds of reptiles only found in New Caledonia, in the Pacific, are at risk of extinction in the first assessment of the group of species.

The Siau Island tarsier, a primate from the tiny volcanic island of Siau in Indonesia, has been added to the red list as critically endangered, while its newly discovered cousin, the Wallace's tarsier, is classified as "data deficient" because not enough is known about it to say if it is under threat.

An assessment of all 248 lobster species found that more than one-third (35%) were data deficient, prompting calls from the IUCN for more surveys of little-known species to aid effective conservation action.

Simon Stuart, chairman of the IUCN's species survival commission, said: "The key to halting the extinction crisis is to target efforts towards eradicating the major threats faced by species and their environment; only then can their future be secured.

"The IUCN red list acts as a gateway to such efforts, by providing decision makers with a goldmine of information not only on the current status of the species, but also on existing threats and the conservation actions required."

Phoenix Zoo's 'Operation Oryx' Celebrates 50 Years

Posted by Jordan Schaul of The Alaska Wildlife Conservation Center, October 12, 2011

The Phoenix Zoo may have been voted one of the top 5 zoos for kids, but it has also emerged as a powerhouse in a more sophisticated arena–that of science and conservation.

Located in the northeastern region of the Sonora Desert– in what is truly the hottest climate for a major US city– the Phoenix Zoo is a specialist in conserving fauna native to desert biomes. This includes the Southwestern United States and regions as far away as the Arabian Peninsula.

Most recently, the Zoo has focused resources on recovering wildlife populations that include native species such as the rare Chiricahua leopard frogs and the black-footed ferret.

This year, however, the Zoo celebrates the 50th anniversary of Operation Oryx–which began as the institution's inaugural species restoration program and ultimately has become an iconic conservation success story for captive wildlife facilities worldwide.

In 1963 the zoo established the 'World's Herd' of Arabian oryx just a year after opening its doors to visitors.

With three of its own individuals and additional founder stock from a few other zoos and private menageries, the Phoenix Zoo began breeding these endangered antelope that actually became extinct in the wild just 10 years later.

At the onset of the breeding effort the "real challenge" according to Stuart Wells, the Zoo's Director of Conservation and Science was "could we get enough to reproduce enough so that we could actually send them back to their natural habitat?"

Since the first offspring of Arabian oryx were born at the Zoo a half century ago, nearly 240 oryx calves have been produced through the facility's successful propagation program. In fact, after only a decade the herd had grown to be sustainable enough to move animals out to satellite breeding programs at other public zoological facilities.

In 1982 the first successful reintroduction of Arabian oryx took place in Oman, Jordan. Today there are now 1,000 free-ranging oryx in the wild with a captive population of about 7,000 individuals.

Last year a team of animal care experts from the Phoenix Zoo traveled to Jordan as a gesture of goodwill. The trip around the globe offered an opportunity for the zoo professionals to assess the health of the oryx managed in a semi-wild herd at Jordan's Shaumari Wildlife Reserve in the Eastern Desert or Badia region of the country.

In addition the staff conducted an assessment of husbandry programs for the semi-captive goiter gazelles and onagers–Asian wild asses– that also inhabit the reserve.

Aside from performing health exams and taking skin biopsies to determine genetic relatedness among the Shaumari oryx, the Zoo staff advised the reserve managers on some specific animal management issues. For instance, Dan Subaitis (Director of Animal Management) described how to better design flood-resistant fences to secure the perimeter of the refuge.

Dan also demonstrated how to use a tamer and trained the Jordanians on the safe movement of individual antelope through the restraining chute. A tamer suspends the animal in the air to allow for horn trimming and other physical procedures, reducing stress and risk of injury to both the animal and the manager.

The visit provided an opportunity to strengthen ties with Jordanian officials in an effort to build collaborative partnerships between two progressive conservation organizations.

The Phoenix Zoo's relationship with Jordan's Royal Society for the Conservation of Nature, the organization with oversight over the oryx program in Jordan and Syria, is only in its infancy. None-theless, Dan and his colleagues were immediately impressed with how well trained the Arabian biologists and reserve managers were in antelope biology and husbandry. The team from Phoenix also met with contingents from Iraq, Lebanon, and Saudi Arabia.

At one time Jordan was home to charismatic species such as lions, bears, zebras, rhinoceroses, and elephants. These species are now absent from the region.

Jordan has been trying to restore functionally extinct species to the Middle East for over forty years. The iconic species of the region, the Arabian or white oryx represents a come-back story for a beautiful antelope species that was extirpated as a result of over-hunting.

Conservation-minded from its inception, the Phoenix Zoo was quite a critical player in one of the first wildlife reintroduction programs

of any zoo in the world. With financial assistance from the World Wide Fund for Nature (Formerly the World Wildlife Fund) and the UK's Fauna and Flora International (the Fauna and Flora Preservation Society of London), the zoo embarked on Operation Oryx. Fifty years later the Phoenix Zoo is still committed to the survival of the World's Herd.

Gazelles Caught in Ancient Syrian 'killing zones'

by Jonathan Amos, BBC News

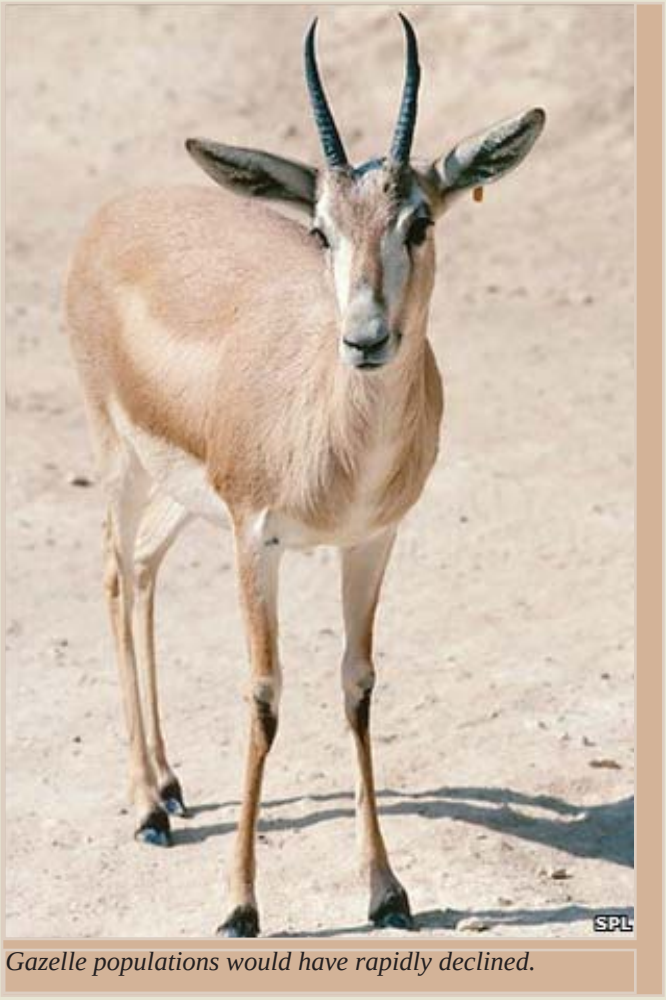
It was slaughter on a huge scale.
Hundreds of migrating gazelles would be funnelled into enclosures where they could be butchered en masse. This was the practice of communities living some 6,000 years ago in what is now north-eastern Syria.

Archaeologists say they have unearthed the remains of animals forced into these killing zones.They tell the journal PNAS that is was an early example of over-hunting.So many Persian gazelles (*Gazella subgutturosa*) would be taken down that it must have had a catastrophic impact on animal populations.

"We counted more than 100 individuals, comprising equal numbers of males and females," explained Dr Guy Bar-Oz from the Zinman Institute of Archaeology at the University of Haifa, Israel.

"This was the killing place where they were slaughtered before they were transferred for consumption or trade," he told BBC News.

It has long been suspected that the enigmatic stone structures that dot the Syrian landscape were involved in harvesting gazelles.



Gazelle populations would have rapidly declined.

Built perhaps as far back as 10,000 years ago, these structures display converging pairs of low stone walls.

When British air force pilots first flew over them in the early 20th Century, they dubbed them "desert kites" because of their characteristic appearance from the air.

'Desert kites' were named for their shape by British airmen. There are large numbers right across the region

A number of researchers have assumed that passing herds of migrating gazelles and other animals would be channelled between the walls and into large enclosures at the apex.
But definitive evidence of mass slaughter has been scant until recently.
Drs Bar-Oz, Melinda Zeder and Frank Hole describe in PNAS the discovery of a large deposit of gazelle bones at the site of Tell Kuran, near the town of Hasseke in the Khabur Basin.
This killing pit is very close to a number of desert kites and contains thousands of gazelle parts.

"It is manifest that these remains are from a catastrophic hunting episode - a full herd was killed," said Dr Bar-Oz.

"The demographic of the herd suggests it was early summer, given that there were a few juveniles of two or three months of age.
"We see mainly skull parts and hooves; and some of the toes have those butchery marks that indicate removal of the skin as well as of the muscles."

The inhabitants of Tell Kuran would have been an agricultural community and would almost certainly have kept large groups of livestock. Why they should have engaged in an overkill practice such as this is an interesting question.

But a compelling explanation may be found in nearby rock art that depicts gazelles being ritualistically slaughtered in stone traps and kites. These images date to the time of Tell Kuran.

The team suggests the farmers and herders of Tell Kuran performed mass killings as spiritually significant social events. The impact on gazelle populations would have been disastrous, however.

Whereas the limited activities of ancient hunter-gatherer societies may even have nurtured herds, preventing them from getting too big and damaging the landscape, this systematic removal of whole breeding groups would have rapidly reduced gazelle numbers in the Khabur Basin.

And with kites spread right across the Near East, with large arrays in Jordan in particular, the impact on what was once an abundant wild ungulate must have been profound.

http://www.saharaconservation.org/IMG/pdf/damagram_10_0611.pdf

Number of endangered saiga antelope exceeds 100
(*Xinhua*)
LANZHOU - The number of endangered saiga antelope living in China has exceeded 100 after 31 foals have been born since late April, a zoologist said Monday.

Domesticated saiga antelope at the Gansu Endangered Animal Research Center in Northwest China's Gansu province have given birth to 31 foals since April 26, bringing the total number to 105, said Zhao Chongxue, the center's deputy director.

The center, built in 1987 on the southern edge of the Tengger Desert, is breeding saiga antelope and other endangered animals like Bactrian camels and wild Mongolian horses, Zhao said.

Saiga antelope, which originally inhabited a vast area of the Eurasian steppe zone, are listed as a critically endangered species by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).The antelope are considered to be extinct in the wild in China, as no wild saiga antelope have been found in decades.

The Gansu Endangered Animal Research Center has brought over a dozen saiga antelope from overseas areas, where they are still plentiful, since 1988. The rest of China's saiga antelope were bred from these imported antelopes.

"The number of saiga antelope is still relatively low," Zhao said. "We need to breed more of these animals in order to reintroduce them to the wild."

Kazakhstan: Good News for Long-Nosed Antelopes

by Joanna Lillis, Central Asia Today

Some rare positive news about the endangered antelope known as the saiga: Numbers are up in Kazakhstan and have risen over the symbolic 100,000 mark, Tengrinews reports.

According to the latest figures, Kazakhstan's saiga population has jumped by about a quarter since last year's estimate. Kazakhstan has the world's largest number of the endangered antelopes, but today's figures are a far cry from Kazakhstan's million-strong population of the 1970s.

The saiga is listed as Critically Endangered by the International Union for Conservation of Nature's Red List.

Due to conservation efforts (and despite setbacks including the death of 12,000 saigas through disease last year), saiga numbers in Kazakhstan have quintupled over eight years. But there is a long way to go.

Paradoxically, the increase in numbers could have an unexpected adverse effect by making herds of these creatures – which have a distinctive long, humped nose that allows them to filter air during the dusty summer months and breathe warm air during the freezing winters – more visible to hunters.

Hunting the saiga is illegal in Kazakhstan, punishable by a five-year prison term, but, for risk-takers, there is money to be made.

"The saiga horn is used in traditional medicine in China, so the demand is from there," Zhannat Tansykbayev, director of Okhotzooprom, the state company in charge of protecting Kazakhstan's fauna, said.

A pair of saiga horns fetches around $75 on Kazakhstan's black market, and prices rocket once the horns have been smuggled into China. "Demand is high, so the temptation is high," Tansykbayev added.

South Sudan Works To Aid Wildlife That Survived War

by Frank Langfitt, *Reported on NPR, June 15, 2011*

South Sudan is poised to become the world's newest country in just a few weeks. Two decades of civil war cost more than 2 million lives and wiped out much of the region's wildlife — but not all of it.

A few years ago, conservationists made a surprising discovery: large herds of antelopes and elephants. The government of South

Sudan and the New York-based Wildlife Conservation Society are now trying to protect animals that were once thought lost to war.

Saving Animals

Wildlife filled South Sudan as recently as the early 1980s. Back then, Kolor Pino was a second lieutenant in the southern rebel army and fought in the bush.

"I see many, many animals," says Pino. "I see oryx, I see zebra and I see giraffe."

Pino and his fellow soldiers didn't have much food, so they ate the animals by the thousands, including buffaloes, lions and hippopotamuses.
"(Hippo) is very delicious," Pino recalls. "It is like a cow."

The war ended six years ago, although fighting continues to this day.

Pino, now a brigadier general, serves as game warden in South Sudan's Boma National Park, where he tries to protect the animals he once slaughtered.

It's not easy. The park is more than 10,000 square miles — an area about the size of Massachusetts — but has just 150 rangers.

A small number of elephants are being tracked using radio collars to help South Sudan figure out how to protect the animals from poachers and development.

photo: Frank Langfitt/ NPR

Surveying The Savanna

To protect animals over such a vast expanse, South Sudan is relying on help from Paul Elkan and the Wildlife Conservation Society. Elkan and his team began surveying Boma and other parts of South Sudan four years ago as part of the first wildlife census in more than two decades. Flying across South Sudan in a single-engine Cessna, Elkan explains what happened during the civil war.

"Those species which were hit the worst were those that don't migrate," he says. "Species like buffalo, hartebeest — they got hammered."

While many animals died during the war, some migratory ones fled the fighting and hid out in swamps or remote areas.

On aerial surveys of the vast savanna, Elkan found that far more animals had survived than anyone thought. He says the surviving species include 800,000 white-eared kobs and 200,000 tiang — types of antelope — and an additional 300,000 Mongalla gazelles. At least an estimated 5,000 elephants also survived.

Elkan is putting radio collars on a small number of elephants to track their movements and help South Sudan figure out how to protect the animals from poachers and development.

But to collar an elephant, Elkan and his team have to track it down and hit it with a tranquillizer dart.

'Dart's In'

Phil Mathews, a Kenyan pilot, flies Elkan and Mike Kock, a Wildlife Conservation Society veterinarian, out across the savanna one afternoon in search of elephants. Much of Sudan is arid desert, but the south is lush, especially in the rainy season. An emerald carpet of grass stretches to the horizon, dotted with scrub trees and occasional mountains.

With the help of a spotter plane, the team finds a herd of more than 100 elephants, half hidden amid groves of thorny acacia trees. Mathews brings the copter down low, just a few feet off the tree branches.

Kock, the vet, leans out the open door, strains against his chest harness and fires a dart at an elephant's rump.

"Dart's in," he says over the helicopter's radio system

Kock clicks his stop watch: He has maybe 40 minutes to do his job.

Within five minutes, the elephant is lying on its side, unconscious, in a bed of parched grass. The men leap out of the helicopter and go to work. Kock props open the elephant's nostrils with a stick and tapes a monitor to its eyelid to check vital signs.

"She's looking really good," he says.

The plane circles overhead, watching the elephant herd to make sure it doesn't return to charge the men. The elephant snores loudly and, momentarily, stirs.

"Uh-oh," says Elkan. "She wants to wake up. You know what we do if she wakes up? You run!"

Boosting Tourism And Anti-Poaching Efforts

Elkan is only partly joking. Elephants have trampled people doing this work. Sometimes, the pilot keeps the rotors spinning in case he has to lift off quickly to avoid a charging elephant.

Kock and Elkan thread a thick collar beneath the elephant's neck with a radio transmitter on top so they can track the herd, about 200 elephants in all.

The U.S. Agency for International Development is largely funding this project with $5 million. South Sudan is desperately poor and its fledgling economy is built entirely on oil. The program is designed to help this country-to-be protect the animals and eventually develop a tourism business around wildlife.

Elkan says collaring the elephants is crucial to saving them.

"We want to know where they need to go and also to identify the threats to this group," says Elkan. "We can then orient anti-poaching efforts to protect them [and] also establish corridors for their movements."

A Hopeful Sight

Conservationists feared most of South Sudan's wildlife had been killed during more than two decades of civil war, but a survey several years ago found many had survived, including hundreds of thousands of white-eared kobs. photo: Frank Langfitt/NPR

With a radio collar now firmly around her neck, the elephant is ready to go.

Mathews, the pilot, starts the helicopter and Kock, the veterinarian, injects a reversal agent. Within two minutes, the elephant is back on her feet. Seemingly unfazed, she heads off in search of her herd.

After a second successful collaring later that afternoon, Mathews turns the helicopter around and begins the hourlong journey back to the Wildlife Conservation Society's bush camp.

As the sun begins to set, the team comes across a herd of kobs, thousands of them, bounding through open fields of lush, green grass. The helicopter flies alongside about 30 feet off the ground.

It's a stunning, hopeful sight in a land that has mostly known war.

Giraffe in serious danger

by Lucas Liganga, Chief Reporter, *The Citizen*
The Citizen, Monday, 18 April 2011

Between February and December 2007, a total of 210 giraffes were killed in West Kilimanjaro. Game wardens confirm that poachers are deadly marksmen and some of them may have undergone military training.

Dar es Salaam. Giraffe, the country's national emblem, is increasingly becoming an easy target for bush meat hunters, and wildlife protectors are warning that if the trend is not checked now, the towering African animal will soon be extinct.

It is illegal to for anyone to kill a giraffe since it is sanctified as a national symbol and an exemption can only be granted by the President, a professional game warden with six years of experience informed *The Citizen*.

He, however, noted that of late there has been a growing trend of giraffe poaching, especially in the country's game-controlled areas.

Figures obtained from Tanzania Wildlife Research Institute (Tawiri) indicate, for instance, that a census conducted in 2002 in Selous Game Reserve established that there were 6,712 giraffes but the number decreased sharply, with the 2006 census indicating that there were only 3,163 giraffes remaining. Of relief, however, is the fact that a 2006 census in Serengeti established that there were 5,246 giraffes while the number went up to 12,078 in 2010. Between February and December 2007, a total of 210 giraffes were killed in West Kilimanjaro, and local game rangers say that on average, 20 giraffe are killed every month. It means a lot has to be done if the country is to save this unique animal, say wildlife experts.

"The giraffe is an attractive target to poachers because it has a lot of meat on their bones. Meat from one giraffe can be equal to the meat you get from, say, four elands," said the game warden who preferred to remain anonymous for security reasons. He was speaking in an interview with *The Citizen* at the end of a gala dinner organised by the Wildlife Conservation Foundation of Tanzania (WCFT) at Movenpick Royal Palm Hôtel in Dar es Salaam over the weekend to raise funds for anti-poaching activities in Tanzania.

During the dinner, the WCFT executive vice-president, Mr Gerard Pasanisi, the chief organiser of the gala, donated five four-wheel-drive Land Cruisers equipped with state-of-the-art communication gadgets such as radios and global positioning systems (GPS) worth Sh640 million to the Wildlife Division for anti-poaching operations.

The vehicles were bought with money collected from a fundraiser WCFT hosted in Paris in November, last year, where over $280,000 (about Sh420 million) was realised thanks to stakeholders, including tourist hunting companies, tour operators, hoteliers and miners.

Since the WCFT was founded in 2001, it has donated 15 vehicles worth billions of shillings designed to help anti-poaching staff with the Wildlife Division to carry ont their duties.

The game warden revealed to *The Citizen* that two giraffes were killed by poachers early this month at thé Ruvu Maasai Game Controlled Area in Simanjiro District in Manyara Région.

"Giraffe poachers are deadly marksmen and we suspect that some of them have military training background," he said, citing another area where the animal is under serious threat as Kitwai Game Controlled Area, also in Simanjiro Disirict. The game warden said during this month's anti-poaching opération in the two game controlled areas, they managed to seize giraffe meat, two vehicles and firearms used by poachers. "We failed to arrest the poachers because they've a very sophisticated network of communications which enabled them to dodge the wardens," he said.

Reached for comment yesterday, the minister for Natural Resources and Tourism, Mr EzeWel Maige, said his ministry was aware of the growing trend in giraffe poaching, adding that relevant measures are underway, including carrying out investigations. "We're doing all we can to fight poaching but we are limited in terms of staff and resources," said Mr Maige.

He thanked donors for contributions from the WCFT to the Wildlife Division in his ministry, saying they would play a major role in anti-poaching activities. Speaking at the gala dinner, the Vice-Président, Dr Mohamed Gharib Bilal, said the countrys reservoir of wildlife is under serious threat.

"The gravity of crime in our game reserves has increased," said Dr Bilal, adding that the government would embark on a major long-term crackdown against poachers in national parks and game reserves. He added that the government also intends to use the latest technology in combating poachers and introducing stiffer laws with higher penalties, including longer prison terms for the convicted. Dr Bilal paid tribute to the WCFT and Mr Pasanisi in particular, for supporting conservation in Tanzania, adding that wildlife was an important resource for the social and economie wellbeing of the people.

The WCFT treasurer, His Imperial and Royal Highness Archduke of Austria-Este, was represented by Mr Jacques Servais, who praised President Jakaya Kikwete for ensuring proper conservation measures in Tanzania were in place.
The chairman of the WCFT organising committee, Sir Andy Chande, said: "We're fully aware of the national budgetary constraints and are therefore doing whatever is within our capacity to help the anti-poaching activities."

The gala dinner was also attended by one of the patrons of the WCFT, retired President Benjamin Mkapa. Other patrons are: former US President George Bush Sr. and former French President Valéry Giscard D'Estaing who is also the president of the Foundation.

Others present were WCFT vice-president George Kahama, the WCFT vice-president, Mr Gerard Pasanisi and the WCFT secretary general, Mr. Emmanuel Severe.

Giraffes flolic at the Ngorongoro National Park in Arusha recently. PHOTO/FIDELIS FELIX

Blue Antelope Correspondences

www.blueantelope.info

The Blue Antelope Project is the result of an Artist's Residency in the University of Glasgow funded by the Leverhulme Trust. It represents interdisciplinary and collaborative work. Kate Foster (artist) set up this site, wrote the text and collated the images. This could not have been done without the help of Hayden Lorimer (lecturer in Human Geography) and Merle Patchett (PhD student). This work was made possible by Maggie Reilly, curator of the Hunterian Zoology Museum, and the hospitality of the Department of Geographical and Earth Sciences.

"Preciousness is often defined by rarity. By this criterion, hardly anything in natural history can be more valuable than a scrap of blaauwbock..." (Stephen Jay Gould)

GNUSLETTER

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