GNUSLETTER

Volume 33 Number 2

IUCN The World Conservation Union SSC Species Survival Commission

ANTELOPE SPECIALIST GROUP

December 2016

IUCN Species Survival Commission

Antelope Specialist Group

GNUSLETTER

Volume 33 Number 2

Published: December 2016

From the ASG Chairs

- IUCN World Conservation Congress
- Antelope Specialist Group Remit
- Global Mammal Assessment

Reports and Projects

- Abbott's duiker on Kilimanjaro, A. Bowkett et al
- Mountain nyala immobilization, A. Atickem et al
- Royal antelope in Sierra Leone, R. Garriga, B. Amarasekaran
- Palanca, second quarter report, P. Vaz Pinto
- Taxonomy of Saiga, D. Mallon
- Yellow backed duiker in Miombo– Angola, P. Vaz Pinto
- Yellow backed duiker CAR, note P. Chardonnet

Meetings and Updates

- African Buffalo Interest Group meeting report

Antelope News

Recent Publications

- Antelope Declines in Kenya; Plos1
- Sitatunga viability concerns in West Africa; Animal Conservation
- Blue duiker declines in Bioko; African Journal of Ecology
- Climate induced range loss for antelopes; Current Biology
- Cuviers's gazelle survey methods; Oryx
- Conserving Wildlife – Nazinga Game Ranch, Burkina Faso; Environmental Monitoring and Assessment
- Non Marine Mammals of Togo; Zoosystema

Cover photo: Mountain Nyala
Courtesy of Bale Mountain National Park

ISSN 2304-0718

From the ASG Chairs

IUCN, SSC and ASG news

IUCN World Conservation Congress, WCC
The WCC takes place every four years, marking the end of one quadrennium (the 4-year IUCN operating period) and the start of a new one. The latest WCC took place 1-10 September 2016 in Hawaii and the new quadrennium (2017-2020) will commence on 1 January 2017.

The main event at WCC concerns elections by the formal members of IUCN (governments, government agencies, NGOs etc) for the posts of Commission chairs and others. Simon Stuart stepped down as Chair as SSC having completed two 4-year terms, the maximum allowed. The current Deputy Chair, Dr. Jon Paul Rodriguez, was elected as the new SSC Chair. We are very grateful to Simon Stuart for his strong support for antelope conservation and for ASG over the last eight years and we look forward to working with Jon Paul and the Deputy Chair, Domatilla Raimondo, over the next four years.

WCC also discusses and resolutions. ASG was directly involved in preparation of Motion 016 - *Management and regulation of selective intensive breeding of large wild mammals for commercial purposes* which was subsequently approved.

Antelope Specialist Group remit
ASG will continue to be responsible for the same set of antelope species as previously. ASG also acts as a host for a few non-antelope species that either do not have an IUCN specialist group of their own or for other practical purposes: Tibetan Antelope or Chiru *Pantholops hodgsonii* (a primitive caprin), African Buffalo Syncerus caffer, Water Chevrotain *Hyemoschus aquaticus*, Pronghorn *Antilopcapra americana*, and Wild Camel *Camelus ferus*.

The Giraffe and Okapi were also once included under the ASG umbrella but have for some time been contained in their own Giraffe and Okapi SG.

Note that the Saola *Pseudoryx nghetinhensis*, an inhabitant of the rainforests of the Annamite range along the Lao-Vietnam border in South-East Asia, was temporarily 'parked' with ASG, following its discovery. Once genetic research showed that the species was related to wild cattle, ASG agreed with its appropriate placement within the Asian Wild Cattle Specialist Group and acknowledges that there is no evolutionary, biogeographic, or taxonomic basis for considering it an 'antelope'.

Global Mammal Assessment 2015-2016
The task of reassessing the c. 140 species and subspecies for the IUCN Red List is almost complete, with just 5 taxa remaining to be assessed at the time of writing. A full report on the reassessment will be published in the next issue of Gnusletter.

Antelope Conservation. From Diagnosis to Action
Edited by Jakob Bro-Jorgenson and David Mallon. Wiley Blackwell, London. Conservation Science and Practice series no. 16. ISBN Hardback 9781118409640; ISBN Paperback 9781118409633.

This book sets out to diagnose the causes of antelope declines and identify the most effective courses of action. The contributions are based on papers presented at the antelope conference held at ZSL in November 2011. The authors are all leading experts in their fields.

Projects and Reports

A camera-trap survey of Abbott's duiker in Kilimanjaro National Park, Tanzania

Andrew E. Bowkett, Whitley Wildlife Conservation Trust, UK; Serena Brunisso, University of Florence, Italy; Valentina Oberosler and Francesco Rovero, MUSE - Science Museum, Italy, francesco.rovero@muse.it

Abbott's duiker *Cephalophus spadix* is one of Africa's largest and possibly rarest species of forest antelope. It is a Tanzanian endemic restricted to just a handful of montane sites in the north, east and southwest of the country. There is consistent evidence that the distribution and abundance of this IUCN-Endangered species has decreased considerably in recent decades and its conservation is a matter of high priority.

The species is currently reported from Mount Kilimanjaro, Usambara Mountains, Ilole forest in Rubeho Mountains, Udzungwa Mountains and Mount Rungwe (Wilson 2001, Moyer 2003, Rovero *et al*. 2008), as well as the forests of Livingstone (part of Kitulo National Park), Irungu, Irenga, Ndukunduku and possibly Madehani in the Southern Highlands (Machaga & Davenport 2004, Rovero et al. 2013). Although reported in Uluguru by Swynnerton & Hayman (1951), no more recent records exist, despite a camera-trap survey in Uluguru South (F. Rovero and A. Bowkett unpublished data). The historical distribution also included forests on the Rift Wall near Babati in north-central Tanzania, forests above Lake Manyara, the Poroto Mountains and Mfrika Scarp in the Southern Highlands (Rushby & Swynnerton 1946, Swynnerton & Hayman 1951), as well as Mporoto, Mpara, Sawago and Njombe Forest Reserves and possibly Mbeya Range. However, it is probable that they have been extirpated from all these historical sites (Rovero et al. 2013). Available knowledge indicates that, besides the population in the Udzungwa Mountains (see Bowkett et al. 2014), the only other potentially viable population lives on the forested slopes of Mount Kilimanjaro.

To assess the distribution and abundance of this population we carried out a camera-trap survey in Kilimanjaro National Park between 24 September 2014 and 1 July 2015. Four areas of forest between 1,764 and 2,782 m asl. were surveyed using grids of camera-traps spaced 1 km apart. For two areas in the south, two arrays of 10 cameras each were deployed consecutively, while the north-western and northern areas were surveyed with grids of 20 and 25 camera-trap stations respectively (85 camera-trap sites and 1,750 camera-trap days of total survey effort). We obtained 229 images of Abbott's duiker representing 30 'independent' trapping events (consecutive images were combined as events unless separated by a >1 hr interval) at 9 camera trap sites, within two of the camera trap grids. Most of records were obtained in the southern grid with only one positive site in the north-western side of the Park. Photographic trapping rates were generally lower than similar surveys in the Udzungwa Mountains National Park, although such comparison based on raw detection events does not account for differences in detection probability. Other bovid species recorded were: suni (*Nesotragus moschatus*, 740 events), Harvey's duiker (*Cephalophus harveyi*, 140 events), bushbuck (*Tragelaphus scriptus,* 81 events) and African buffalo (*Syncerus caffer*, 8 events), with eland (*Taurotragus*

oryx, 4 events) photographed only at camera trap sites within the northern grid, i.e. close to savanna woodland. Overall, the results indicate that Kilimanjaro is an important area for Abbott's duiker, and other antelope species. However, the relatively low number of trapping locations suggests that the species is rare or highly localised, perhaps due to historical hunting pressure. It is hoped that the expansion of the National Park to include neighbouring forest reserves in 2005 will lead to an increase in abundance as appears to have happened in the Udzungwa Mountains.

Fieldwork was funded by Whitley Wildlife Conservation Trust, MUSE-Science museum and Wildlife Conservation Society's Tanzania Program with permission from the Tanzanian Commission for Science and Technology, Tanzania Wildlife Research Institute and Tanzania National Parks. Tim Davenport and Charles Foley of WCS are thanked for logistical support and advice as are Ruben Mwakisoma and Daniel Msoffe for assistance in the field.

References

- Bowkett, A.E., Jones, T., Rovero, F., Nielsen, M.R., Davenport, T.R.B., Hawkins, D., Plowman, A.B. and Stevens, J.R. 2014. Distribution and genetic diversity of the endangered Abbott's duiker *Cephalophus spadix* in the Udzungwa Mountains, Tanzania. Endangered Species Research 24: 105–114
- Machaga, S.J. and Davenport, T.R.B. 2004. Hunting on Mount Rungwe: An assessment of the status of forest antelopes. Unpublished Report. Wildlife Conservation Society, Mbeya. pp 21.
- Moyer D.C. 2003. Conservation status of Abbot's duiker, *Cephalophus spadix*, in the United Republic of Tanzania, pp. 201-209. In: Plowman A., Edit. Ecology and Conservation of Small Antelope: Proceedings of an International Symposium on Duiker and Dwarf Antelope in Africa. Fürth: Filander Verlag.
- Rovero F., Davenport T.R.B. and Jones T. (2013). Abbott's duiker. In: Kingdon, J.S. & Hoffmann, M. (Eds). The Mammals of Africa. Vol. 6. Pigs, Deer, Giraffe, Bovids, and Hippos. Academic Press, Bloomsbury, pp 285-288.
- Rovero F., Menegon M., Leonard C., Perkin A., Doggart N., Mbilinyi M and Mlawila L. 2008. A previously unsurveyed forest in the Rubeho Mountains of Tanzania reveals new species and range records. *Oryx* 42: 16-17.
- Rushby, G.G. and Swynnerton, G.H. 1946. Notes on some game animals of Tanganyika Territory. Tanganyika Notes & Records 22: 14-26.
- Swynnerton G.H. and Hayman R.W. 1951. A checklist of the land mammals of the Tanganyika Territory and the Zanzibar Protectorate. Journal of the East African Natural History Society 20: 274-392.
- Wilson V.J. 2001. Duikers of Africa: Masters of the African Forest Floor. A Study of Duikers, People, Hunting and Bushmeat. Zimbabwe: Chipangali Wildlife Trust.

Immobilization of Mountain nyala (*Tragelaphus buxtoni*) in the Bale Mountains, Ethiopia

Anagaw Atickem[1,2,3], David V. Cooper[4], Richard Kock[5], Eli K. Rueness[1], Martha Fischer[6], Afework Bekele[3], Leif Egil Loe[7], and Nils C. Stenseth[1]

[1]Centre for Ecological and Evolutionary Synthesis (CEES), Department of Biology, University of Oslo, P.O. Box 1066 Blindern, NO-0316 Oslo, Norway.

[2]German Primate Center, Leibniz Institute for Primate Research Kellnerweg 4, 37077 Göttingen, Germany.

[3] Addis Ababa University, P.O. Box 1176, Department of Biology, Addis Ababa, Ethiopia

[4] EKZN Wildlife Veterinarian, Private Bag X01 St Lucia 3935, South Africa.

[5]Veterinary College, University of London (RVC), United kingdom Hawkshead Lane, North Mymms, Hatfield, Herts AL9 7TA, UK.

[6] Saint Louis Zoo WildCare Institute, Saint Louis Zoo, One Government Drive, St. Louis, MO 63110.

[7] Norwegian University of Life Sciences, Department of Ecology and Natural Resource Management, P.O.Box 5003, NO-1432 Ås, Norway.

Mountain nyala *Tragelaphus buxtoni* is an endangered antelope endemic to Ethiopia currently confined to the Bale and Arsi mountains (Atickem *et al*. 2011, Brown 1969). No published material is available on safe immobilization of the species for research, disease control and translocation. Here we provide our experience on the efficiency of immobilising mixtures and reversal agents used on two occasions.

The first intervention was part of a regional disease surveillance and eradication programme for rinderpest around the Bale Mountains National Park (06058'N, 39050'E). The induction agents were delivered using a Palmer Capchur® long range projector rifle fired from a Jet Ranger 2 helicopter, with 3 ml volume metal darts with barbed 1.5 inch end port steel NCL needles (Palmer Capchur Equipment Inc., Georgia, USA) using green power loads. Doses of immobilizing drugs were extrapolated from similar sized wild artiodactyls for which data were available.[2]

Fig. 1. Immobilised bull mountain nyala, Bale Mountains, Ethiopia using a combination of etorphine and xylazine hydrochloride.

Darting of 4 males and 3 female adult nyala was carried out at distances of 20–30 m. After dart placement, the helicopter rapidly gained altitude and observed the animal undisturbed until it became recumbent and the sampling/recovery team was immediately deposited as close to the site as practicable. The animals all became recumbent within 1 km of the darting point and the majority (5/7) within 500 m. Induction periods ranged from 3 to 4.8 minutes (mean = 3.8 min) and when immobilised the animals were immediately placed in a sternal position, to prevent bloat and the inhalation of rumen content. A combination of 3 mg etorphine hydrochloride (Novartis, P. O. Box 92, Isando 1600, South Africa) and 20 mg xylazine prepared at 100 mg/ml with sterile water (Rompun Crystalline, Bayer, UK) was used for adult females and young adult males, and for the larger fully grown adult males, 6 mg etorphine and 30 mg xylazine was used with dart volume reduced through preparation of the xylazine component with etorphine solution. In all cases an equivalent volume of diprenorphine (3 mg/ml – Novartis, P. O. Box 92, Isando 1600, South Africa) to etorphine used (2.25 mg/ml) was administered intravenously and 3 mg of atipamazole hydrochloride (Antisedan, Pfizer Animal Health) was similarly applied. From intravenous injection of the reversal agents the animals were attempting to stand between 1.2 and 2 minutes (mean = 1.6 min); full recovery is difficult to determine as the animals are no longer accessible once up and running but they were all ambulatory within 4–6 minutes. On one occasion, an adult female nyala after darting had descended into a steep sided gorge during the immobilisation and although it became recumbent without falling off a narrow path, it was a concern for recovery given the steepness of the terrain. The animal was too heavy to lift out of the position onto even ground and the helicopter could not access the site to assist with removal. Recovery was managed with blindfolding sustained after reversal, with physical restraint and release only when the animal appeared fully awake. Once the blindfold was removed the nyala was able to stand and run down the narrow gorge path without stumbling or falling.

The second event was part of an ecological study that required capturing and radio-collaring 19 individual mountain nyala in the Gaysay area, northern end of the Bale Mountains NP. The mountain nyala in this area are habituated to people and their livestock which share the range. Therefore, the darting attempts were made with local assistance and horses were used to get within effective darting distance by using a Dan-Inject JM Special dart gun with 3 ml darts from distances of 20–40m. With good dart placement and absorption (n = 15), induction periods ranged from 2 to 5.5 min (mean = 3.7min). A combination of 12mg thiofentanil oxalate (A3080, Wildlife Pharmaceuticals. Pty, White River, South Africa), 40mg xylazine (Rompun, Bayer Animal Health, Isando, South Africa. 2%) and 2,500iu hyaluronidase (Hyaluronidase, Kyron Laboratories, Benrose, South Africa) was used for immobilizing adult males. Due to the smaller body size, females were immobilized with 8 mg thiofentanil, 30 mg xylazine and 2,500iu hyaluronidase. For both cases, naltrexone 50 mg/ml (Trexanol, Wildlife Pharmaceuticals. Pty, White River, South Africa) 10mg/mg A3080 and yohimbine 6.25mg/50kg (n = 12) or Atipamezole hydrochloride (Antisedan, Orion Corporation and Orion Pharma) using a dose of 1 mg/10 mg xylazine (n = 7) was administered as a reversal. After intramuscu-

lar injection of the reversal agents, mean time for the first attempt to standing up was 3.3 min (range: 1.9 to 4.2 min). No difference in reversal was noted between using either atipamizole or yohimbine. It was however noted that the nyala were more responsive and less ataxic immediately after standing if the xylazine reversal was administered approximately one minute before administering naltrexone. In two instances xylazine was substituted with a buterophenone derivative, azaperone 40 mg/ml (Stresnil, Jansen Animal Health, Halfway House, South Africa) at a dose of 80 mg/ adult male. Azaperone proved to be unsatisfactory with slightly prolonged induction times and unsatisfactory muscle relaxation. Since no reversal agent is available for azaperone the tranquillising effects were also clear after the thiofentanil was reversed on its own. Thiofentanil showed significant respiratory depression 19 min after recumbence in one adult bull that responded immediately to the administration of the reversal agent.

In both operations, the immobilisation protocol was effective, and no mortality occurred. Respiration and heart rate were measured at approximately five minutes after recumbency and found to be within the following ranges (respiration rate: 8-12/min and heart rate: 50-60/min) and oxygenation, based on pink mucous membranes, suggested minimal hypoxaemia. Sensitivity to both opioids and, from this limited sample, appears to be higher than for close relatives like nyala *Tragelaphus angasii* and greater kudu *Tragelaphus strepsiceros*. This sensitivity and the reported respiratory depression in one bull nyala suggests careful attention must be given to dose rates with xylazine hydrochloride and the necessity to have an ∞2-agonist antagonist available for effective reversal and emergencies on all interventions. The data suggest that either of these drug combinations can be used for short term immobilization of mountain nyala. Physiological assessment including blood gases, pressures and temperature effects would be relevant to assessing the relative risks when using these combinations routinely.

Acknowledgements
We thank Center for Ecological and Evolutionary Synthesis (CEES) at the University of Oslo and International Foundation for Science (IFS) for their financial support to purchase the collars. We acknowledge the support from Saint Louis Zoo WildCare Institute for purchasing the immobilizing drugs. We are grateful for the permission to capture and radio collar mountain nyala provided by the Ethiopian Wildlife Conservation Authority.

References
Atickem, A., Loe, L.E., Langangen, Ø., Rueness, E.K., Bekele, A. & Stenseth, N.C. 2011. Estimating population size and habitat suitability for mountain nyala in areas with different protection status. *Animal Conservation* 14: 409-418.
Brown, L. 1969. Observations on the status, habitat, and behavior of the mountain nyala (*Tragelaphus buxtoni*) in Ethiopia. *Mammalia* 33: 545–597
Kock, M.D., Meltzer, D. & Burroughs, R. *2006 Chemical and physical restraint of wild animals.* A training and field manual for African species. IWVS Africa PO BOX 106 Greyton 7233 South Africa.

Figure 2 &3. Royal Antelope in Kenema district, southern SL. © Tacugama Chimpanzee Sanctuary

Royal Antelope camera-trapped in Sierra Leone

Rosa M. Garriga and Bala Amarasekaran
Tacugama Chimpanzee Sanctuary, Western Area Peninsula National Park, Sierra Leone.

The Royal Antelope *Neotragus pygmaeus* is the smallest of all the antelopes weighing as little as 2.6 kg and measuring 26 cm at the shoulder (Kingdon & Hoffmann 2013). It is endemic to the Upper Guinea Forest in West Africa, east to south-west Ghana. It inhabits high and secondary forest as well as cultivation and farmbush, but prefers areas with dense undergrowth or ground cover. East (1999) estimated a global population of 62,000, based on an area of occupancy of 62,630 km^2, but acknowledged this figure may be a significant underestimate.

Figure 1. Locations where Royal Antelopes have been photo captured in Sierra Leone

Royal Antelopes have been recorded at several sites in southern and central Sierra Leone but it is rarely seen by observers or shot by hunters and there are rather few confirmed recent records of occurrence (Grubb et al. 1998). The Royal Antelope is timid and shy and in Sierra Leone it is known as "cunny [cunning] rabbit" though it may not be as rare as sometimes believed (Grubb *et al*. 1998). To date it has rarely been caught on camera traps, though this may in part be due to camera trap studies focusing on areas of high forest which typically lack dense ground cover over large areas and so present less suitable habitat.

Since 2011, Tacugama Chimpanzee Sanctuary has been doing camera trapping across Sierra Leone. The first project was a biodiversity survey in the Western Area Peninsular NP (167 km^2) on the Freetown Peninsula. The main target of the camera trapping was the Western Chimpanzee, but many other species were also photographed over the course of the project, including the Endangered Jentink's Duiker *Cephalophus jentinki* (Garriga & McKenna 2012). However, no Royal antelopes were photo-captured in the Western Area Peninsular NP.

On 2 June 2013, one sequence of pictures of Royal Antelope was obtained at the edge of the Gola Forest NP (Figs. 2 and 3). The camera was in dense farmbush 200 m from the forest edge. It is believed that these are the first published photos of the species in Sierra Leone and are likely among the first camera trap photos of this species taken anywhere within its range.
In the central-north of Sierra Leone in May and November 2013 (Fig. 4 and 5), two cameras set 6-km apart, photo-captured 5 different sequences of Royal antelopes. The cameras were set in dense farmbush amidst farmland and close to a mining concession. All the photos were taken in the daytime, at 9:01, 10:58, 13:04, 13:35, 15:06 and 18:15, which supports the statement by Kingdon & Hoffmann (2013) that although often described as nocturnal or crepuscular, Royal Antelopes are also active during the day.

Fig 4 & 5. Royal Antelope in the district of Tonkolili, central SL. © Tacugama Chimpanzee Sanctuary

References

- East, R. 1999. *African Antelope Database 1998*. IUCN/SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.

- Garriga, R.M. & McKenna, A. 2012. Survey captures first-ever photos of Endangered Jentink's Duiker in Sierra Leone's Western Area. *Gnusletter* 30(2): 9-10.

- Grubb, P., Jones, T.S., Davies, A.G., Edberg, E., Starin, E.D. and Hill, J.E. 1998. *Mammals of Ghana, Sierra Leone and the Gambia*. St Ives, UK, The Trendrine Press.

- Kingdon, J. and Hoffmann, M. 2013. *Neotragus pygmaeus* Royal Antelope. Pp. 211-213 in J. Kingdon and M. Hoffmann, eds. *Mammals of Africa. VI: Pigs, Hippopotamuses, Chevrotain, Giraffes, Deer and Bovids.* London, Bloomsbury.

Palanca (Giant Sable) 2nd Quarter Report, July 2016

P. Vaz Pinto *Kissama Foundation and CIBIO/InBio – Centro de Investigação em Biodiversidade e Recursos Genéticos, Universidade do Porto, Campus Agrário de Vairão, 4485-661, Universidade do Porto, Portugal.*

The second quarter always marks the transition from the end of the rainy season into the dry season. It is never a period that I look forward to, usually with too much water in April and too much grass in May and only improving a bit well into June. This is however the time when sable calves, with calving peak typically reached in May. Therefore it is hardly surprising that it tends to be very difficult to approach and observe the animals in these months. To make things worse, the abnormally generous rainy season of 2015/2016 in Cangandala and Luando, made conditions even harder with very wet conditions in May and an ocean of tall unhospitable grass right to the end of June. And if this wasn't enough the old radio-tracking VHF antenna fell apart and it became pointless to try monitoring the sable on the ground.

Instead we focused on various other activities, supporting management components in Cangandala such as repairing the water hole system and start building a new fenced sanctuary, which will be destined in the future to contain bulls for tourism visits.

The animals were simply monitored indirectly in Cangandala via the trap camera records as usual. Ivan the Terrible was recorded again, marking the territory outside the sanctuary, and at one stage the rangers on patrol reported to have seen Ivan once accompanied by a sole female… he doesn't seem to enjoy too much the company of females, as he has ignored plenty of opportunities to lead herds, and until now had never been seen near a cow… but we can only assume that being a loner doesn't make him less of a bull and hopefully the now lonely female will bear his seed!

Inside the sanctuary the most striking records reflect a steep increase in the number of young males. Apollo, just a few months younger than Mercury (*above*) is back and might soon be a real challenger for the dominant bull role. A bachelor herd was also recorded with three 2-year old young males (young males between 2 and 3 years old tend to abandon the comfort of their herds and wonder off forming bachelor herds of males before establishing territories later in life and then challenging mature bulls), and plenty of male yearling and male calves. Mercury's succession is guaranteed, but we can also expect that the rise in testosterone inside the sanctuary will result in more conflicts, fence challenging and possibly some injuries and deaths of inexperienced bulls. The plan eventually is to remove some of these males to the new sanctuary, as soon as it is finished.

In Luando Reserve a few things have shown progress, but there are a lot of worrying signs suggesting increase in poaching, and we lack updated hard data on the condition and status of different herds. One positive development was the support received in previous months by Angolan military, which has very much boosted the confidence on the shepherds and allow them to make more patrols and to penetrate deeper into less covered areas. There were a couple of incidents reported of encounters with poachers, and on one of them there were several shots fired, and it ended with a shotgun and an Ak-47 apprehended. On a sad note, some shepherds reported encountering an injured female with a severe leg wound, possibly amputated. They could not see ear tags so it is possible that she was an unmarked female and another recent victim of a snare or foot trap. The shepherds also claimed that the poor female was accompanied by a small calf which would be consistent with a very recent incident.

The next quarter will be crucial as we are preparing for another capture operation, designed to put collars on animals in Cangandala and Luando, but also to make an updated aerial census of herds in Luando Reserve and, with assistance from military, to support anti-poaching activities also in Luando.

The Taxonomy of Saiga

David Mallon, Co-Chair Antelope Specialist Group

This is an adapted and extended version of an article that first appeared in Saiga News 15, 2012.

Photo © D. Mallon/ASG

As with many species, saiga has been given several scientific names over time, including *S. imberbis*. This name is recognized as invalid and the accepted scientific name is *Saiga tatarica* Linnaeus, 1766. Mongolian saiga was first described as a separate species, *Saiga mongolica* by Bannikov (1946), based on differences in skull measurements, shape and size of horns, and colour of pelage. However, the author later revised his opinion and considered it to be only a subspecies *S. imberbis mongolica* [= *S. tatarica mongolica*] (Bannikov 1954).

That arrangement, with two living subspecies, *S. t. tatarica* and *S. t. mongolica* has been followed by almost all experts to date (Ellerman and Morisson-Scott 1951, Heptner *et al*. 1961, Sokolov 1974, Corbet 1978, Sokolov & Zhirnov 1998). Three fossil saiga subspecies are also recognised - *S. t. borealis*, *S. t. prisca* and *S. t. binagadensis* (e.g. Sokolov et al. 1998).

Kholodova *et al.* (2006) provided genetic evidence to support this classification of living saiga. They analysed mtDNA from 93 tissue samples from all five extant populations of saiga (three in Kazakhstan, one in Russia, one in Mongolia). Their results showed "…slight but clear differences between *S. t. mongolica* and *S. t. tatarica*, confirming the current designation of *S. t. mongolica* as a subspecies rather than a species".

Baryshnikov and Tikhonov (1994) reviewed the extinct forms of saiga, and raised *S. borealis* to full species status, based on size differences among fossil specimens from Yakutia in north-east Siberia. They also said that this taxon survived in Mongolia as S. borealis mongolica (i.e. they assigned the Mongolian form to *S. borealis* and not *S. tatarica*).

This arrangement was later accepted by Grubb (2005) in the third edition of Mammal Species of the World (Wilson & Reeder 2005). Later, Groves and Grubb (2011) in their taxonomic revision of the ungulates reverted to *Saiga mongolica* for Mongolian saiga, citing Bannikov (1946). However, (1) Groves and Grubb appear unaware that Bannikov (1954) himself had revised his original opinion on species status and (2) they did not refer to, or were perhaps unaware of, the genetic evidence from Kholodova et al. (2006), cited above. The taxonomy of Groves and Grubb (2011) gained much wider recognition when it was used as the basis for the species accounts of ungulates in the *Handbook of the Mammals of the World* (Wilson and Mittermeier 2012).

This challenge to the traditional classification of saiga as a single species *Saiga tatarica* had practical implications for the Convention on Migratory Species (CMS), whose Saiga Memorandum of Understanding and Medium-term International Work Plan provides the international framework for saiga conservation. The MoU had to be amended to include both 'species', illustrating the potential conservation consequences of taxonomic changes.

The status of *S. borealis* as a separate species was undermined by a genetic study by Campos *et al*. (2010) who analysed modern and fossil saiga using mtDNA from 27 ancient and 38 modern specimens from all parts of saiga range, including two specimens of *'S. borealis'*. The results showed two distinct saiga lineages. The first includes all modern and fossil saiga from north-east Yakutia and the Urals. The second lineage occurs only in the northern Urals and is now extinct. The authors conclude: "….the data suggest that S. borealis does not constitute a distinct subspecies or species". Furthermore, the authors of this study include both Baryshnikov and Tikhonov, the co-authors of the 1994 paper, and who therefore can be regarded as supporting this revised view.

Since the genetic analysis by Kholodova et al. (2006) confirmed that Mongolian saiga was a subspecies of *S. tatarica*, and the more recent study by Campos et al. (2010) showed that all living and most fossil saiga were also S. tatarica, the clear conclusion is that on current evidence, the correct scientific name of Mongolian saiga at is *Saiga tatarica mongolica* Bannikov, 1946, which is accepted by the Antelope Specialist Group.

Mongolian saiga is clearly distinct from *S. t. tatarica* morphologically, based on cranial measurements, horn size and shape, and coat colour. There are also ecological differences, as Mongolian saiga is nomadic, not migratory like the nominate form. So, on these grounds, Mongolian saiga should already be regarded as a separate 'conservation unit'. The two genetic studies carried out to date show slight differences and agree that mongolica should be considered a subspecies. However, these conclusions are based on mtDNA only and depend on a relatively small number of Mongolian samples. To obtain a definitive view of the phylogenetic relationship between tatarica and mongolica, further analysis using nuclear DNA and a larger sample size is needed. If such a study did show a species-level differentiation, the rules of zoological nomenclature indicate that the correct name for the Mongolian taxon would be *S. mongolica*, not *S. borealis*.

References

- Bannikov, A.B. (1946) [*A new saiga species from Mongolia*]. *Doklady Akademii Nauk* 51: 397-399. (In Russian).
- Bannikov, A.B. (1954) [*Mammals of the Mongolian People's Republic*]. Moskva: Academy of Sciences of the USSR. (In Russian).
- Baryshnikov, G. and Tikhonov, A. (1994) Notes on skulls of Pleistocene saiga of northern Eurasia. *Historical Biology* 8: 209-234.
- Campos, P.A., Kristensen, T., Orlando, L., Sher, A., Kholodova, M.A., Götherström, A., Hofreiter,M., Drucker, D.G., Kosintsev, P., Tikhonov, A., Baryshnikov, G.F., Willerslev, E. and Gilbert, M.T.P. (2010). Ancient DNA sequences point to a large loss of mitochondrial genetic diversity in the saiga antelope
- (*Saiga tatarica*) since the Pleistocene. *Molecular Ecology* 19: 4863-4875.
- Corbet, G.B. (1978) *The Mammals of the Palaearctic Region: a taxonomic review*. London: British Museum (Natural History).
- Ellerman, J.R. & Morrison Scott, T.C.S. (1951) *Checklist of the Palaearctic and Indian Mammals*. London: British Museum (Natural History).
- Groves, C. and Grubb, P. (2011) *Ungulate Taxonomy.* Baltimore: The John Hopkins University Press.
- Grubb, P. (2005). Artiodactyla. In Wilson, D.E. & Reeder, D.M. *Mammal Species of the World. A Taxonomic and Geographic Reference.* Third Edition. Baltimore: The John Hopkins University Press.
- Heptner, V.G., Nasimovich, A.A. & Bannikov, A.G. (1961) *Mammals of the Soviet Union. I. Ungulates*. Moscow: Academy of Sciences. (In Russian).
- Kholodova, M.V., Milner-Gulland, E.J., Easton, A.J., Amgalan, L., Arylov, Iu.A., Bekenov, A., Grachev, Iu.A., Lushchekina, A.A. and Ryder, O. (2006) Mitochondrial DNA variation and population structure of the Critically Endangered saiga antelope *Saiga tatarica*. *Oryx* 40: 103–107.
- Sokolov, V.E. (1974) *Saiga tatarica*. *Mammalian Species* 38: 1-4.
- Sokolov, V.E. and Zhirnov, L.V. 1998. *The saiga antelope: phylogeny, systematics, ecology, conservation and use*. Moskva: Russian Committee for the UNESCO Program on Man and the Biosphere. (In Russian).
- Sokolov, V.E., Pronyaev, A.V. and Zhirnov, L.V. 1998. Taxonomy and variation. Pp. 25-53 in: Sokolov, V.E. and Zhirnov, L.V. 1998. *The saiga antelope: phylogeny, systematics, ecology, conservation and use*. Moskva: Russian Committee for the UNESCO Program on Man and the Biosphere. (In Russian).
- Wilson, D.E. & Mittermeier, R.A. (2011). *Handbook of the Mammals of the World. Volume 2. Hoofed Mammals*. Barcelona: Lynx Edicions.

Yellow-backed Duiker in miombo woodland, Angola

Pedro Vaz Pinto *Kissama Foundation and CIBIO/InBio – Centro de Investigação em Biodiversidade e Recursos Genéticos, Universidade do Porto, Campus Agrário de Vairão, 4485-661, Universidade do Porto, Portugal*.
Luis Veríssimo, *Kissama Foundation*

The Yellow-backed Duiker (*Cephalophus silvicultor*) has a widespread distribution through West and Central Africa south to central Angola and Zambia. It utilises a wide range of forest habitats, primary and secondary, gallery forest, various forest-savanna mosaics and farmbush, but it is typically an ecotonal species (Kingdon & Lahm 2013). In Angola, the species is known from the northern half of the country, generally recorded in moist habitats such as the semi-deciduous forests along the western slopes of the Angolan escarpment, or associated with gallery forests and riverine thickets throughout central and north-eastern Angola.

Nevertheless, two exceptional records, one from the 1960s (Crawford-Cabral & Veríssimo, in prep.) and another more recent (National Geographic Okavango Wilderness Project, 2016), confirm the presence of the species further south in eastern Angola, (south of latitude 14°S and distant from true forest blocks), than previously expected, thus suggesting the Yellow-backed Duiker could be marginally present in sub-optimal woodland habitats.

The Luando Nature Strict Reserve (LR), known as the home of the Giant Sable antelope, is situated in Central Angola, between the Kwanza and Luando rivers. There are no true forest habitats in LR and the dominant vegetation types are composed of mosaics of relatively open climax miombo woodlands and natural clearings covered with grass or geoxyle vegetation, and dambos (shallow wetlands) along drainage lines. Between 2009 and 2016, four dry-season aerial surveys were carried out in LR with a Hughes 500 helicopter, as part of the Giant Sable conservation effort. Surprisingly, the Yellow-backed Duiker (Photo 1) proved to be the most common antelope after Grey Duiker, Sable, Roan, Bushbuck and Reedbuck, with several independent records in each survey. This was all more unexpected when the habitats present were assumed to be unsuitable, and the species had never been included in the species lists previously compiled specifically for the reserve. All our observations were of lone adult animals seen in dry grass under open miombo canopy, and notably included in August 2016 one lactating female (Photo 2). We believe these might be the first unambiguous reports and photographs of Yellow-backed Duikers in this habitat.

Their relative abundance in LR and the absence of forests or riverine thickets in the area suggest that under certain conditions the species may be able to adjust well to the miombo woodlands of central Angola. Interestingly, in Cangandala NP, the other Giant Sable reserve situated further north, in slightly moister conditions, with thicker canopy miombo and including small patches of riverine forest, the species seems to be absent. These findings considerably expand the potential range of the species in western Southern Africa.

References

Crawford-Cabral, J. & Veríssimo, L. The Mammals of Angola. In prep.
Kingdon, J. & Lahm, S.A. 2013. *Cephalophus silvicultor*. Yellow-backed Duiker. Pp. 288-293 in J. Kingdon & M. Hoffmann, eds. *Mammals of Africa. VI: Pigs, Hippopotamuses, Chevrotain, Giraffes, Deer and Bovids*. London, Bloomsbury Publishing.

Yellow-back Duiker in CAR – notes from the field
Philippe Chardonnet

In CAR the Yellow-backed Duiker is definitely well represented in woodland habitats, notably in Isoberlinia woodlands which are the equivalent there of the southern African miombo. When I was capturing wildlife by helicopter in 1999-2000, it was a common sighting from the air (easy to notice due to the yellow spot since they run away with the helicopter noise). And they are common trophy species there, commonly observed under baits placed for leopard hunting (looking for the worms dropping from the baits!). To me, these woodland habitats are not sub-optimal but optimal habitats for the YBD.

Meetings and Updates

Second African Buffalo Symposium
Alexandre Caron, Daniel Cornélis and Philippe Chardonnet

The 2nd African Buffalo Symposium was held during the 9th International Wildlife Ranching Symposium (IWRS), in Windhoek in Namibia 12-16 September 2016. The symposium was organized by CIRAD and the IGF Foundation under the auspices of the African Buffalo Initiative Group (AfBIG) and IUCN/SSC Antelope Specialist Group and was kindly hosted by the 9th IWRS. The three-and-a-half-day program contained interesting and stimulating communications & presentations and extensive discussions on many topics related to the African Buffalo, its ecology, genetics, conservation and management. The full program is below, but among the main outputs of the symposium were:

Data sharing: it was exciting to see the diverse hypotheses (genetics, behavior ecology, management etc.) emerging from different buffalo studies across Africa. But these hypotheses would gain by being tested across much larger sample sizes, across the species range. We believe that AfBIG should try to promote this kind of collaboration. The fact that we are a small new group should enable us to think along these lines. For example, under the form of collecting extra samples for parallel studies (e.g. genetics). Of course, focal studies need to publish their research before their data are being included in larger studies, and of course, collaboration must be discussed amongst all 'data sharers'. During the symposium, we presented a call for a PhD proposal (CIRAD, IGF, CNRS, Univ. of Manchester) that will be opened very soon aiming at investigating social dynamics in buffalo populations across at least 4 study sites and its consequences for disease transmission, based on a database of more than 100 collared buffalo.

Updated buffalo monograph? The latest (hopefully not the last) monograph was written 20 years ago. Since then, new technologies, ideas and hypotheses have been produced by a lot of buffalo addicts. We discussed that there might be an opportunity to consider a new monograph and AfBIG could be the cradle of such an initiative and our first point just above could also produce metadata to fill this new book. All thoughts on this idea are welcome.

3rd African Buffalo symposium: we decided that the next symposium should be held in the first semester of 2019. Dr Kevin Robertson has offered to host it at the Southern African Wildlife College, close to Kruger NP where a lot of buffalo work has taken place in the past and currently. This should provide good opportunities for field visits between sessions.

Presentations
Keoikantse - Analyzing herbivore movements in relation to resource availability in the Savuti-Mababe-Linyanti Ecosystem (SMLE) in Northern Botswana

Bennitt - Effects of divergent migratory strategies on access to resources for Cape buffalo (*Syncerus caffer caffer*)

Valls-Fox - Does surface water availability shape the human-wildlife interface at the edge of a protected area?

M. Melletti - Comparative Analysis of Forest Buffalo Grouping Patterns in Central Africa

D. Cornelis - Social dynamics in the African buffalo (*Syncerus caffer*): socio-ecologic drivers and eco-epidemiological implications

Michaux Evolutionary - History of the African buffalo (*Syncerus caffer)* at continental scale based on mitochondrila and nuclear molecular markers

van der Westhuizen - Genetic variability of Cape buffalo populations in South Africa

N. Smitz - Population genomics of the Cape buffalo subspecies (*Syncerus caffer caffer*) of the southern African region based on SNP markers

Shepstone - Feeding buffalo: Improving production, reproduction and health in intensive, semi-intensive and extensive game farming systems in southern Africa

Robertson - Sustainably Managing Buffalo Trophy Quality

Roug - Health and demographics of African buffalo (*Syncerus caffer*) in Ruaha National Park, Tanzania

Combrink - Primary production drives eco-physiological cascades in African buffalo

A. Caron - *Escherichia coli* populations sharing and antibioresistance gradient at a buffalo/cattle interface in southern Africa

Couch - Serum chemistry panels as indicators of health: Establishing normal ranges for African Buffalo & assessing variability across season, age and sex

A. Caron - *Escherichia coli* populations sharing and antibioresistance gradient at a buffalo/cattle interface in southern Africa

Couch - Serum chemistry panels as indicators of health: Establishing normal ranges for African Buffalo & assessing variability across season, age and sex

Antelope in the News

Law Change in South Africa:
On 10 June 2016, the Department of Agriculture, Forestry and Fisheries (DAFF) added twelve antelope species (Black Wildebeest, Blue Wildebeest, Blue Duiker, Bontebok, Gemsbok, Impala, Oribi, Red Hartebeest, Roan, Sable, Springbok, and Tsessebe) to the list of tame and domesticated animals regulated under the Animal Improvement Act (No. 62 of 1998). The Animal Improvement Act states that listed animals may be used *"for the breeding, identification and utilization of genetically superior animals in order to improve the production and performance of animals in the interest of the Republic; and to provide for matters connected therewith"*.

This amendment will allow genetic manipulation and cross-breeding of wildlife in the same way that livestock and poultry are bred to obtain animals with specific characteristics. The only wildlife species previously listed under the Act, was the Ostrich. The game ranching industry has welcomed this step, but the South African Hunters and Game Conservation Association (SAHGCA) has expressed serious concern about this amendment which places the newly listed species at risk of genetic manipulation and genetic pollution, amongst other potential problems.

DAFF published the amendment to the Regulations of the Act without any consultation with major
role players in the wildlife industry, apparently including the Department of Environmental Affairs (DEA), which is responsible for legislation regarding wildlife.

Lizanne Nel, conservation manager at SAHGCA, said breeding practices such as genetic manipulation and cross-breeding of wildlife conflict with existing biodiversity conservation legislation that protects indigenous wildlife and maintains the genetic integrity of wildlife species for current and future generations.
Sources: www.wildboere.com and African Indaba e-Newsletter 14:4-5

Mining in Odzala-Kokua National Park:
The government of the Republic of Congo has issued permits for gold mining inside Odzala-Kokoua NP which covers 13,600 km^2. It is home to Lowland Bongo *Tragelaphus eurycerus*, Sitatunga *T. spekei* and a suite of forest duikers, as well as many other important species of Congo Basin rainforest fauna.
Source: https:/news.mongabay/com

Wildlife slaughter in South Sudan:
The Wildlife Conservation Society (WCS) has reported an alarming expansion of illegal exploitation and trafficking, with all sides in South Sudan's civil war slaughtering elephants for their ivory and using automatic weapons to kill large numbers of antelopes and giraffes for meat in order to feed the tens of thousands of soldiers and rebels who have been fighting since December 2013.
Source: WCS press release, 3 March 2016

Lomami National Park, DRC:
On 7 July 2016, the government of DRC formally announced the establishment of the Parc National de la Lomami (Lomami National Park), covering 8,874 km^2 of rainforest between the Lualaba and Tsuapa rivers. Lomami NP contains an isolated population of Okapi, as well as Forest Elephant *Loxodonta Africana cyclotis* and Congo Peafowl *Afropavo congensis*, Bonobo *Pan paniscus*, and two more primate species that are endemic to DRC. It also lies within the range of Bongo *Tragelaphus eurycerus* and five species of duiker (*Blue Philantomba monticola*, Bay *Cephahlophus dorsalis*, Black-fronted *C. nigtrifrons*, Weyns's *C. weynsi*, and Yellow-backed *C. silvicultor*).
Source: http://www.lukuru.org/lomami-national-park.html

Boni-Lunghi Forest, Kenya:
The Boni-Lunghi forest was officially gazetted as a State Forest early in 2016. This site in the lower Tana Valley of south-east Kenya covers 399 km2 and lies between Boni National Forest and Dodori National Reserve which are key sites for the threatened regional endemic, Ader's Duiker *Cephalophus adersi*. *Source: Kenya Gazette Vol. CXVIII No. 22, 4 March 2016.*

Cuvier's Gazelle reintroduction in Tunisia:
On 18-20 October 2016, 43 Cuvier's Gazelles *Gazella cuvieri* were transferred from Almería (EEZA-CSIC) and Canary Islands (Oasys Park Fuerteventura) to enclosures in Jebel Serj National Park (1720 ha) as the first step in a program to restore the species to several protected areas within its historical range. The project is a collaboration between the Spanish Consejo Superior de Investigaciones Científicas (CSIC-EEZA) and the Tunisian Direction Générale de Forêts (DGF) with the cooperation of the NGO Tunisia Wildlife Conservation Society (TWCS). In January 2015, an "Accord Cadre de Cooperation Scientifique et Technique" was signed between the Direction Générale des Forêts (DGF) and EEZA-CSIC to initiate the project, taking advantage of the captive breeding programs for endangered gazelles developed by EEZA-CSIC over the last 45 years. *Sources:*
http://rgct.eeza.csic.es/index.html
TWCS Facebook page: https://www.facebook.com/Tunisia-Wildlife-Conservation-Society-TWCS-222687077830464/

African Animal Lore
This new book by Clive A. Spinage DSc contains historical facts and anecdotes from Ancient Egypt, Roman times, through recent historical times to the present; this is not a biology book or a guidebook to African animals, but a miscellany of information from the bizarre to the biological, factual, historical, mythical, and romantic. It forms a standard reference work in popular style of facts about African mammals plus crocodile and ostrich, researched from a wide variety of early and modern works for natural historians, biologists, safari goers, and quiz enthusiasts. Published by Stanford Publishing Ltd (UK). 300 pages, 37 line drawings, 22 black & white plates, 14 colour plates, hardbound green buckram, size 15x23 cm, ISBN 978-0-9934073-0-7.

(Environment Agency—Abu Dhabi photo)

Scimitar-horned Oryx released in Chad:

In August 2016, 25 Scimitar-horned Oryx Oryx dammah were released into the wild from an acclimatisation facility in Chad's Ouadi Rime-Ouadi Achim Faunal Reserve (OROA). This landmark event is part of an ambitious project to restore the species to it former range, led by Environment Agency - Abu Dhabi (EAD) with the government Chad and implementation partner the Sahara Conservation Fund. The first birth in the wild was recorded by OROA rangers in late September 2016. A second consignment of 25 Scimitar-horned Oryx arrived at the pre-release enclosures in OROA in November 2016 and are scheduled for release in early 2017.

Sources: Return to the Wild issue #3 and EAD Press Release 29 September 2016

Three US Antelopes Litigation

On Friday, June 3, 2016, the D.C. Circuit Court of Appeals issued a significant ruling concerning the plight of three endangered species of antelope – the scimitar-horned oryx, dama gazelle and addax. The D.C. Circuit decided that Congress did not violate the U.S. Constitution when it passed a law directing the U.S. Fish and Wildlife Service (FWS) to reinstate a rule that allows individuals to hold and participate in hunts of members of U.S. captive herds of the three antelope species, without the need to obtain individual Endangered Species Act (ESA) permits. The court's ruling upholds the legality of the highly successful sustainable-use program that has resulted in the three species thriving on private ranches in Texas and other U.S. states.

Safari Club International, www.safariclub.org

Recent Publications

Extreme Wildlife Declines and Concurrent Increase in Livestock Numbers in Kenya: What Are the Causes?
Joseph O. Ogutu, Hans-Peter Piepho, Mohamed Y. Said, Gordon O. Ojwang, Lucy W. Njino, Shem C. Kifugo, Patrick W. Wargute
PLOS ONE September 27, 2016 http://dx.doi.org/10.1371/journal.pone.0163249

There is growing evidence of escalating wildlife losses worldwide. Extreme wildlife losses have recently been documented for large parts of African, including western, Central and Eastern African. Here we report extreme declines in wildlife and contemporaneous increase in livestock numbers in Kenya rangelands between 1977 and 2016. Our analysis uses systematic aerial monitoring survey data collected in rangelands that collectively cover 88% of Kenya's land surface. Our results show that wildlife numbers declines on average by 68% between 1977 and 2016. The magnitude of decline varied among species but was most extreme (72-88%) and now severely threatens the population viability and persistence of warthog, lesser kudu, Thomson's gazelle, eland, oryx, topi, hartebeest, impala, Grevy's zebra and waterbuck in Kenya's rangelands. The declines were widespread and occurred in most of the 21 rangeland counties. Likewise to wildlife, cattle number decreased (25.2%) but number of sheep and goats (76.3%), camels (13.1%) and donkeys (6.7%) evidently increased in the same period. As a result, livestock biomass was 8.1 time greater that that of wildlife in 2011-2013 compared to 3.5 times in 1977-1980. Most of Kenya's wildlife (ca.30%) occurred in Narok County alone. The proportion of the total "national" wildlife population found in each county increased between 1977 and 2016 substantially only in Taita Teveta and Laikipia but marginally in Garissa and Wajir counties, largely reflecting greater wildlife losses elsewhere. The declines raise very grave concerns about the future of wildlife, the effectiveness of wildlife conservation policies, strategies and practices in Kenya. Causes of the wildlife declines include exponential human population growth, increasing stock numbers, declining rainfall, and a striking rise in temperatures but the fundamental cause seems to be policy, institutional and market failures. Accordingly, we thoroughly evaluate wildlife conservation policy in Kenya. We suggest policy, institutional and management interventions likely to succeed in reducing the declines and restoring rangeland health, most notably through strengthening and investing in community and private wildlife conservancies in the rangelands.

The fate of rediscovered species: viability concerns for a remnant sitatunga population in West Africa
Typhenn A. BRICHIERI-COLOMBI, Jana M. McPHERSON, Donna J. SHEPPARD, Axel MOEHRENSCHLAGER
Animal Conservation, 2016. DOI: 10.1111/acv.12306

Abstract
The rediscovery of species once considered extinct or extirpated is good news, and yet prospects for long-term survival may be bleak if remnant populations are small and isolated. Because rediscovered species are commonly rare or cryptic, data to inform appropriate conservation actions are usually sparse. We demonstrate how to make the most of available data, using the recent rediscovery in Ghana of sitatunga (*Tragelaphus spekei*) as an illustrative case study. Sitatunga were thought extinct in Ghana for over 50 years, but were 'rediscovered' by science in Avu Lagoon in 1998. Little is known about this species, especially West African populations, given its cryptic nature and inaccessible wetland habitat. To determine whether sitatunga might persist elsewhere in Ghana and elucidate habitat preferences, we built the first habitat suitability model for the species and analyzed camera-trap data to examine demographic parameters and activity patterns. Sitatunga sightings were rare, heavily male-biased and mostly occurred between 6pm and 6am. Suitable habitat in and near Avu Lagoon appears insufficient to ensure long-term population viability, and the existence of other, connected populations in Ghana is unlikely. Without continued protection, and possibly additional interventions to augment population numbers or gene flow, the sitatunga in Avu Lagoon will likely go extinct. Our results demonstrate the conservation challenges associated with the rediscovery of relict populations, and the utility of applying tools such as habitat suitability models to sparse data. Moreover, our research stresses the need to implement immediate conservation action upon species rediscoveries to prevent (regional) extinction.

Decline in hunter offtake of blue duikers in Bioko Island, Equatorial Guinea

Authors: Maria Grande-Vega, Miguel Angel Farf, Ambrosio Ondo, and John E. Fa

African Journal of Ecology 54: 49-58

Abstract

The blue duiker (*Philantomba monticola*) is an abundant and widely distributed ungulate in continental sub-Saharan Africa. High hunting pressure throughout its range may be particularly threatening to the persistence of island populations of the species. In this study, we assessed offtake of blue duikers in Pico Basile, Bioko Island, Equatorial Guinea. We recorded the number of animals shot or snared by 46 commercial hunters over a33-monthperiod, and the location (elevation) of each animal hunted. From this, we estimated catch per hunter (CH), catch per hunting day (CD) and catch per unit effort (CPUE). The number of duikers shot or snared across the study period, significantly declined within the mid-altitude range (901–1500 m). There were no significant drops in CH or CPUE at low or high altitudes for snared animals. The ratio of immature-to-adult animals hunted increased significantly over time within the mid-altitude range. We suggest that these trends in offtake, especially in the more heavily hunted mid-altitudes of the study area, indicate a decline in the population within this range. If this situation is widespread throughout the island, it is likely that unregulated bushmeat hunting will have devastating consequences to the biodiversity of Bioko Island, particularly for heavily hunted species that are naturally less abundant.

Disproportionate Climate-Induced Range Loss Forecast for the Most Threatened African Antelopes

B.L. Payne and J. Bro-Jørgensen

Current Biology (2016), http://dx.doi.org/10.1016/j.cub.2016.02.067

In Brief

In a study of African antelopes, Payne and Bro-Jørgensen show that small-ranged species are likely to suffer the highest proportional range loss due to climate change. The results point to climate change as a more severe conservation threat than known so far because species already threatened by exploitation and habitat loss often have small ranges.

Highlights

- Climate change is likely to hit the ranges of already small ranged species hardest
- Their ranges will, however, also benefit most from more wildlife-friendly land use
- Also more vulnerable are African antelopes specialized for cold and dry climates
- Protection in the African Horn and Liberia are antelope conservation priorities.

Evaluating methods for surveying the Endangered Cuvier's gazelle Gazella cuvieri in arid landscapes

J.M. Gil-Sánchez, F.J. Herrera-Sanchez, B. Alvarez, A.R. Redondo, J. Bautista, I. Cancio, S. Castillo, M.A. Díaz-Portero, J. de Luca, E. McCain, J. Perez, J. Rodriguez-Siles, J.M. Saez, J. Martinez-Valderrama, G.Valenzuela, A.J. Qninba, and E. Virgos.

Oryx doi:10.1017/S0030605316000430

Abstract

The Endangered Cuvier's gazelle *Gazella cuvieri* is an endemic ungulate of north-western Africa. Information on the species has been based primarily on non-systematic surveys, and the corresponding status estimates are of unknown quality. We evaluate the effectiveness and efficiencyof two field methods for systematic surveys of populations of Cuvier's gazelle in arid environments: distance sampling (based on sightings) and sampling indirect sign (tracks and scats). The work was carried out in the north-western Sahara Desert, in Morocco, where what is possibly the largest population of Cuvier´s gazelle persists. A logistically viable survey was conducted over a total area of 20,000 sq km in 10 expeditions during 2011 - 2014. A total of 67 sites were surveyed, with 194 walking surveys (2,169 km in total). Gazelle signs were detected at 50 sites, and gazelles were sighted at 21 sites (61 individuals). We found a relationship between sightings and abundance indices based on indirect sign, which could be useful for population monitoring or ecological studies. Additionally, the data could be used in occupancy modelling. Density estimates based on distance sampling required considerable effort; however, it is possible to survey large areas during relatively short campaigns, and this proved to be the most useful approach to obtain data on the demographic structure of the population.

Conserving wildlife amongst the cotton fields. A third of a century of experience at the Nazinga Game Ranch, Burkina Faso
Environmental Monitoring and Assessment 188(7): 13 • July 2016
DOI: 10.1007/s10661-016-5388-y

Abstract
Established in the early 1970 as a participatory wildlife production area, the Nazinga Game Ranch turned into an island of conservation surrounded by cultivation.We asked ourselves how long-term ungulate trends are affected in a context of continuous human pressure. To find out,we compiled and analysed the data of yearly line-transect counts of mammals carried out since 1985. Results showed that large species such as the elephant (Loxodonta africana) and large antelopes increased or showed stable populations. In contrast, medium and small ungulates showed continuously decreasing trends. During the same period, rainfall, water availability from artificial water points and the crop encroaching outside Nazinga Game Ranch increased. After an initial significant reduction, illegal human signs increased. However, we showed that human signs were positively correlated with the abundance of large ungulates but negatively correlated with the abundance of medium and small ones. In conclusion, this study showed that some isolated mammal populations could be restored and maintained in the long term, in spite of being surrounded by highly cultivated areas

Non-Marine Mammals of Togo (West Africa): an annotated checklist, Zoosystema 38 (2): 201–244.
Amori G., Segniagbeto G. H., Decher J., Assou D., Gippoliti S. & Luiselli L. 2016.

Abstract
Although Togo is a relatively small country in West Africa, it is characterized by a wide variation of vegetation zones ranging from moist forests to arid savannahs, including the “Dahomey Gap”. There has been no comprehensive documentation of the native mammal fauna of Togo since 1893. Our review of the extant and extirpated mammals of Togo includes 178 species, with Chiroptera (52 species) and Rodentia (47 species) being the most speciose groups. This number does not include additional species recorded along the borders of Togo, and whose presence inside the country is not verified. Seven species of mammals are presumably extinct in the country but we confirmed that two species of large ungulates, reputed to be extinct, survive in remote forest habitats. Ecological Zone IV, sustaining the moist forest areas, and Ecological Zone I, inclusive of all the relatively undisturbed dry savannahs of the extreme North of the country are the most important regions for mammal diversity and conservation.

Join the conference, share experiences, and meet the keynote speakers like ...

David Mallon

Co-Chair of the IUCN Antelope Specialist Group, member of the Giraffe and Okapi SG, IUCN Red List Committee, and IUCN Species Conservation Planning Sub-committee.

February 19 - 25, 2017
Prague, Czech Republic

Jonathan Kingdon

Zoologist, science author, and artist, a research associate at the University of Oxford. He focuses on taxonomic illustrations and evolution of the mammals of Africa.

Rebecca Lewison

Conservation ecologist and an Associate Professor at San Diego State University. She also serves as Director for the Institute for Ecological Management and Monitoring, and as a chair of the IUCN Hippo Specialist Group.

Pedro Vaz Pinto

Angolan conservationist who dedicated his life to the critically endangered giant sable antelope *Hippotragus niger variani*. Since 2003, Pedro has coordinated the Giant Sable project in Angola.

Julian Fennessy

The first executive director of Giraffe Conservation Foundation in Namibia - the world's only dedicated giraffe conservation organization. Julian is also co-chair of the IUCN SSC Giraffe and Okapi Specialist Group.

Richard D. Estes

Biologist specialising in the behaviour of mammals in mainland Africa. He is particularly interested in studying wildebeest. It has been suggested that Richard is responsible for most of the world's knowledge of wildebeest behaviour.

Register now at:
http://www.angihip2017.com

GOSG GIRAFFE & OKAPI SPECIALIST GROUP

IUCN SSC Species Survival Commission

Giant Sable *photo by Pedro Vaz Pinto*

GNUSLETTER

Steve Shurter, Editor
White Oak Conservation Holdings
581705 White Oak Road
Yulee FL 32097

www.whiteoakwildlife.org