INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES

SPECIES SURVIVAL COMMISSION

ANTELOPE SPECIALIST GROUP
GNUSLETTER

Volume 9 • Number 1 **January 1990**

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PUBLISHED WITH ASSISTANCE FROM THE WORLD WILDLIFE FUND—U.S.

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ASG NEWS

PROGRESS REPORT ON ANTELOPE SURVEY, PART 3

Rod East has sent in an update on the status of Part 3, Central and West Africa. He writes (15 Nov. 89), "Most of the country reports have now been finalized. I am sending you under separate cover copies of the final versions of chapters which you do not already have. In some cases the initial drafts have been completely rewritten, in others they have been altered only slightly. From time to time I am still updating some of these 'final' versions, e. g., Liberia (see attached). I will eventually send Simon the final version of all of Part 3 on diskette.

"Delaying the compilation of Part 3 until the information on forest antelopes obtained during the WCI [Wildlife Conservation International] forest elephant surveys is available has certainly proved worthwhile. Allard Blom has recently sent me more valuable information on antelopes, this time from Salonga N. P. in Zaire. Allard spent five months in the field in and around this little-known park earlier this year. His information shows that Salonga still supports important forest antelope populations even though the park is at present controlled by elephant and hippo poachers who are decimating the park's populations of these two species. I am still waiting to hear from Marcel Alers (southern Cameroon and Maiko N. P. in Zaire) and Mike Fay (Congo and CAR).

"Pressure of work permitting, I hope to have the final version of all of the country reports for Part 3, with the possible exceptions of Cameroon, CAR, Congo and Zaire, plus the three overview chapters compiled by late December, 1989. Final compilation of the chapters on Cameroon, CAR, Congo and Zaire is partly dependent on the speed at which Marcel Alers and Mike Fay respond to my request for information . Hopefully, Part 3 will be completed in early 1990."

PRAISE FOR PART 2

Rowan Martin, Assistant Director (Research) of Zimbabwe's Department of National Parks and Wild Life Management, wrote (9 June 89) to thank Rod East for sending a copy of the Antelope Survey, Part 2, on Southern and South-Central Africa.

"Like Part 1, this is a well-presented, excellent piece of work which will serve as a valuable base-line study for all time. We have read the section on Zimbabwe and have no adverse criticism of it. Since it has been written, several developments have taken place" [reported under Zimbabwe in Regional Rundown].

"We compliment you on your valuable reference work which will be of considerable use to us."

Frank Ansell

In October, 1989, the Trendrine Press (Zennor, St. Ives, Cornwall, England) published Frank Ansell's *African Mammals 1938-1988*, which extends and adds to Glover Allen's famous *Checklist of African Mammals*, published in 1939, "the basic source of bibliographical reference to the names of African recent mammals from the start of zoological nomenclature in 1758 to July, 1938" (quoting the flyer). "Since then, however, particularly from the 1950s onward, there has been a very great expansion of African mammalogy and many new taxa have been described and named. *African Mammals 1938-1988*, lists the names published from July, 1938 up to December 31st, 1988, just over half a century, and also includes a number of names which Allen overlooked. A useful feature is that it gives the latitude and longitude for the type locality where the co-ordinates were not included in the original description. It will be an essential complement to Allen's monumental work."

The price is £10-65 post paid in the U. K. and L. 10-90 overseas (surface mail), payable to The Trendrine Press.

Albert Heringa

After returning to the Netherlands last summer and leaving his wife and school-age children behind, Albert has gone back to Ouagadougou for another two years, under contract to IUCN. His new address is B. P.3133.

Heringa's main responsibility is to start a Natural Resources Management Project in the Nazinga-Naberé Tambi (Pô) N. P. area, with an emphasis on wildlife utilization. [See the story on the closing of the Nazinga Game Ranch project under Burkina Faso, in the Regional Rundown.] It will be part of the IUCN Sahel program. For the time being, Albert is also the IUCN representative in Burkina Faso.

Clive Spinage (ASG) returned to the UK in November from Botswana, where he has worked with the Department of Wildlife and National Parks since 1986.

CONFERENCE ON WILDLIFE MANAGEMENT

"Wildlife Management and Utilization—the African Experience" is the title of an international conference to be held at the University of Pretoria on 2-5 July. Quoting the announcement, "The objectives [are] to create an awareness of wildlife management, to highlight the importance of careful management in wildlife conservation, to establish an African conservation strategy, and to share the knowledge and experience obtained through scientific survey, research and training in collaboration with the rest of Africa." Following is a provisional list of the topics to be covered.

- The framework of the conference: wildlife management and the World Conservation Strategy: the ecosystem and landscapes as management units, and criteria for the selection of areas for national parks and equivalent reserves.
- Selected principles and techniques: water and soil as a basic resource; veld management; wildlife nutrition; game capture, care and transport.
- The utilization concept: the economic imperative; wildlife diseases and utilization; interrelationships between the diseases of wildlife and domestic stock in Africa.
- Communication and training in conservation: formal training, primary, secondary and tertiary; public relations; extension services; the role of private organizations.

For further information and to register, write Conference Coordinator, Bureau for Public Relations, University of Pretoria, P. O. Box 11488, 0011 Brooklyn PTA, South Africa.

ANTELOPE NEWS

FOREST ANTELOPE RESEARCH

In Ivory Coast

Helen Newing of the University of Stirling, Scotland writes (in lit. to East, 28 Aug. 89), "I am planning to start my fieldwork in November, and [will] be based in Tai National Park, Ivory Coast. I will concentrate on habitat preferences of the 7 duiker species known to occur there. I'm planning to use radio-tracking, pellet counts and analyses to compare natural forest with areas of secondary growth and selectively logged forest. If I can obtain enough hunted animals I will also look at stomach contents."

In Cameroon

John Caleb Payne, a grad. student in the Program for Studies in Tropical Conservation at the University of Florida, is planning to spend a year in Cameroon's Korup N. P., starting this spring. "Korup," he writes (30 Oct. 89) is a very diverse, tall-stature rain forest, and I will be attempting to measure densities of several large mammals that are heavily hunted by local people in the park, including four duiker species: *Cephalophus monticola, C. ogilbyi, C. sylvicultor, and C. dorsalis.*

"The problem that has prompted me to write you is that the most important species to local hunters is the Bay duiker, *C. dorsalis,* which is totally nocturnal. I am looking for a way to census it." Payne asked that a notice be carried in *Gnusletter* that he is seeking advice from antelope specialists "on techniques that have proven successful in estimating densities of duikers or other small antelopes in rain forest habitats. I would be especially interested in nocturnal censusing techniques.

"At present, I plan to walk many miles of transects during the day. I will try using track and pellet counts, though the park gets so much rain that those techniques many not be useful. For nocturnal censusing, I may try spotlight counts, counts from blinds under fruiting trees, photographic trap counts, and possibly mark-recapture methods."

John has already contacted ASG members Glyn Davies, Vivian Wilson, and Karl Kranz, all of whom have studied duikers in the West African rain forest.

In Rwanda

Andrew Plumptre (ASG), meanwhile, has been progressing with his study of black-fronted duiker *(Cephalophus nigrifrons)* and bushbuck *(Tragelaphus scriptus)* at the Karisoke Research Centre. Following his account of censusing these species by pellet counts (see May 89 *Gnusletter,* p. 3), he writes (in lit. 19 May 89), "The main problem with this method is to convert counts of dung into actual animal numbers, for which a measure of the defecation rate is required. I am getting a pretty good measure for the bushbuck by observation here, but this is not so for the duiker. Although they are observable, the black-fronted duikers here do seem to defecate in a non-random manner: the counts show a very clumped distribution (often 3 or 4 pellet groups within one foot of each other). Further observations of the animals near Karisoke have shown that these clumped pellet sites are found more frequently along territorial boundaries, indicating a possible territorial demarcation role for the dung as well as the scent glands (preorbital). If this is the case, then the choice of observation site could seriously affect the estimate of defecation rate obtained. Would it be possible to put out a plea in the Gnusletter to anyone in zoos who have duikers to see if they can get an estimate of this rate (something which I'm sure would be of use to others wanting to census these animals)."

A report of 3 to 5 pellet groups a day produced by blue duikers fed on fruit is not very helpful, as "the black-fronted in the Virungas are almost 100% folivores, there being little fruit available. Does anyone in zoos feed duikers on such a diet?"

Here as elsewhere, this duiker is associated with swampy habitat—"often found in open boggy meadows when foraging (always within reach of some cover though, such as tall *Carex* grass). Males and females seem to share overlapping territories rather than identical ones, although I have only ever seen the same pairs together (i. e. I don't think that a male associates with more than one female—it is more likely that they use different areas of a larger joint territory). Of the few agonistic encounters I have witnessed,.all of them fit your descriptions of the blue duiker" [in *The Behavior Guide to African Mammals,* in press].

"I particularly find your description of duikers as being ruminant-frugivores [found in studies in Gabon rain forest] interesting, as from my work that is the last thing that I would have used to describe them! It just shows you how adaptable this species can be."

"The bushbuck here tends to fit the general description of this species elsewhere—often associated with boundaries of habitats, not having any particular daily rhythm and being nonterritorial (there seems to be some form of dominance hierarchy amongst the males)."

BOVID HORN RESEARCH

In connection with an ongoing study of the evolution and biological significance of horns in female bovids, I am seeking information on the heritability of horns in normally hornless-female species. My question is, do the occasional aberrant females that grow horns pass on this trait to their female offspring? Anyone who can provide information on this subject will be welcome to a copy of my paper (in press), "The evolution of horns and other male secondary sexual characters in female bovids" (presented at the 1988 Ungulate Conference, Texas A&M University).

DERBY ELAND

Oubangui Safaris, a hunting safari company in the Central African Republic, holds a permit from the Government of the Central African Republic (CAR) to capture and export 25 Eastern giant or Lord Derby eland *(Tragelaphus [Taurotragus] derbianus gigas)* and 20 Western roan *(Hippotragus equinus koba).*

In a letter to Willie Labuschagne (6 Dec 88), Director of the National Zoological Gardens (NZG) of South Africa, which has a small herd (ca. 3.4 in 1988) of the Western Derby eland, Mike Cameron of Oubangui Safaris put forward the rationale for importing and breeding the eland in South Africa.

"For the past eight years we have experienced a drastic decline of the Derby eland population in the Central African

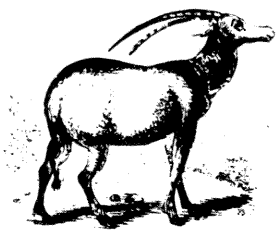
Republic. This has come about mainly due to massive poaching by Sudanese and Chadian nationals. It is our sincere belief that within a period of 10 years, this, the most noble of all Africa's eland specie, may face extinction. At this stage, eland may still be hunted legally on licence and ±40 males are taken during every hunting season by authorized trophy hunters.

"It is our firm opinion that as a precaution against possible extinction of this particular specie, a small breeding herd of 25 animals be captured and re-located in the Republic, where we are world leaders in the field of game ranching, re-locating and breeding of wild animals, with veterinary expertise to natural fauna unequaled."

The capture operation, Cameron said, "would be under direct supervision of Mr. Eric Stockenstroom, the Managing Director of Oubangui Safaris, and Mike Cameron, both of whom have had many years hunting experience in the pursuit of Derby eland and thus have a most intimate knowledge of the areas where the specie occur."

"Sufficient funds are available to undertake such a professional operation and we trust that this noble undertaking meets with your approval. Furthermore, it is our intention to commence the operation during January and February of 1989, thus the time factor is of the utmost importance."

Responding cautiously, the NZG asked the International Union of Directors of Zoological Gardens whether they would sanction or oppose the operation Early in February the ASG's advice was sought, in turn, by letter from IUDZG President Roger Wheater to Rod East. Enclosed was a copy of his reply to the National Zoo (12 Dec 88), in which he urged the need for IUCN approval, the assurance of scientific and veterinary back-up during and after the capture operation, and continuing professional management of the captive herd to ensure a broad genetic base. After listing these and other provisos, Wheater then said, "...If action accords with IUCN strategy and providing a central organization, preferably the National Zoo, is able to co-ordinate a scientifically based breeding programme, then this would seem to be an important and significant undertaking in respect of this species..."



In his reply (28 Feb 89) Rod agreed with the conditions and safeguards Wheater had proposed, and pointed out, "In Part 3 of the ASG's Antelope Survey and Regional Action Plans (currently in draft form), we list the status of the eastern giant eland...as 'threatened,' and the Action Plan states, 'IUCN should support initiatives to establish sound captive breeding programmes for antelopes which are under threat and are poorly represented or unrepresented in captivity at present, such as giant eland, zebra and Jentink's duikers.'

"T. d. gigas appears to have disappeared completely in recent years from Chad and Nigeria, but viable populations persist in CAR, Sudan and Cameroon. I doubt that this antelope is in danger of global extinction within the next 10 years, but its status nevertheless gives cause for concern. Establishment of a secure captive population would be an important complementary measure to the current attempts to improve the protection and management of the conservation areas in which it occurs, e. g., in CAR."

The National Zoo decided to approve the eland operation after securing Oubangui Safaris' agreement to nearly all the suggested conditions and safeguards. The most important ones:

• NZG staff would accompany and assist the expedition H. Ebedes, former Chief Veterinarian of the National Zoo [presumably the same Ebedes who was the Vet at Etosha N. P. when I met him in 1969—Ed] would personally supervise the capture operation.

• The eland will be kept at the Zoo's Game Breeding Centre at Lichtenburg and managed by the NZG, including veterinary treatment, food, accommodation, etc.

• The animals will remain the property of Oubangui Safaris but the NZG may use any number of individuals for their own breeding purposes, offspring from the breeding loan to be divided equally.

• The NZG will be advised of the names and addresses of all prospective buyers and no animal may be removed from the zoo's premises without its approval.

• If Oubangui Safaris discontinues the project, the NZG will have first option to buy the animals.

In addition to IUDZG and ASG, IUCN, the Captive Breeding Specialist Group, and the Veterinary Specialist Group were all informed about the proposed operation, and the response was generally positive, although VSG Chairman Mike Woodford noted (in lit to Estes 14 Oct 89), "From what I hear, previous attempts to capture Derby's eland have resulted in many deaths."

Not surprisingly, all these arrangements and consultations caused the operation to be postponed a full year. It is now scheduled for this January and February.

If you or your zoo is interested in purchasing one or more units (3 females and 2 males to a unit), the price is $120,000 per animal (price includes delivery in the U. S.). If that seems a little steep, how about a roan unit at only $20,000 a head?

INTRODUCTION OF EXOTICS IN AFRICA

In contrast to the elaborate preparations and precautions imposed on the Derby eland operation, hundreds of other animals are being imported to different African countries with little or no supervision.

• In South Africa and Zimbabwe, laws granting private ownership of wildlife have created such a demand for breeding stock among landowners that it is becoming cheaper to import surplus animals from abroad than to buy them at local wildlife auctions. (See May 1986 *Gnusletter*, p. 7, Problems with translocations, and Jan 88 *Gnusletter* story on Zimbabwe wildlife symposium). John Skinner, Director of the Mammal Research Institute in Pretoria, pointed out during the Rome ASG meeting potential problems with uncontrolled genetic mixing of zoo-bred with native animals, the danger of disease, and the importation of exotic animals.

• Speaking of exotic imports, Skinner mentioned that deer-farming is being tried

in Gabon, using Rusa deer *(Cervus timorensis)* from New Caledonia. Other alien species have been introduced to Gabon's 4,800 km Wonga-Wongue Reserve, which is managed as the President's hunting reserve: plains zebra from Kenya, ponies from Norway, blue wildebeest from southern Africa, peccary *(Tayassu* sp.) from America, and wild boar from Europe. The indigenous fauna of this reserve includes an estimated 30,000 forest buffalo and 2,000-4,000 forest elephants, in addition to sitatunga and other antelopes. Surprisingly enough, the wild boar has interbred with the native bushpig *(Potamochoerus porcus).* (This information comes from the chapter on Gabon in Part 3 of the Antelope Survey.)

In Ivory Coast, President Houphouet Boigny is following the example set by his Gabon colleague. In 1986 he set aside his 54,000 cattle ranch in the Guinean savanna zone for a safari-type game park in his home district of Abokouamekro near Yamoussoukro, the country's new capital. In 1987 a company called Animation Culturelle pour la Conservation de la Nature (ACCN) requested the Natal Parks Board (NPB), which sells surplus stock from their closely managed reserves, to supply 3,454 animals for introduction to the Abokouamekro Reserve over a period of three years. The desired species were zebra, wildebeest, blesbok, impala, common eland, nyala, kudu, oryx, and springbok—none of which occurs in West Africa and most of which are adapted to more arid environments.

In 1987 Natal Parks sent their ecologist, Peter Goodman, to the Ivory Coast to advise them on the species diversity and carrying capacity of the new game park. In his report, Goodman noted that the 24 species of large forest and savanna herbivores that previously existed "is quite comparable with other natural areas in Africa. Once the project area is restocked it will offer a tourist spectacle which is at least as good as any of the better-known game reserves in East and Southern Africa. There is thus no good reason why animals not previously occurring in the area (aliens) should be introduced."

The ACCN, however, rejected Goodman's recommendations, asserting that most of the indigenous species were nearly absent from the Ivory Coast. The animals originally ordered were again requested; but a couple of months later, the NPB were asked to send their Capture Team to catch animals in the Ivory Coast for introduction into Abokouamekro. After ascertaining that game was in fact abundant in the two national parks, the Capture Team caught and translocated 424 kob *(Kobus kob)* , 42 hartebeests *(Alcelaphus buselaphus),* and 44 buffalo in January and February, 1989.

Meanwhile, 6 of a requested 12 South African elephants were sent in December, 1988, as supposedly only 5 were left in the Ivory Coast. That also proved untrue, and the Capture Team was later approached to capture some Ivorian elephants for Yamoussoukro. "Assuming we can overcome the practical difficulties of carrying this out," wrote J. R . Flamand, the NPB veterinarian in charge of the capture operation, "will these be mixed with the South African elephants? What measures can be taken to prevent them cross-breeding?"

The icing on the cake was added in January, 1989, when the South African Department of Foreign Affairs sent two white rhinos to the Ivory Coast as a gift.

Public criticism of the Yamoussoukro project was aired on a Voice of America nature program, in which it was brought out that US $20 million is being invested in this venture, whereas the annual budget of the country's national parks is only $600,000.

DUIKER CAPTIVE BREEDING GROUP

Captive breeding of duikers has become an official activity of the Captive Breeding Specialist Group. At the San Antonio meeting of the CBSG last September, a duiker captive breeding group was formed consisting of Vivian Wilson (leader), Jim Dolan (San Diego Zoo), Warren Thomas (Los Angeles), Warren Iliff (Dallas), Karl Kranz (Philadelphia), Don Farst (Gladys Porter), and several others [whose names were unavailable at press time]. The group's first task is to formulate a plan for setting up groups of captive duikers, both in Africa and the U. S.

"In the meantime," writes Wilson (7 Dec 89) in the letter containing the above information, "Harald Roth (ASG, Malawi) and I will be visiting Liberia and Ivory Coast during the first week of February, 1990 in order to try and purchase duikers for the Chipangali Breeding Centre."

"If we can get hold of some animals we will fly them to Zimbabwe straight away and will in fact accompany the animals" (Wilson in lit to Simon Stuart, 6.12.89).

As noted in the last *Gnusletter* (p. 12), Wilson recently acquired a pair of yellow-backed duikers from the U. S. In inviting Viv to become a full member of the CBSG, Ulysses Seal, the Chairman, commented (in lit 27 Jan 89), "You will play a particularly key role in the CBSG with your development of *in situ* captive breeding programs for threatened duikers and other African species. We need close contacts to help develop sensible captive breeding action plans for African species in need of this approach."

GAZELLA SUBGUTTUROSA

Chris Thouless, Ecology Officer in Saudi Arabia's King Khalid Wildlife Research Centre, writes that he was able to do a little field work on the rutting season of the sand gazelle in October. "Flight distances of well over 1 km made behavioral observations a little tricky, but there seems to be little evidence for any territoriality, with mobile harems the norm. However, it is difficult to know to what extent this is a result of low density."

AMERICAN SCREWWORM

As a correction to the story on the outbreak of the American screwworm in Libya (Sept. '89 *Gnusletter,* p. 8), Mike Woodford writes (25 Oct 89) that laboratories are not being established to breed sterile males in Libya. Instead, sterile males are being produced and shipped to Libya from the existing facilities in Mexico. Obviously that makes more sense.

REGIONAL RUNDOWN

NATIONAL PARKS AND RESERVES OF FRENCH-SPEAKING WEST AFRICA

Harald Roth, A. R. Dupuy, and F. Goy have written a most informative and interesting review of nature conservation in West Africa, which elucidates the way wildlife conservation in this part of Africa has been shaped by French colonial rule.

"All French West Africa," they point out in the Introduction, "was governed from Dakar in Senegal until 1960, and thus political and administrative conditions were very similar in all of this great territory. The differences to the rest of Africa, the uniformity of the biogeographic zoning as well as the equality of the historical background together warrant dealing with French-speaking West Africa as one entity, as opposed to the country-by-country reviews of this handbook." Although the need to treat each country separately in the Antelope Survey is paramount, in my view, the information presented by Roth *et al* nevertheless enlarged my understanding of the region and definitely deserves to be published—possibly as an introduction, appendix, or supplement to Part 3.

Regrettably the short excerpts that can be included here are hardly more than an abstract of this long (26 pp) ms.

In 1902 the French Government consolidated all its colonial possessions in West Africa into one federative administrative unit, called French West Africa (AOF). This vast areas comprised all the territories which today are know as Mauritania, Senegal, Mali, Guinea, Ivory Coast, Burkina Faso, Niger, Benin and as of 1918 also Togo. At the head of each of these territories was a Governor who was responsible to the Governor General in Dakar appointed and acting on behalf of the French Minister of Colonies....This political and administrative framework determined the evolution of nature conservation concepts and their implementation in French-speaking West Africa and indirectly also thereafter.

Responsibility for proposing, establishing and managing protected areas was entirely vested in the Forest Service. ...The primary concern of this authority was, however, to protect as many areas as possible for forestry purposes, wildlife being of little or only secondary concern....A first effort by the Administration to define and to list important conservation areas as 'Reserves Naturelles' was undertaken as early as 1925. Only much later did...research institutions like the IFAN (Institut Francais d'Afrique Noir) and the ORSTOM (Office pour le Recherche Scientifique et Technique d'Outre-Mer) or statuatory authorities like the Federal Committee for Nature Protection, founded in 1951 and the Conseil Scientifique pour Afrique Sud de Sahara, instituted in 1953, gain some influence on the creation of Nature Reserves. The London Conference in 1933, at which a Convention for the Protection of Flora and Fauna in the African colonial territories was also adopted by France, had considerable importance for the early recognition of conservation areas. [But] it should be noted that almost all reserves were situated in the Sahel and in the Sudanian Savanna zone; only one area. . . was located in the rain forest belt and has become today's important Tai National Park.

Administrative situation

...All of the territories of the former AOF inherited an administrative structure by which the Water and Forest Service was responsible for the wildlife resource without any special centralized administration of conservation areas. Wildlife was traditionally considered to be a secondary forest product and administered accordingly. In only very few of the emerging new states were efforts made to adjust the administrative structure and responsibilities to meet the challenge of conservation. Outstanding in this respect was Senegal, where a network of national parks and reserves was developed ever since 1954. Responsibility for these was vested in 1969 in a centralized national parks authority attached directly to the Presidency. The creation of this administrative structure has contributed significantly to the development and efficient management of national parks and three reserves comprising more than 5% of the country. Also in Ivory Coast, a separate national parks authority was created in 1973 and was even upgraded to a Ministry of Nature Protection, unfortunately disbanded in 1977. Since then, the national parks administration...disintegrated more and more with only the Azagny N. P. enjoying an autonomous status allowing development and efficient management. The territories and staff of all other parks and reserves, totalling some 6% of the Ivory Coast, fall under the jurisdiction of sometimes several different local administrative authorities, rendering efficient management of these areas very difficult if not impossible.

In Burkina Faso a Department of National Parks, Wildlife Reserves and Hunting was created in 1961 and attached to the Ministry of Transport, Environment and Tourism, which obtained specific external aid for a survey of the conservation areas to be carried out. However, most important reserves have still to be upgraded to fully protected national parks and some of the parks need to be redescribed to include important adjacent areas. One wildlife area has the status of a Game Ranch [see below under Burkina Faso].

In all of the other countries wildlife conservation has remained to date the responsibility of the Water and Forest Services. In Mauritania, Mali and Guinea these services, being understaffed and receiving only limited funds, have neither been able to develop the pre-existing protected areas nor to create much-needed other ones. In Niger, Benin, and Togo the Water and Forest Services have more recently successfully solicited external aid enabling them to consolidate and enlarge existing conservation areas like the Penjari and W National Parks in Benin, the Keran and Fazao Mazfacassa National Parks in Togo, and even to set aside additional ones like the Air plateau in Niger.

Conservation policies and legislation

Since the territories of the former AOF achieved independence in 1961, a rather striking disparity has evolved between the administration and actual management of their conservation areas, [which remain] very inadequate with the exception of Senegal, and the development of conservation policies and legislation, [which are] quite progressive. All countries have accepted progressive con-

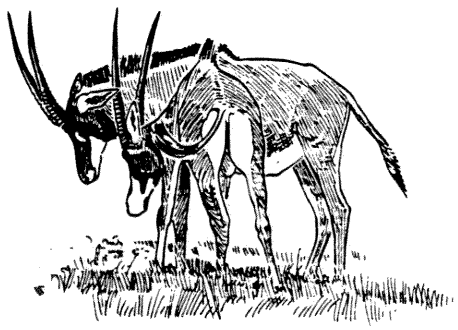
cepts of conservation, and most of them have become signatories to such international conventions as the OAU African Convention on Nature Conservation, ...CITES, and the UNESCO World Heritage Convention. The Tai and Comoe National Parks and Mont Nimba Reserve in Ivory Coast, and the Delta du Saloum, Niokolo-Koba and Djoudji National Parks in Senegal have been recognized by the Convention as natural heritages of outstanding international importance and beauty. Most of the countries have promulgated new national parks and wildlife conservation legislation and all have now banned tourist hunting. They are fully participating in international conservation programs, such as the UNESCO Man and Biosphere Program, seven of the protected areas becoming Biosphere Reserves. Since 1965 all countries are participating biennially in the FAO African Forestry Commission's Ad Hoc Working Group on Wildlife.

Some of the concerned countries, like Senegal, have accepted IUCN's World Conservation Strategy and have set up National Conservation Strategy Committees. They have recognized the potential value of their conservation areas for tourist development and have included this aspect in their economic planning. In fact, they all look to East Africa and are expecting a similar spectacular tourist development, without however realizing that East African countries are only reaping the benefits of half a century of costly and unselfish nature protection effort which were not made in West Africa.

Table 1 [not included here] shows that since independence an impressive number of existing conservation areas were upgraded to national parks, [and] others newly created. However, particularly here the above-discussed disparity between policies, legislation and management becomes evident: a large number of the national parks and reserves in French-speaking West Africa exist merely on paper, without any developed infrastructure. Thus, such important national parks as Tai in Ivory Coast, W in Benin and Burkina Faso have remained almost totally inaccessible to visitors, and others like Marahoué in Ivory Coast and Arly in Burkina Faso are being more and more infiltrated by settlers. All of these lack any form of protection or law enforcement. Only Senegal is a noteworthy exception; all of its parks and reserves being well-demarcated, accessible and developed for tourist and educational use.

As a result, the actual conservation status of the varied flora and fauna of West Africa, to be safeguarded for future generations in the framework of national parks systems, is indeed alarming. It is generally accepted that environment and the fauna of West Africa as a whole are more degraded and in greater immediate danger than that of the Eastern and Southern parts of the continent. A number of reasons for this phenomenon have been named: the more heterogenous historic development, the lack of awarness of the threat to the environment, the more or less uncontrolled possession of firearms since historical times, and particularly the lack of appropriate administrative structure and dedicated conservationists as explained above. Therefore the French-speaking countries of West Africa generally had a much worse starting point, lagging decades behind the achievements in East Africa. Unfortunately this delay has not been recouped at all during the last decades, and today there is a very real threat to many of the ecosystems and animal species of West Africa.

Even in the countries where conservation action was energetically undertaken after independence, the odds remained largely negative: it is estimated that a strip of about 300 km width all along the Sahara has been lost to desertification with its respective consequences for the fauna. Due to ever-increasing timber exploitation, including slash and burn agricultural infiltration, as well as large-scale transformation of forest into industrial plantations, the Guinean rainforest belt has been reduced by about 90%. Despite awareness, international intervention and legal action, theTai N. P. as the last large piece of this ecosystem is about to be destroyed by gold prospectors and poachers. But even in the less densely populated Sudanian zone, population pressure and consequent invasion of the conservation areas threaten the survival of many game species. Despite the most intense policing efforts, and the creation of special protection forces, Senegal is about to lose its last elephants to ruthless poaching.



BURKINA FASO

The future of the Nazinga Game Ranch, begun in 1979, has been put in doubt by the unexpected withdrawal of the Canadian sponsors and founders of the project at the end of 1989. The Nazinga Project was described in the May, 1986 *Gnusletter* as "a cooperative endeavor between the Government of Burkina Faso and the African Wildlife Husbandry Development Association, a non-profit Canadian organization," with the objective of investigatinig the feasibility of game ranching in West Africa. The basic research plan was developed by Clive Spinage (ASG), who served until 1984 as Research Coordinator, seconded by FAO. Another story on the project ran in the Sept. 88 *Gnusletter*, submitted by George Frame, who took up the post of Research Coordinator in February, 1987. In its heyday, 12 to 18 researchers, from M. Sc. to post-doctoral, were involved in the project.

MALI

When he returned to the Netherlands on leave last summer, Albert Heringa "found some maps which I had missed for years" (in lit. 11 Nov. 89). These maps give information on the distribution of [scimitar-horned] oryx and addax. I got them in 1978 from the maker, Bruno Lamarche, who did an addax survey in Mali at the time for IUCN. I have never seen his report on this survey and [so] it is possible that these maps (or some of them) have already been published. [But] the chapter on addax and oryx [in an unspecified publication] does not reflect any awareness of these maps. Although....the information is already 10 years old, it is still sufficiently valuable to take into account, I think."

Anyone interested in obtaining copies of the maps can contact Heringa (address change given under ASG News) or me—Albert sent me copies.

SOMALIA

Alberto Simonetta (ASG), author of the Somalia chapter in Part 1 of the Antelope Survey, writes (25 Oct 1989) that he was set to continue his long-delayed (since 1983) Somalia wildlife work in June, when he received a cable informing him that everything would have to be postponed until next year. He was told that conditions in the country had deteriorated to the point where it was unsafe to move outside Mogadishu. After evaluating all the information he received from Somalia, Simonetta concluded that, even to ascertain the situation would require an agreement between the Government and the EEC or U. S. Government to implement an emergency plan "using aircraft and helicopters and at some personal risk for the people involved. Hungry, badly equipped...soldiers are fighting more or less the same sort of rebel bands here and there all over the country. A true emergency plan is probably the only one that can save several species from extinction, but our organizations are both too small and too poor. . . "

But executives of Agriconsulting I met in Rome during the International Theriological Congress in August considered it perfectly feasible to travel in Somalia and assess the status of endangered antelopes. Agriconsulting is a large Italian firm which advises the governments of some 21 different countries, including 13 in Africa, on the development of natural resources and agriculture. They are developing sport-hunting in Somalia, with the cooperation of the National Range Agency (NRA), which has responsibility for wildlife conservation and management (and for which Simonetta's earlier surveys were made). Agriconsulting has one safari camp near Lake Badana in the extreme southeast near the Kenya border, an area long considered a prime choice for a national park (see Antelope Survey, Part 1).

In addition to a glossy promotional brochure, I was given the typed report of an Italian client's hunting safari in March, 1989. Under the heading, "Somalia hunting potential," clients are informed that it is "very good for the trophy hunters. The SCI Inner Circles are pushing the international hunters to increase the number of species [that may be] shot."

A list of 27 species that can be hunted now includes all 22 species of antelopes found in Somalia, of which the beira, dibatag, Speke's gazelle, Piacentini's and Salt's dik-diks are endemic. All but Salt's dik-dik are considered immediately or potentially threatened (Appendix 2, Part 1 of the Antelope Survey). The greater kudu, Harvey's red duiker, beisa oryx, and topi are also considered threatened in Somalia, while Grant's gazelle, Soemmerring's gazelle, and the bushbuck are classed as vulnerable.

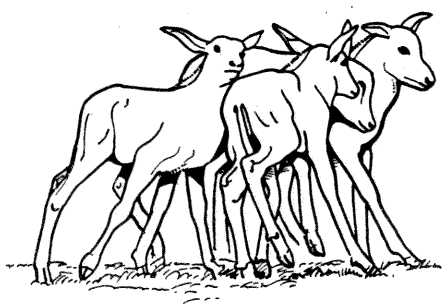
The hunter bagged 9 species, (apparently only one of each) including a beira, dibatag, Speke's, Soemmerring's, and Pelzeln's *(G. dorcas pelzelni)* gazelles, two species of dik-diks, Haggard's oribi *Ourebia ourebi haggardi)*, and Hunter's antelope.

The hunter's resume of the trip: "The hunting results very good. Got the 9 desired trophies and 5 RW (Rowland Ward trophy-class horns). The help of the NRA very good...The mechanical equipment excellent. Land Rover 110 and Merceded 911 both diesel and with good drivers made it easy to do...6,162 km in 18 days. The game has been drastically reduced compared with the Simonetta report and James Mellon book. The whole country has plenty of military weapons. Kalsnikoff, Fal and M16 with the possibility of buying ammunition on the black marked from the army. This is more important in the north."

KENYA

Hunter's Antelope under Fire

Pieter Kat (ASG), who has been involved with Nick Georgiadis (ASG) in studies of antelope population genetics and taxonomy, at the National Museums of Kenya (see Jan 88 *Gnusletter)* has expressed concern over the status of Hunter's antelope *(Damaliscus hunteri)*. Calling the need for a census and genetic mapping urgent, he writes (in lit. 18 Sept. 89), "As far as I know, we have a very limited knowledge of where these animals are and how many are left. Since they are located on the poachers' highway to Tsavo and Meru [between the Tana River and Somalia], I have little doubt that their numbers have decreased alarmingly. But, not being an elephant or a rhino, there is little noticeable concern for this endemic species. Any advice you have for a funding source would be much appreciated. . . Meanwhile I'll write...a memo on the need for a serious programme to promote their conservation."



Shimba Hills Roan

The account of a sighting of roan antelope in the last *Gnusletter* contained at least three mistakes. Only one, a mature bull, and not three roan were sighted, about two years ago, and not by Merav Ben-David but by Benny Shalmon of the Re'emIsrael Mammal Information Center (who sent me a photo of the animal). Furthermore, Merav is female, not male, and a member of the Viverrid Specialist Group. She *is* from Israel and we *did* talk about antelopes (and mongooses) of coastal Kenya and the Shimba Hills—that much I got right.

A colleague was kind(?) enough to bring the name/gender confusion to my attention (in lit. 30 Oct 89): "One point—on p. 13, Merav Ben-David is a girl! Given that you say you actually met her, I wonder if you are losing your touch, old boy!?" Just you wait, Simon Stuart.

A Naturalist's Notes on Antelopes, etc.

Only three months after assuming the position of Director of the School for Field Studies research and teaching operation in Kenya (reported in the September 89 *Gnusletter)*, Richard Ruggiero has sent back news about antelopes and conservation in Kenya (in lit. 10 Dec. 89).

[ASG members who have contributed nothing in the way of news for a year or more should bear in mind that members are expected to make such contributions, at least once a year.]

"The Hopcraft Ranch is again under the compulsory-acquisition gun, but as of last week, Dr. David Hopcraft was optimistic that a settlement would be reached that would mean only the loss of a relatively small percentage of the WRR [Wildlife Ranch and Research]. It appears that the operational center and boreholes will be spared, although the ranch's best waterhole and some prime wildebeest habitat will probably be turned into a cement quarry. That's progress for you. A game-proof fence is to be built around the quarry, and the animals will be pushed onto what remains of the ranch.
[N. B. A very large cement plant is located in Athi River, only a few miles away. Ed]

"Hopcraft's operation has had a good year. Being the only game ranch in Kenya, it is under constant scrutiny by the government, but has been granted permission to do some cropping on adjacent cattle ranches on the Athi-Kapiti Plains south of Nairobi National Park. Speaking of the park, it seems that the trend toward urbanization bodes poorly for NNP as the southern unfenced portion is due to have an industrial complex access road built across the dispersal area for the park's wildlife. Nairobi is expanding at an incredible pace, and it is not at all uncommon to see cheetahs, hyenas, and all manner of antelope killed on the infamous Mombasa Road nearby. It's all a bit depressing considering the prospects for the future. But good numbers of antelope, giraffe and zebras still roam the Athi-Kapiti Plains, and I was very happy to see herds of 25-30 eland grazing peacefully just 20 kms outside of bustling Nairobi. Incidentally, NNP now has over 50 black rhinos, and the park serves as a reservoir from which good numbers of ungulates and even large carnivores disperse into nearby areas. I hope that something can be done to conserve this often overlooked gem of a park.

"My recent trips around the Kenya countryside were quite encouraging. The past year or so has brought good rainfall to the area, and one can see amazing numbers of antelope and zebras in most areas. I was pleasantly surprised to see so much game in the center of the country near Maralal, and the drier areas to the north have incredible numbers of gazelles, common zebra, and even more interestingly, gerenuk. The arid area around Lake Turkana still has some elphants, and one can find antelope there grazing undisturbed by the domestic herders. What a difference from Central Africa where the transhumant herders go out of their way to kill anything that moves. As you know, very few Kenyans eat game meat, and they have the good habit of leaving wildlife alone. It's great to see antelope and zebras out on the Kenyan rangeland along with the herds of cattle and goats. The country is testimony that wildlife and domestic animals can co-exist quite well if people would just leave them be.

"An interesting side note on this tendency of Kenyans to tolerate wildlife is that wildlife is considered 'drought livestock.' That is, when things dry up and times get tough, pastoralists can rely on wildlife as a sort of insurance policy. Being more drought resistant than cattle, a hungry herder can judiciously harvest some antelope to get him through in a pinch. I wish that this were the case elsewhere on the continent, but the climate and traditions don't permit it.

"I was interested to see that an unusually good short rainy seaon in southern Kenya has resulted in quite a few more antelope, particularly wildebeest, remaining in the Maasai-Mara area instead of heading south again. There's a bumper crop of topi, too—things are looking good down there.

"One other antelope note of interest, Lake Nakuru is most famous for the hundreds of thousands of flamingoes that call the place home. It's one of Kenya's fenced parks, and its population of waterbuck has been growing for years. In fact, park officials put the number of waterbuck at 4,000-6,000, presumably the highest concentration on the continent. Despite some trepidation on the part of neighboring farmers, management has been slowly and quietly reintroducing predators to the park. A lioness was recently captured in the backyard of some incredulous lady in Nairobi, and she (the lioness) joined a pair which was already at Nakuru. A hyena was also released not long ago, all this in hope of restoring some sort of balance to the ungulate populations.

"However, I strongly suspect that the waterbuck will be the last to be eaten by lions if the situation is anything like what I studied in the CAR. My study of lions' predatory preference (submitted and still awaiting word from *Mammalia)*, showed waterbuck to be in the least-selected category. I have a feeling that the lions and hyenas will opt for warthog or one of the tastier items on Nakuru's menus. Time will tell, but I believe that the next drought will cause the starving deaths of large numbers of waterbuck. It's sad, really. One can see that those males that are relegated to the marginal grazing areas away from the lakeside are in very poor condition. I've never seen anything like it, even in the drought years in northern CAR. I guess nature will eventually take its course and put the population more in line with the long-term carrying capacity. Another example of man's meddling with the natural order, I suppose.

"So, I guess you could say that the antelope situation in Kenya is mixed. It looks like the ban on hunting may be lifted very soon, in which case the wildlife situation in the country might improve. Some interesting things are bound to transpire soon, and I'll be glad to keep you and your readers posted."

TANZANIA

In the last *Gnusletter* I promised to review in the next issue the abstracts of two interesting papers that were presented at the Fifth International Theriological Congress, in the symposium "Mammal conservation problems in the developing world, convened by Per Wegge and Jane Thornback." Both papers deal with developing conflicts between human and wildlife interests in Tanzania.

Wildlife conservation in the Ngorongoro Conservation Area, Tanzania: social and ecological implications of the increasing pastoralist and the declining livestock populations.. By John Boshe, WWF Regional Office, Box 62440, Nairobi.

"Established as a multiple land use area in 1959, the objectives and policies of the [NCA] have aimed to ensure harmonious co-existence of wildlife, livestock and human populations.

"While it is undeniable that wildlife and other aspects of the natural heritage of Ngorongoro have been well preserved, harmonious co-existence of the wildlife, livestock and pastoral population has never been achieved. Since its establishment, the [NCA] has gone through a spell of conflict of interests with the resident Masai. The magnitude of these conflicts has mounted year by year, and presently, the initial multiple land-use policy and objectives may be looked at as history.

During the last 30 years of multiple land-use policy, the Ngorongoro pastoral population has increased threefold, with corresponding cultural and social life style changes. Wildlife populations of most species have doubled,* while livestock populations have fluctuated markedly. Consequently, use patterns of the range resources have changed significantly over the years, and some environmental limiting factors on human, livestock and wildlife populations have increased steadily. Ngorongoro has therefore been a highly dynamic system.

"The key reason for the failure of harmonizing the co-existence of the wildlife, livestock and pastoral populations of Ngorongoro lies in the fact that the initial policies and objectives of the multiple land-use system failed to recognize the dynamic attributes of these populations, and how this would affect the balance of co-existence. As a result, what was once, and is still to be, a harmonious co-existence of wildlife, livestock and human populations has turned out to be an unmanageable conflict, and Ngorongoro continues to remain one of the most challenging conservation and development models on earth today.

"Presently, there are efforts to review and update the management objectives and policy of Ngorongoro, but whatever is recommended as sound management policy, problems and conflicts of Ngorongoro will probably remain unsolved unless issues concerning sociological and ecological implications of the dynamic Ngorongoro system are critically and exhaustively analyzed and taken into consideration. It is for this purpose that I have undertaken to bring these issues to light in this paper and recommend some actions that may be incorporated in the future management plan and policy of Ngorongoro in order to minimize the present conservation problems and conflicts." [The abstract does not include these recommendations.]

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*The wildebeest population inside the Crater, however, is only a little over 1/2 what it was in the 60s and 70s. [Ed]

Conflict between conservation interests and the local people: the case of Lake Burungi area in northern Tanzania, by E. .B. Kapela, Ruaha N. P., Box 369, Iringa, and S. R. Moe, Norwegian Centre for International Agricultural Development, Box 2, N-1432 Aas-NLH, Norway.

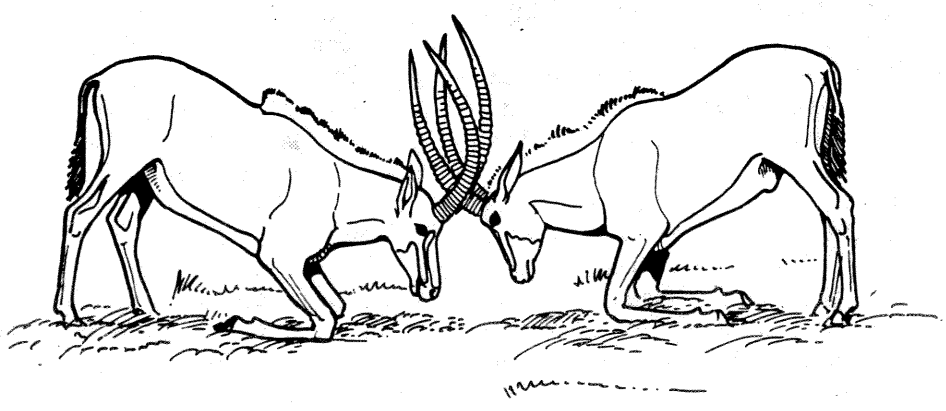
"In1981, Lake Burungi Area (LBA) was proposed as an extension of Tarangire National Park. The proposal was rejected by the local people living next to the LBA. This conflict of interest formed the basis of this study which was conducted between July and December, 1987.

Emphasizing wildlife aspects, an assessment of the conservation value of LBA was done on the basis of three main criteria: species diversity, biogeography factors, and human disturbance. A vehicle ground census was conducted in August and in October to estimate the abundance of large herbivores. The present use of the area by humans, and their future needs were assessed through interviews, livestock and population censuses, hunting statistics and analysis of aerial photos from 1958 and 1983.

A total of 15 large herbivore species was recorded. In August, zebra *(Equus burchelli)* was the most abundant species with an estimated density of 20.9 animals/km^2. Impala and wildebeest were the most abundant herbivores in October....The abundance of all species except zebra increased between August and the end of the dry season in October. Present human activities like livestock grazing and collection of honey, firewood and building poles were not found to have negative consequences on the wildlife populations....A corridor between the agricultural fields, connecting LBA/Tarangire N. P. with Lake Manyara N. P. was found to be used by wildebeest, zebra and Grant's gazelle...at the end of [the] dry season.

No permanent settlements were yet established inside LBA although nomadic Barbaigs lived there part of the year. The human population adjacent to LBA was increasing and may require additional area for expansion of agriculture. Through interviews we found that 60.9% of the local people wanted the park to remain as it is while 37% wanted the area of the park reduced. Only 1.5% said that they would like the park to be abolished.

We propose that Lake Burungi Area continues as a Multiple Use Area, where the adjacent villages are allowed to perform their traditional activities and where the nomadic Barbaigs can settle part of the year. Permanent agriculture should be prohibited and livestock grazing and hunting should be kept on a controlled level Also, a corridor free of agriculture should be maintained between LBA/Tarangire N. P. and Lake Manyara N. P. for the migratory wildlife."



ZIMBABWE

The developments referred to in the letter from Rowan Martin, part of which was quoted in the ASG News (under Praise for Part 2), continues here. "Recommendations by the Department [of National Parks and Wild Life Management] to amend the Protected Species legislation have been approved by the Parks

Board and are presently awaiting ratification by the Minister. The proposed legislation removes gemsbok, Lichtenstein's hartebeest and roan antelope from the Specially Protected Category and places them in a new group—the Restricted Species. Species in this group are ones which the Department will give permits to private ranchers to initiate breeding programmes in attempts to increase their numbers."

NAMIBIA

Whither Etosha National Park?

Daryl Mason (ASG), Senior Research Officer, Kruger N. P., attended a symposium on "Savanna fauna and movements and migrations," convened by the Zoological Society of Southern Africa and held in Okaukuejo Rest Camp during 8-10 August, 1989. His impressions of the symposium and the park, of which he kindly sent *Gnusletter* a copy, are excerpted below.

Against the backdrop of UNTAG (the United Nations peace-keeping force) coming and going in droves as tourists to Etosha N. P., the ZSSA meeting brought together delegates with a kaleidoscope of backgrounds and specialized knowledge, but all unified by their interest in ecology and concern for conservation. Referring to the future of this magnificent country so rich in wildlife, Professor Malcom Coe of Oxford University expressed the hope that the winds of change would turn out to be only a breeze as regards conservation. P. S . Swart, the Director of Nature Conservation in SWA/Namibia, mentioned in his opening address that game-related industries are currently the third largest source of foreign revenue for this territory in transition. Thus the future government should recognize that conservation entails the wise use of natural resources, including the wildlife estate which has the potential of a magical goose laying golden eggs in perpetuity, and that pristine landscapes and wildlife spectacles are an international treasure. Ironically the amount of money available for conservation activities in their broadest sense, including urgent anti-poaching work, is a pittance in relation to expenditure on the UNTAG force, whose free-spending presence has boosted the economy. On the doors of one UN vehicle seen in Windhoek, a prankster had added the letter F before the UN, thereby symbolizing what undoubtedly represents one of the primary pursuits of this diverse foreign presence. Nevertheless, many of the more sensitive UN personnel can hardly fail to be impressed by the natural beauty of the country and develop a positive interest in its wildlife.

[Because of space limitations, Mason's report on the symposium papers is limited to two that are relevant to antelope conservation/management. Ed.]

A particularly interesting paper on management implications of distributional shifts of large herbivores was presented by Trevor Sandwith of the Natal Parks Board. In the Hluhluwe and Umfolozi Game Reserves, where management of large herbivores favors non-intervention unless ecologcial processes are missing or have been impaired, a management strategy for white rhino that simulates dispersal as a population regulatory process has been successfully implemented since 1985.

Dr. Peter Norton from the Cape Dept. of Nature Conservation focused attention on the topical management issue of artificial water provision and the dispersal and manipulation of water points to promote maintenance of areas of "reserve" grazing during times of drought, so that the risk of population crashes among large grazers might be reduced. In this connection it is worth noting that the few artificial boreholes in Etosha Park are deliberately closed down in synchrony with seasonal patterns of natural water availability to discourage wide-ranging herbivore species from becoming more sedentary. However, this is also desirable to minimize exposure of animals to anthrax spores which tend to accumulate at water points. In Etosha the risk of anthrax epidemics has been exacerbated by the favorable incubation conditions for these bacteria around and in water-retaining gravel pits that are favored drinking sites of game because of their low salinity. On the positive side, this constraint on the excavation of gravel pits in Etosha has probably spared the superb landscapes from becoming further marred by such legacies of road development.

From a personal standpoint, attendance of the symposium provided the rewarding opportunity to see some of the Etosha ecosystem. The original Etosha conservation area proclaimed by the German colonial governor, von Lindquist, in 1907 was greatly reduced by successive excisions of land during the period of South African administration, leaving only 22,270 km^2 within the current boundaries of the national park. Of this, some 5,000 km^2 comprises the Etosha salt pan, an ancient lake bed at the core of the eastern half of the park. Partial shallow flooding during the wet season transforms the pan into a transient paradise for waterbirds. When the waters evaporate, grazers are attracted by the salt-tolerant, palatable grass *Sporobulus salsus* that grows sparsely on the pan surface. However the essential dry season aspect is a harsh, cracked expanse, shimmering with heat toward middle day so that animal images are transformed into dancing dervishes, tantalized by mirages in a dream-time world. Habitats away from the pan range through dwarf shrub savanna, grassy plains and a variety of wooded savanna, and support an impressive assemblage of game species ranging from dik-dik to black rhino and elephant.

The southern boundary of Etosha Park has been trimmed very close to the salt pan while in the north the boundary actually cuts across the margins so that there is not even a west-east corridor of fringing habitats. Moreover, it appears that the park would be more ecologically viable if some of the drainage lines (omurambas) to the north could be incorporated in the conservation area. Although the unique Otjovasandu area in the west of the park was not visited, this more hilly, broken terrain is an overlap zone for the plains zebra and the rare Hartmann's mountain zebra at the western and eastern limits of their respective distribution ranges. Here there is an urgent need for a connecting corridor to link Ethosha Park with conservation areas in Kaokoland. Too many African conservation areas constitute small islands, scattered widely but sparsely without proper regard for the inclusion of centres of endemism, migration routes of game in accord with foraging and water needs and habitat phenology, or a representative spectrum of habitats of sufficient area to support ecologically and genetically viable populations

of flora and fauna in the long term. While awareness and concern for environmental issues and conservation is mounting world-wide, the politicians who stand on the threshold of forming a new government for South West Africa/Namibia have yet to signal their creed and commitment to local grassroots conservation. The time is therefore ripe for a critical review of conservation area boundaries, landuse patterns and conservation problems and priorities country-wide, before more opportunities are lost for the new government to rectify and improve the overall conservation situation.

Of the familiar game species seen, the springbok were particularly impressive for their large adult size, almost on a par with impala, the black-faced race of which was introduced in Etosha. Impala with similar facial markings are to be seen from time to time in the Kruger Park population, but the rams in Etosha seemed to have generally larger horns. Kudu, especially adult bulls, appeared darker gray in their body color than those in Kruger Park. Etosha elephants are certainly among the largest of the savanna subspecies but the bulls do not grow tusks as large as Kruger Park specimens. Judging by tusk thickness, Etosha elephant bulls have the potential to develop heavy ivory but most of the larger tusks seen were broken short, reflecting their general brittleness due to a deficiency of phosphorus in relation to abundant calcium in Etosha soils. Elephant impact on Etosha habitats is still limited and localized, which might partly explain the oak-like growth form of the local mopane trees, with their much greater lateral spread of branches compared to the more vertically oriented shape of most Kruger Park mopane trees. However, different fire regimes and other factors could also play a role and moreover the Etosha mopane trees may represent a distinct ecotype. Black rhinos were seen drinking every night at the waterhole adjoining Okaukuejo rest camp, where a special mounted anti-poaching unit commanded by a German ex-French Foreign Legionnaire is based. A good sample of dik-diks representing the sole species of this mini-antelope occurring in Africa's Southwest Arid Zone was encountered in the tamboti and *Terminalia* woodland habitat of the Namutoni region.

Human actions and technology hold the balance between more of heaven or hell on earth. If natural diversity is one of the features of a more heavenly earth, a recent mistake in South West Africa/Namibia was the official planting of the exotic mesquite bush *Propsopis glandulosa* for drought fodder and even at lay-by sites along the road between Windhoek and Etosha. Unfortunately mesquite's propensity to spread was not appreciated and it may be expected to become a future problem even in conservation areas. In a time-obsessed world, the future accelerates towards the present, but under the diamond-encrusted pageant of an Etosha winter night, black rhinos still wend their way to water and the fortunes of nations and empires seem transient and trivial.

ASIA

MONGOLIA

Two wildlife research workers from Mongolia have requested information about the activities of the ASG. Their letter, dated 20 Nov 89, (with some editing) reads as follows:

"We would like to contact your organization and get information about its activities. In addition, we wish to introduce ourselves and report some of our activities.

"The first of us, Badamzhavyn Lkhagvasuren, is doing research on the ecology of *Procapra gutturosa;* the second, Luvsanzhambyn Amgalan, is studying the ecology of *Gazella subgutturosa.* [Heavy hunting of these two species by Mongolians and Chinese was mentioned in the Sept. 89 Gnusletter under USSR, p. 14.]

"As you know, the distribution area of *Gazella subgutturosa.* is the Gobi [Desert] and [the] Steppes. Now *G. subgutturosa.* was put in the "Red Book" of Mongolia and the USSR. As a result of measures taken by the state, populations of the species are being stabilized. *Procapra gutturosa* is distributed in the eastern region of our country and is an endemic species.

"During recent years our Institute, in collaboration with the Central Council of the Mongolian Hunters Society, has initiated a project to reintroduce *P. gutturosa* in 1990.

"We would be very grateful to receive some announcements from you."

USA

TEXAS, LAND OF EXOTIC UNGULATES

Exotic artiodactyls were first introduced in Texas in 1930 when nilgai antelope were released on the King Ranch. By 1963 wildlife biologists estimated that 3,000 exotic animals lived in the state. Statewide surveys conducted in1966, 1971, 1979, and 1984 tracked the phenomenal increase in species and numbers of exotic ungulates. The most recent inventory, compiled in 1988 by Wildlife Division personnel through personal interviews with landowners, land operators, and local game wardens, yielded a minimum total of 164,257 animals (not including feral and wild *Sus scrofa)* of 67 different species and 56 subspecies on 486 ranches in137 of the 254 Texas counties. The total area occupied by exotics was 1,301,834 acres (486,572 ha), of which 887,907 acres were high-fenced, preventing free movement. An estimated 90,400 animals were confined and 73,857 were free-ranging.

The five major free-ranging exotics (not counting *Sus scrofa)* are the nilgai, amounting to half the total with 36,462 head; axis deer (*Cervus unicolor),* 17,000, auodad, 9,475, Sika deer, 5,654, and fallow deer, 4,730. As < 1% of the nilgai population were reported to be kept in confinement, it is truly a wild animal in Texas; nearly all of them live on the South Texas Plains on large ranches in Kenedy and Willacy Counties. But the great majority of exotics are confined behind game-proof fences and the region where most (68%) are bred is the Edwards Plateau, where 39% of all the free-ranging exotics also occur.

When both confined and free-ranging stock are totaled, the fallow deer is seen to be the most numerous of the exotic ungulates, with 39,000 head, and the blackbuck ranks third with 21,232 head, of which only 274 are free-ranging. Table 1 lists the species and total numbers of antelopes enumerated in the 1988 statewide survey. Except for 274 free-ranging blackbuck, all of these were

reported to be confined behind fences.

When the question of whether the addax and scimitar-horned oryx should be added to the U. S. List of Endangered and Threatened Wildlife was raised in the May, 1989 *Gnusletter*, Elizabeth Mungall (ASG) invited opinions of members of the Exotic Wildlife Association, which she serves as Wildlife Research Consultant. The responses were uniformly negative, for reasons put succinctly in this representative letter (from Nancy Green, wife of Joe Green, President of the Exotic Wildlife Association):

"Joe and I are against placing the Addax and Scimitar-horned Oryx on the list. In fact, we are against placing any species on the list that is endangered in its own native country but prospering in the U. S."

"In order to keep these animals, they must pay their own maintenance. Ranching is hard enough these days without trying to run 'non-profit' centers. We must be able to sell our excess stock and buy additional stock to see to proper breeding lines. As a case in point: we originally bought zoo surplus males of the Scimitar-horned Oryx. We sold two males for trophies and this allowed us to buy four breeding females. So now we are providing a breeding home which was not previously available to the species."

"If herds could be built up, the Scimitar-horned Oryx would be an excellent meat animal. It is as tasty as the Axis [deer] but with larger body size for economy in harvest. I dream of running large herds of Oryx, just like cattle only prettier, healthier, and more chemical free. And, the species would not be threatened by extinction because it would be justifying its existence as most of the rest of us are required to do."

"Bottom Line: If the Addax and Scimitar-horned Oryx are put on the Endangered list, we could not afford to run them and would have to close our acreage to those species."

Elizabeth Mungall considers that exotic ungulates bred on Texas ranches could play a more important role in conservation efforts. She writes (22 June 89), "With more than 50 years of practice, the raising of exotic ungulates on Texas ranch lands has become a facet of the world wildlife picture worthy of consideration in conservation planning." Speaking of the addax and scimitar-horned oryx on Texas ranches, "These are neither wild natives nor captive zoo animals. They depend on the private sector and on private funds. Creative conservation planning which can incorporate this group to mutual advantage rather than shutting it out by failing to consider it when legislating, would be benefitting animal numbers without incurring public expense. I would be interested to hear creative ideas for tapping this potential."

Table 1. Antelope reported in Texas ranches in 1988 statewide census of big game

Species	No. Ranches	Total
Blackbuck	326	21,232
Gazella dama	18	87
G. granti	5	23
G. thomsonii	5	16
G. subgutturosa	5	44
Springbok	18	247
Dik-dik	1	6
Addax	43	426
Oryx dammah	54	577
O. leucoryx	2	3
O. gazella gazella	32	196
O. g. beisa	10	58
O. g. callotis	2	11
Roan	2	4
Sable	19	144
Bontebok	13	91
Black wildebeest	10	138
Common wildebeest	9	45
Impala	14	74
Common eland	28	402
Derby eland	10	97
Greater kudu	13	90
Nyala	5	15
Sitatunga	5	28
Nilgai	36	294
Uganda kob	1	2
Nile lechwe	3	7
Red lechwe	12	137
Common waterbuck	19	115
Defassa waterbuck	7	59

ANTELOPE SPECIALIST GROUP T-SHIRTS

For over a year I have been planning to produce Antelope Specialist Group T-Shirts, as one way of raising funds for ASG projects. The opportunity to go to Rome spurred me to have 100 T-shirts printed, using the original drawing (by Lisa Gemmill) of the giant sable logo that appears on the ASG letterhead. The design I came up with, largely by process of trial and error, is shown nearly full size on the last page, as it appears on the shirt front.

The T-shirts, of pure cotton, preshrunk and sturdy, have proven as popular as I hoped: about 120 have been sold up to now (mostly at the SCC meeting, the ITC, and the Aridland Antelope Workshop). They come in four colors, green, light blue, yellow and white, in all sizes, and sell for $15.00. To order, cut out and send in the form below, accompanied by a check or money order in dollars.

Qty	Color	Size	Amount (@ $15.00 apiece)
		Postage: $1.20 (3rd class) in USA	
		Europe: $4.22 by air, 1.84 by sea	
		Asia and Africa: $5.55 by air, 1.84 by sea	
		Total	

Name _____

Address _____

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Country _____

Overseas orders must be paid by international money order or check drawn on a U.S.Bank

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