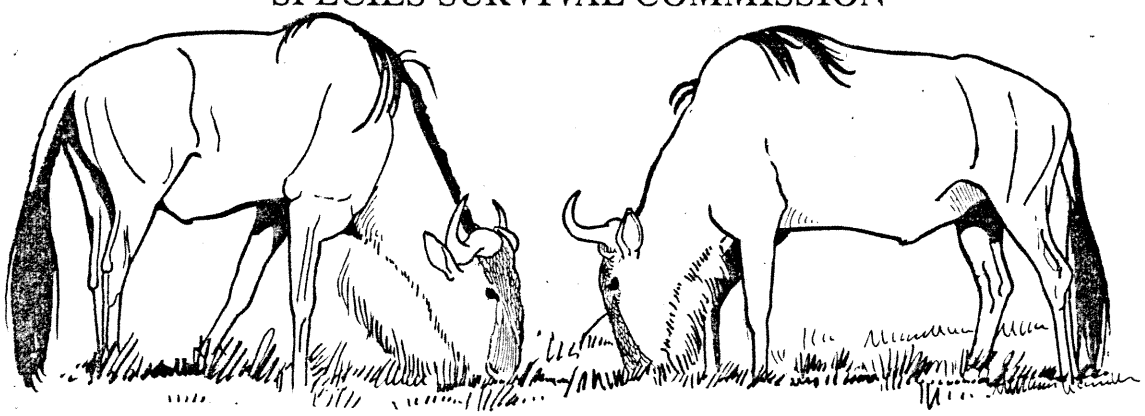
INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES

SPECIES SURVIVAL COMMISSION



ANTELOPE SPECIALIST GROUP

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ASG NEWS

VOLUME AND ISSUE NUMBERS FOR THE GNUSLETTER

The addition of volume and issue numbers (above) represents another step in the metamorphosis of the Gnusletter from a simple letter into the format of a journal. Counting up the years I have been doing it, it was something of a surprise to realize that this is the sixth year of publication (January, 1982 was the first issue). The logical time to begin using volume and issue numbers would have been the January, 1987 issue, coinciding with the introduction of the new printed format, but the need for a more formal index to the Gnusletter only dawned on me in March, when proposed by Rod East.

"I make this suggestion," he writes (*in lit.* 22 Mar '87), because I can see that once the current Antelope Survey is published, there will be a need to publish updated information on antelopes as it comes to hand. Major revisions of the published Antelope Survey are unlikely to occur more often than once, or maybe twice, a decade. The new Gnusletter is the obvious periodical for publishing ongoing information from the Antelope survey, e. g., brief articles on the latest population estimates and conservation developments from throughout the countries covered in the survey."

ANTELOPE SURVEY PART ONE GOES TO PRESS

Rod East sent off the final version of Part One, East and Northeast Africa, to Simon Stuart in late March. It has been extensively revised, to incorporate changes and additions recommended by ASG members and other correspondents. With any luck, it will soon be in print. Rod expects to finish compiling Part Two on central and southern Africa by July.

THE ZIMBABWE ASG MEETING AND WILDLIFE SYMPOSIUM

The following ASG members have expressed their desire to attend the proposed ASG meeting in Zimbabwe on 4-5 October, and to participate in the Symposium on Wildlife and Sustainable Development in Sub-Saharan Africa that Bertrand des Clers, Chairman of the Ethnozoology Specialist Group, is organizing (as announced in the memo that accompanied the last Gnusletter): Chris Furley, Chris Gakahu, Chris Hillman (with one or more Ethiopian colleagues, he hopes), Richard Schuster, Vivian Wilson, Norman Owen-Smith, Savvas Vrahimis, and P. T. Van Der Walt. I haven't heard yet from Harald Roth, Richard Bell, Clive Spinage, or Josè Tello, but as they are based respectively in neighboring Malawi, Zambia, Botswana, and Moçambique and all are ranking authorities on wildlife management (see under Regional Rundown), probably they have already been invited to participate in the symposium.

Whether South Africans will be allowed to take part remains to be seen. Their expertise in all aspects of wildlife conservation and utilization makes their participation in the symposium particularly desirable.

Vivian Wilson has kindly invited (*in lit.* 2 Apr '87) all ASG members and other IUCN/WWF people who will be in attendance to come to Bulawayo at the end of the Symposium. He would like to show the Duiker Research and Breeding Centre he has established at Chipangali, and lead a tour of the Matopos Hills to look at sable, klipspringer, other wildlife, and outstanding examples of rock art. Thanks to his generous offer of hospitality, participants would only have to pay for their air fare between Harare and Bulawayo; the Chipangali Wildlife Trust will provide lunch and transportation. Going even further, Viv is offering to make all the arrangements and serve as tour guide for all Symposium participants, if the Bulawayo trip is designated as an official one-day post-symposium tour.

The schedule of events, Simon Stuart tells me, will be as follows: 4-5 October, ASG meeting; 6-9 Oct., presentation of Symposium technical papers; 10-11 Oct., field trips; 12-13 Oct., political meetings (for government and international-agency representatives).

ORYX SYMPOSIUM

An "Operation Oryx" Symposium is being held on 11-12 June in London, jointly hosted by the Zoological Society of London and the Fauna and Flora Preservation Society. In addition to reviewing the history of the 1962 capture of the last wild Arabian oryx, their captive management and reintroduction into the wild, speakers will consider the conservation of other Hippotragini, their veterinary care and management, and future reintroduction programs for oryx and other desert antelopes. Among the listed speakers are ASG members John Newby (The biology of scimitar-horned oryx and addax), Mark Stanley-Price (Latter days of reintroduction [of Arabian oryx]); also Ian Grimwood, who took part in "Operation Oryx," and Ralph Daly, Adviser for the Conservation of the Environment, Sultanate of Oman, who participated in the 1979 ASG meetings in Tsavo.

FUNDING FOR ANTELOPE RESEARCH ?

The Center for Field Research, located in Greater Boston, Massachusetts, is looking for research projects involving large mammals which Earthwatch volunteers could participate in and help finance. The kind of field work ASG members do is potentially very appealing, especially in places where there is still a lot of wildlife. For instance, I have been repeatedly invited to submit proposals that would enable volunteers to have the experience of working in Serengeti N. P. or Ngorongoro Crater, but unfortunately either at times when I already had funding or had other commitments that precluded field work.

During the past few years I have been asked to evaluate some of the proposals that have been submitted to the Center for Field Research, and this spring attended their Annual Meeting to hear the 1986 grantees report on their research findings. The more I have come to know about this organization, the more impressed I have become with the calibre of the projects they fund, their staff, and the Earthwatch volunteers I have met. Last year $1.7 million was awarded to 95 different projects, an average of $18,000 (range $5000-$85,000). All of this money comes from people who contribute an average of $500 apiece for the privilege of participating in the research project of their choice. They are qualified non-specialists who are recruited and screened

by Earthwatch according to the researchers' expressed needs. People who jump at the chance to shell out their hard-earned cash so they can go to remote areas and rough it while providing free labor for some scientist are not your average tourists. Statistics on past volunteers indicate that 45% have advanced degrees and 90% have been to college; 20% are educators, 20% students, and 60% are non-academic professionals. Researchers can request and often obtain the services of electronic and mechanical engineers, computer experts, etc.

The Center for Field Research has asked my help in the search for more large mammal projects in Africa and Asia. Knowing only too well how difficult it has become to obtain funding for research in these parts of the world, I readily accepted and proposed, as a first step, to make members of the Antelope Specialist Group and other readers of the Gnusletter aware of this opportunity. So if you have a project that could benefit from the participation of at least 15 volunteers in a given year, employing teams of 3-10 people for 10-21 days per session, I would like to hear about it at your earliest convenience. The possibilities include game counts, vegetation sampling, collecting and preparing zoological and biological specimens, 24-hour activity studies, and other behavioral and ecological investigations in which large amounts of data can be collected in a short time. Anyone who is prepared to submit a full proposal will be put into touch with the Center for Field Research, which will send the necessary forms and instructions. Proposals are sent out for peer review, grants are awarded annually and may be renewed. If there is enough of a response, some sort of coordinated research program on African and Asian mammals could become established with Earthwatch.

FORSAKEN SUBSPECIES MAY BE DOOMED

Further to the discussion of subspecies in the last Gnusletter, Rod East reports that a clear majority of ASG members who commented on the draft status Summary/Action Plan for East and Northeast Africa were in favor of including only a small number of subspecies which are highly distinct from conspecifics: 67% of those who replied. There were much lower levels of support for including more (23%) or fewer (10%) subspecies.

Rod agrees with Jeremy Anderson's comment (quoted in the last Gnusletter) that if bontebok and blesbok are to be treated as separate species, then so should topi and tsessebe, common and defassa waterbucks, and other similarly closely related forms. It seems that Jeremy was the only one (including your Editor) who took note of the fact that *Damaliscus dorcas* was split into two species in the list of sub-Saharan African antelopes which Rod circulated with his draft Status Summary/Action Plan. However, in response to the Gnusletter account, Peter Grubb (*in lit.* 15 Mar. '87) lends further support to Jeremy's position. "If blesbok/bontebok were a sort of benchmark [of differences considered great enough for splitting species], I shudder to think of the consequences."

Anyway, Rod says he fully intends to treat the bontebok and blesbok as conspecific in Part Two of the Antelope Survey. This will be in accordance with the approach adopted in Part One where, in chapter 2, Rod lists the subspecies that have been singled out and explains the rationale for being very selective:

"Subspecies are generally ignored in the Antelope Survey. The validity and precise distribution of described subspecies are uncertain for many species. This precludes clear definitions of the distribution, abundance and conservation status of many of the large number of described subspecies.

"Subspecies are included in a few cases, however, where they are highly distinctive morphologically, behaviourally and/or geographically, and are usually recognized as distinctive by wildlife managers in the field. These criteria apply to the following subspecies [Table 1]:

"The decision on which subspecies to include and which to exclude is arbitrary, e.g. other distinctive subspecies such as Roosevelt's sable (*Hippotragus niger roosevelti*) and Peter's gazelle (*Gazella granti petersi)* could also justify inclusion; where appropriate, these subspecies, in addition to those listed above, are mentioned in the country reports and/or section 3."

Leaving out the Roosevelt sable did strike me as arbitrary, and in a 19 Feb '87 letter to Rod, I suggested that all the subspecies which are singled out in the different chapters should be included in a separate list (in this and later parts of the Survey). "I

Table 1. Antelope subspecies recognized in Part One of the Antelope Survey.

Ruwenzori black-fronted duiker	*Cephalophus nigrifrons rubidus*
Ringed/common waterbuck	*Kobus ellipsiprymnus ellipsiprymnus*
Defassa waterbuck	*Kobus ellipsiprymnus defassa*
White-eared kob	*Kobus kob leucotis*
Uganda kob	*Kobus kob thomasi*
Beisa oryx	*Oryx gazella beisa*
Fringe-eared oryx	*Oryx gazella callotis*
Coke's hartebeest	*Alcelaphus buselaphus cokei*
Lelwel hartebeest	*Alcelaphus busalaphus lelwel*
Hybrid Kenya hartebeest	*Alcelpahus buselaphus cokei x lelwel*
Swayne's hartebeest	*Alcelaphus buselaphus swaynei*
Tora hartebeest	*Alcelaphus buselaphus tora*
Topi	*Damaliscus lunatus jimela*
Tiang	*Damaliscus lunatus tiang*
Coastal topi	*Damaliscus lunatus topi*
White-bearded wildebeest	*Connochaetes taurinus albojubatus*
Nyassa wildebeest	*Connachaetes taurinus johnstoni*
Pelzelns's gazelle	*Gazella dorcas pelzelni*
Heuglin's gazelle	*Gazella rufifrons tilonura*
Mongalla gazelle	*Gazella thomsonii albonotata*
Thomson's gazelle	*Gazella thomsonii thomsonii (including nasalis)*
Dahlac gazelle	*Gazella soemmeringi subsp. indet.*
Haggard's oribi	*Ourebia ourebi haggardi*

suppose we would all agree," I wrote, "that subspecies such as the white-eared kob, black-faced impala, Jackson's hartebeest, the different races of wildebeest and oryx, the Roosevelt and certainly the giant sable, must be preserved at all costs, so it is important that they be given prominent billing." However, it was only after receiving the above revised list and noting that the Roosevelt sable was still unlisted that the consequences of this omission became fully clear to me: our survey would thereby actually contribute to the extinction of this subspecies.

The chapter on Tanzania reports that the sable is "now largely eliminated from its former range in northeastern Tanzania, but still occurs widely in the tsetse-infested miombo woodlands of the west and south." The fact that the sable of northeastern Tanzania is a separate subspecies, *H. n. roosevelti*, is not brought out. In the Kenya chapter, due note is taken that the sable has already been eliminated in Kenya everywhere except for the Shimba Hills National Reserve, where it has declined from over 200 to under 100 in recent years. But again, the fact that the Kenya sable is also *H. n. roosevelti* is not brought out.

So it turns out that the Roosevelt sable is one of the most endangered mammalian subspecies in all of Africa - a fact which very few readers of the Antelope Survey would ever have realized. It is only when this sable is correctly identified as a distinct subspecies that the importance of the Shimba Hills National Reserve as the one place where the Roosevelt sable is protected can be fully appreciated. Accordingly, implementation of the measures proposed by Karen Ross (see Jan. '86 Gnusletter) and earlier investigators for protecting and managing the Shimba Hills sable is seen to be a truly urgent need. Furthermore, immediate consideration should be given to creating a second sable reserve, preferably in Tanzania.

Although the realization that leaving out *H. n. roosevelti* might seal its fate only came to me at the eleventh hour, hopefully the changes I proposed arrived in time to be incorporated in Part One. What this case has brought home to me is the frightening responsibility SSC and other specialists bear to identify the problems and priorities within their purview. The Antelope Survey volumes are going to be the primary source of information about antelopes for years to come. If the predicament and even the existence of the Roosevelt sable goes unnoticed by us, it will be that much harder afterward to convince other conservationists and the officials responsible for protecting it that a grave problem exists.

The omission of another subspecies from the above list and from any mention in Part One, although not crucial right now, I now see would also be a mistake that could come back to haunt us. There are two and not only one subspecies of white-bearded wildebeest, *C. t. albojubatus* which occurs in Southern and Eastern Masailand, and *C. t. mearnsi* of Western Masailand. The western wall of the Gregory Rift Valley completely separates the two populations, which have never been known to have any contact, except possibly in the Rift Valley near Naivasha, where wildebeest were eliminated a long time ago. These two races are as different as any other races of wildebeest; in fact *albojubatus* resembles *johnstoni* and *taurinus* more (in morphology and behavior - notably the calls of territorial males) than it does *mearnsi*. The conservation importance of making this distinction is that the situation of the eastern white-bearded wildebeest is far less secure than that of the western race, which includes the 1.5 million migrants of the Serengeti-Mara ecosystem. The wet-season dispersal areas and dry-season water supplies of the eastern race have been shrinking since European colonization first began. From populations that once rivalled those of the Serengeti, on the high plains outside Nairobi and Arusha, and the grasslands of the Rift Valley, there are now fewer than 50,000 left, which depend on the comparatively few water sources that remain accessible and on the small parts of their range that are protected in Nairobi, Amboseli, Manyara, and Tarangire parks. Most of the remaining range of these migratory populations is unsecured and in the process of being appropriated for settlement, ranching, and agriculture.

The main blame for these near-omissions lies at my door, because these are both antelopes that I have studied. That makes me responsible for seeing that all the information relevant to their future well-being is included in the published report. As I was not one of the authors of the Tanzania or Kenya chapters and was, as usual, pressed for time, I didn't pay sufficiently close attention to what was written about them. By making public my own lapse, I hope to impress upon other specialists how important it is for them to pay close attention to what is written about "their" animals.

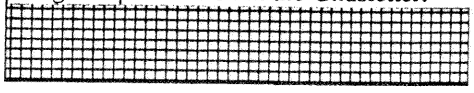
This experience has taught me one lesson: conservationists may have far more power to harm (by keeping quiet) than to help (by active involvement) species and subspecies survive. That sounds like a truism.

MORE ON SYSTEMATICS

Welcome support for my stance against lumping eland and bongo in *Tragelaphus*, aired in the last Gnusletter, has come from Peter Grubb (*in lit.* above). "On tragelaphines," he writes, I am inclined to believe that the ability of very different species to hybridize is a peculiar feature of the group - a retention of an ability that has tended to disappear in other lineages. As you point out, the case for associating bongo and eland (which I used to accept uncritically), is very weak - they are so different anatomically. I would guess that tragelaphines share a comon ancestor no more recent than do members of other antelope groups but have not diversified quite so much."

Peter had this to say the gerenuk subspecies mentioned in the last Gnusletter: "The comments by Professor Simonetta on subspecies of gerenuk are interesting but puzzling. First, Schomber's review of the species (Saug. Mitt. 1:1–44, 1963) gives many measurements of skulls, and there do not appear to be striking regional differences – I must take a closer look. Secondly, Frank Ansell in his monumental contribution to the Smithsonian Guide points out that *sclateri* was a name wrongly applied by Schomber to the Tanzanian population, which if distinct lacks a scientific name."

Also included in the screed Peter sent is a very throrough review of the duikers of eastern Africa, which unfortunately is too long for publication in the Gnusletter.



REGIONAL RUNDOWN

WEST AFRICA

Popular Republic of the Congo

One of the few remaining gaps in the coverage of West Africa has been bridged by the timely contribution of Innocent Nganga, Chef de Service techniques et Scientifique, B. P. 98, Brazzaville, who responded to Rod's request for information by submitting an antelope checklist, notes on the habitat and status of each species, and a map showing the administrative districts, parks, roads, etc. Fourteen different species occur, of which duikers, predictably enough, account for eight: *C. callipygus, dorsalis, leucogaster, monticola, nigrifrons, rufilatus,* and *silvicultor*, plus *Sylvicapra grimmia.* Although subject to heavy hunting pressure, it seems that most of the duikers can recoup their losses despite the absence of effective protection. However, *C. rufilatus* has declined because of hunting pressure and therefore receives partial protection by limiting the number that may be killed, and overhunting has made it necessary to make *silvicultor* a protected species. *Sylvicapra grimmia* is more vulnerable because access to its more open habitat is very easy, and its numbers are dwindling. As for the two savanna and floodplain antelopes, *Redunca arundinum* and *Kobus defassa*, which were endemic in one (reedbuck) or two regions of SW Congo, the former was last observed (in Mont-Fouari Reserve, Niari Region) in 1974, and apparently the kob is now largely confined to this same reserve. "It still receives only partial protection," M. Nganga writes, "even though it is intensively hunted." "The real reasons for [the reedbuck's] disappearance," he notes, are excessive poaching and also the fact that this species was endemic to this zone" [i.e. a very limited range].

Despite their medium to large size and palatability, the situation of the three tragelaphines is much better, thanks to their reliance on cover and concealment. The bushbuck and sitatunga are both common in suitable habitat throughout the country. Both are partially protected by bag limits in the hunting regulations set forth in ministerial decree no. 3863 of 18 May 1984. The bongo is found in the regions of Cuvette, Sangha, and Likouala in the north, and in Niari in SW Congo. Although no counts have been attempted, it is seldom seen and apparently rare in the south, but still fairly common in the more forested and less-disturbed areas of the above northern regions. Elsewhere in these three regions it is a threatened species. Nganga thinks that up to now, "the main cause of its disappearance is excessive hunting pressure, but mainly due to reduction of its habitat in the southern part of the country." The bongo has been classed as a completely protected species since the new hunting regulations were promulgated in 1984.

Equatorial Guinea

The Director of Estacion Biologiça de Doñana, Pabellón del Perú, 41013 Seville, Spain, Dr. Javier Castroviejo, has completed a checklist of the antelopes that occur in Rio Muni, namely bushbuck, *sitatunga, *Neotragus batesi*, and the following duikers: *Cephalophus callipygus, *dorsalis, leucogaster, *monticola, nigrifrons, and silvicultor. Cephalophus monticola* and **C. ogilbyi* are the only two antelopes that occur on Isla de Bioco. The species identified by an asterisk are not threatened; the status of the rest is indeterminate or insufficiently known.

Cameroon

ASG member Jean Dragesco has pointed out (*in lit.*17 Mar '87) an oversight in the information about Cameroon antelopes that was published in the last Gnusletter. In Table 1 *Neotragus batesi*, the pygmy antelope, is referred to as "certainly present...but no data." In fact Dr. Dragesco studied 172 of these minute creatures from 1969-71 in the Yaounde area,where they were "very common, several thousand in the forest around Yaounde, and especially in [the] cacao plantations. Dr. Dubost was there with me and was able to see many of them in a single night. You remember my paper: Contribution a la connaisance de *Neotragus batesi* de Winton, 1903, with J. Feer and J. Genermont, 1977 Mammalia, vol. 43, 71-81. From 1977 to 1982 and later, M. Feer was studying the Bates antelope in Gabon and he has published several important papers."

Peter Grubb (*in lit. cit.*), also had something to say about the duikers listed in Table 1: "Re. *Cephalophus maxwelli* in Cameroon,...we know of no museum specimens from east of the Niger River, nor of *C. monticola* to the west. For instance, of 141 specimens collected by Powell-Cotton or his agents in eastern and western Cameroon, all were *monticola.*"

NIGERIA

David Happold, who now makes his home in Australia (Zoology Dept., Australian National University, Canberra), has sent in an antelope checklist for Nigeria. But an incomparably greater contribution is his new book, *The Mammals of Nigeria*, just published by Oxford U. P., in which an assessment of past and present status and recorded localities is given in each species account. He writes (*in lit.* to R. East, 13 Apr. '87): "...I have now completed your antelope data sheet. It is sometimes very difficult to know which category is correct. In one way, all antelopes are threatened in Nigeria because of changes in land-use, increase in human population numbers, and the economic problems of Nigeria. All species have reduced ranges compared with the past, and most species have reduced numbers within the reduced range. The outlook for the future of any species is not very bright.

"At the moment, I am very much involved with Malawi, rather than Nigeria, and am busy writing papers resulting from our study leave there in 1984-85."

IVORY COAST

A few excerpts from Vivian Wilson's report on his three-week visit to Ivory Coast in 1985, where he began his duiker survey, will serve as an addendum to the summary of Harald Roth's work presented in the January Gnusletter. (Roth is credited with organizing and largely financing Wilson's visit.)

"A visit was made to the village of Toumodi about 230 km north of Abidjan. The town lies within the Guineo/Congolian/Sudanian regional transition zone...The object of the trip was to visit the

well known 'Bush-Meat' Market in the village...In the two hours that we spent at the market the following freshly killed animals were counted:
Royal antelope (*Neotragus pygmaeus*) - 3
Maxwell's duiker - 15
Cane rats (*Thyronomys swinderianus*)- 20
Pangolin (*Manis tricuspis*) - 1
Mongooses/civets (Viverridae) - 6

'The animals were all killed by local hunters and taken to Toumodi village where they were sold to African women who, in turn, prepared the meat in a variety of ways and sold it as 'cooked dishes' to the inhabitants of Toumodi. When one considers that the 'Bush-Meat' Market had been in operation for a very long time, and that on the day I visited the market, 15 Maxwell's duiker carcasses were counted, it indicates a vast population of Maxwell's duiker that must occur within the area around Toumodi.

Tai N. P. There were some disturbing reports...that prospecting for gold was taking place in the northern part of the park and that illegal logging still took place from time to time. The once attractive camp of M.A.T.A. (Miss. d'Assistance Technique de la Rep. Federale d'Allemagne) where we stayed, had fallen into a state of disrepair and a considerable amount of time and money would now be required if the camp is to be restored to its fromer attractiveness.

Azagny N. P. A tremendous amount of development has taken place in the National Park as a result of a World Bank loan. The project was under the direct supervision of Prof. Dr. H. H. Roth. Tourist facilities have been constructed and the visitors' camp was most attractive, and blended in well with the surrounding forests. It was constructed on the top of a hill at the edge of the park and there is a wonderful view of the swamps and rain forests below. A number of pygmy hippo, crocodile and chimpanzees have been re-introduced into the park, and together with the animals, birds and reptiles already present, the park should prove to be very popular with tourists.

There are still patches of rain forest left in this small national park and the forest on 'Large Island' in the swamps was particularly beautiful. The entire island was covered with primary rain forest, and elephant, pygmy hippo, buffalo, chimpanzee, duiker and several species of monkeys were permanent residents. Due to the inaccessibility of the island, very few people have ever visited it, and as a result the forests have never been touched by man."

SIERRA LEONE

Geza Teleki (*in lit.* to R. East 5 Feb '87) has added to the information he provided about the antelopes of Sierra Leone (reported in the Jan. Gnusletter).

"Regarding Phillipson's list of antelopes for Outamba-Kilimi, I believe there are no banded duikers and no roan antelopes at all in the park, and I am doubtful about the presence of grey duikers. Neither I nor my staff ever saw these species during three years of work there, and local residents did not recognize pictures of the first two species. The rest of Phillipson's list overlaps mine. The most common species at OKNP are bushbucks, waterbucks, yellow-backed duikers, red-flanked duikers. The bongo is the most rare, and I doubt there is a viable population within the park. I can add to Phillipson's list with reasonable certainty the royal antelope (*Neotragus pygmaeus*), the oribi, and the bohor reedbuck, as the staff claimed to have sighted these and I saw carcasses in the region. There is also a very slight possibility of sitatunga (*Tragelaphus spekei*) and kob (*Kobus kob*) being present, as local residents claimed they hunted them, but I saw no physical confirmation. If these are present, I think the numbers are very low now, and the local information may even be historical, in the sense that the species may already have been hunted out.

My survey in 1980 produced some information on the Loma Mountains area, where I would definitely add to Phillipson's list the blue duiker and the water chevrotain (*Hyemoschus aquaticus*). For the rest my observations overlapped in all cases except the grey duiker, kob, and roan antelope. These may have existed historically at Loma, but are probably not there now. I should note that the Lomas are severely hunted out today by local tribal hunters and greatly intruded upon by local farmers, and all large mammals are at critically low levels. The Lomas are worth protecting from a botanical viewpoint, but definitely not from a zoological viewpoint. I spent much more time there than Phillipson, and have a far more pessimistic view of the Loma area.

I have good primate information for the Western area, but nothing on antelopes. Again I should note that this is a forest reserve right next to Freetown and is virtually depleted of all game. There are numerous hunting societies in Freetown, and antelope bushmeat is still sometimes available although it is increasingly rare, indicating that populations are very low. The same is true of most other forest reserves, such as Tingi Hills and Kangari Hills, where I saw virtually no game at all. Lake Sonfon has little more that birds now, as gold mining has destroyed the habitat around the lake. The Mamunta Swamp was surveyed by Gaylen Armstrong in the early 1980s, and his 1984 report, "An ecological survey of Mamunta-Mayowso Widlife Reserve, Sierra Leone" (Lethbridge Community College Alberta, 58pp mimeo) lists the water chevrotain, bushbuck, blue duiker and bay duiker, and speculates that a few bongo may survive but that the habitat is not really suitable for the bongo.

Regarding the species I rated as endangered, I can only make some additional general comments. Except for the bongo, which may survive in very low numbers and isolated pockets elsewhere in the country, all the species I named seem to be restricted to the extreme northern region. So far as I am concerned, the best population of bongo is in the OKNP area, even though the numbers there are not high either. There may be some bongo just east of OKNP in the Bafodia area, but I did not survey there. Of the other species the reedbuck and oribi are most likely to still exist in the country, both inside and to the east of OKNP, but surely not in reasonable numbers. Of the last two species, sitatunga and kob, there may be none at all any longer, but if small numbers do exist then it would be again within and to the east of OKNP. I am reasonably certain that the latter four species do not survive anywhere south of 9°45' N latitude within Sierra Leone. And the only area where protection of these species might become a possibility in the near future is OKNP.

I have no definite information regarding the korrigum or red-fronted gazelle in Sierra Leone, and that is why I entered them

as "indeterminate". I am not enough of a specialist to have known whether or not they might have once existed there. The Senegal hartebeest was listed as a prohibited species simply because Major D.S.O. Fairtlough included it in his 1905 "An amended list of animals found in the Protectorate of Sierra Leone" (Special report 1538/1905, National Archives, Freetown). The species certainly does not exist in Sierra Leone now, and I have doubts about Fairtlough's evidence. No local tribal peoples in the north recognize pictures of that species."

CENTRAL AFRICA

NIGER

A letter John Newby wrote Rod East last August (but which only recently came to my attention) indicates that the status of antelopes and other wildlife has continued to worsen since Gnusletter's last report on Niger (Sept. '85) and even since Rod drafted the Niger chapter.

"Species Status: I would favor the following: bushbuck (V), sitatunga (Ex), red-flanked duiker (En), grey duiker (S), waterbuck (V), kob (V), bohor reedbuck (R), roan (R), scimitar-horned oryx (En), addax (En), hartebeest (V), topi (En), oribi (R), dama gazelle (En), dorcas gazelle (S), slender-horned gazelle (En), red-fronted gazelle (V). Having said this, most species could be upgraded (downgraded?) to a higher level of endangeredness if "W" N. P. were ignored."

Wildlife in the Lake Chad sector is very difficult to assess. The lake had recently totally retreated from Niger but suitable habitat still exists for duiker/reedbuck/*Kobus* spp. Human pressure in the area is very high and so it is unlikely that the *Kobus* spp. will survive.

With regard to the country report,... to be quite fair, the major causes of overhunting and poaching infractions are armed government personnel and organized teams of traditional poachers using traps, snares and muskets. The expat. effect on wildlife numbers is perhaps highly localized (or rather was highly localized). Tourism is an important element (especially harassment of desert fauna).

Species reports

Red-flanked duiker: Mention that [it] is at its northernmost limit in "W" and consequently naturally prone to rarefaction with gradual habitat change or degradation due to climatic changes.

Waterbuck: Likely to still occur in small numbers in the Sirba region.

Kob: Average observed group size 3-4 but considerably larger herds (10-30) in areas ("W" for example) that benefit from protection against disturbance from poachers, illegal grazing, etc.

Scimitar-horned oryx: Births may occur throughout the year but with peaks during the late cold/early hot season and the late rainy/early cold season (Feb-Apr and Sept-Nov). Status: No reports of oryx in Niger between July 1985-86. Probably less than 25 still alive and quite possibly already extinct in Niger.

Addax: I am highly dubious of Dragesco's exuberant claims of ten times greater addax density in the Termit area. Addax used to exist in herds of up to 20 (excluding wet season or migratory agglomerations) but nowadays 1-4 is the norm. Feeding habits: Addax are primarily grazers though they will browse on the green shoots of acacia trees. In the Air area, the principal food item is the tussock-grass *Stipagrostis pungens* (=*vulnerans*?). Other items include the forbs *Schouwia thebaica, Aerva javanica, and Chrozophora brocchiana.* Rainfall produces ephemeral pastures and the addax consume *Stipagrostis plumosa, Tribulus* sp., *Cyperus conglomeratus* and a variety of annuual legumes (*Tephrosia/Indigofera*). Reproduction: Normally 1 calf after a gestation period of 8-10 months. Birth usually takes place in a period following the rainy season and before the cold (Sept-Dec).

Topi: Topi do still migrate locally between W and surrounding area. The change in behavior from a markedly migratory species capable of large-scale incursions into the Sahel in not too distant times, to a more-or-less sedentary animal today is interesting. Could it be that the 'marginal' savanna populations of topi never were very migratory? Status: Poaching has certainly not just been a secondary threat to the topi in Niger before today.

Dama gazelle: Change status to Endangered? Like the topi, the dama gazelle now virtually only inhabits the somewhat atypical fringes of its former sahelo-saharan range.

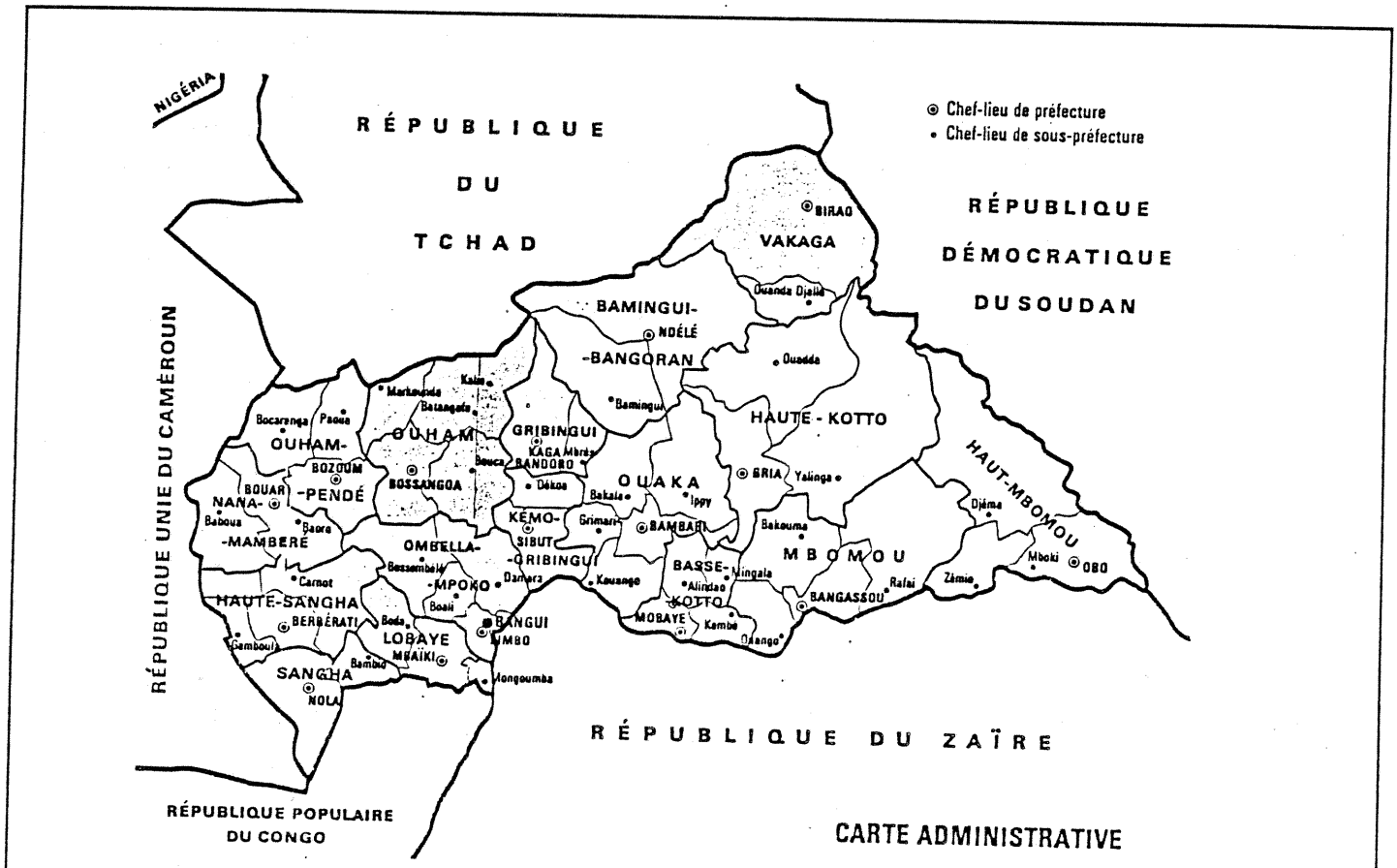
Slender-horned gazelle: Distribution: Very rare inhabitant of desert country. Occasionally seen in desert country bordering the Air Massif (Jones 1973, Newby pers. comm.). Possibly occurs elsewhere in Niger but extremely rare and easily confounded with dorcas gazelle. Population: very rare, occurs in small groups (1-5). Likely to be affected most by continued drought in desert country cf. addax. Conservation measures taken: Occurs sporadically in the Air/Tenere National Nature Reserve (not quite officially established yet). Conservation measures proposed: Effective management of A/T NNR.

Red-fronted gazelle:..Reasonably common in "W" N.P. and Tamou G. R. Also not infrequently seen in savanna country elsewhere. Habitat severely threatened by clearance for agriculture but the gazelle would appear to be able to reoccupy land if enough cover available. Skulking habits aid in protection. Population: Occurs singly or in small groups (1-3) and whilst not present in large numbers, enjoys a widespread distribution still. Status: Rare and declining. Conservation measures taken: occurs in small numbers in "W" N.P., Tamou G.R. and Gadabedji G. R.. where it seems to be a seasonal visitor during the wet season mainly. Conservation measures proposed: Effective management of protected areas and better enforcement of poaching controls elsewhere.

CENTRAL AFRICAN REPUBLIC

True to his word, Mike Fay (see January Gnusletter), who returned in March from leave in the U. S. to continue his Dzanga-Sangha Gorilla Project (postal address: B. P. 1080 Bangui) has sent a mass of information about antelopes, including detailed background about the country and current conditions, mostly in the form of handwritten notes. There is much too much to include here, but the rest will be incorporated in Part Three of the Antelope Survey.

"The surface area of the Central African Republic is approximately 62,300,000 ha. About 30 million ha have an extremely low or non-existent human population. Most of these 30 million ha are good wild-



The Central African Republic

CARTE ADMINISTRATIVE

life habitat which represents an almost unbelievable resource. At present this resource is extremely far from reaching its potential, both from the point of view of wildlife population density and exploitation of the resource. This obviously represents a task far beyond the reach of any one force. The only way to realize the potential is for safari companies, foreign agencies, and the CAR Government to make a concerted effort on all fronts to improve game management and exploitation in the country. In the past three years things have improved dramatically. There are more people out in the bush at this point in time than ever before, all involved in attaining a common goal. If this trend continues the CAR will start to realize some true, longterm benefit from its rich fauna.

The remaining 30 million ha of the CAR, in the west of the country, are also relatively sparsely populated by West-African standards. There are huge tracts of land between the major roads that still contain large populations of wildlife. For the most part we remain entirely ignorant of the species and densities in these areas. Rural development projects in these areas should include this as one of their goals – survey of wildlife populations and projects to implement national game management policy that will assure longterm harvests. At this point these "empty quarters" are largely lost to exploitation of any kind, including agricultural.

PARKS AND OTHER PROTECTED AREAS

Manovo-Gounda–St. Floris N. P. (17,400 km²) holds an extremely rich and dense Sudano and Sudanoguinean antelope fauna. Eland, bushbuck, Grimm's duiker, blue duiker, red duiker spp, yellow-backed duiker, kob, waterbuck, reedbuck, roan, bubale [=hartebeest], topi, oribi, red-fronted gazelle. The park has experienced high levels of poaching in the past but the situation now is better and should continue to improve with new private and international initiatives there. Drought..now threatens much of the northern part of the park.

Bamingui-Bangoran N. P. (10,700 km²) contains the same species found in Manovo. Poaching has been severe in the past several years and tens of thousands of cattle are found in the park. Antelope populations are relatively low, but with proper management and protection could come back in a short time.

Reserve Naturelle Integrale de la Vassako-Bolo (860 km²). Centered in Bamingui-Bargoran N. P., it received perhaps somewhat greater isolation from poachers but is in about the same condition as the park.

André-Félix N. P. (1,700 km²) at one time held good populations of most sudanian antelopes. The park has been largely abandoned for the past 30 years and no recent surveys have been made. All indications are that all species still exist but in reduced numbers. Drought has also, undoubtedly, had an effect on this park. It was created not only for its fauna but also for its natural beauty. Efforts should be

made to recuperate this park but there are no current plans.

Reserve de Faune de la Yata-Ngaya (4,200 km²) is a buffer zone around Parc André-Félix. It too has been abandoned for 30 years except for safari companies, which afford some protection. Antelope populations are undoubtedly quite low but no recent data exist.

Reserve de Faune de la Ouandja-Vakaga (4,800 km²) holds all of the same species found in Manovo-Gounda-St. Floris (except perhaps yellow-backed duiker). Antelope populations are low but with protection should come back.

Reserve de Faune de l'Aouk-Aoukalé (3,300 km²). The same as for the last. Because this reserve is along the Chadian border, large numbers of cattle and villages have appeared there over the past 10 years. Thus far there has been no effort to remove them from the reserve.

Reserve de Faune de Koukourou-Bamingui (1,100 km²) contains about the same antelope fauna as Bamingui-Bangoran N. P. but in lower densities.

Reserve de Faune de Gribingui-Bamingui (4,500 km²). Same as the last. It is heavily hunted by people who come from Bandoro, a rather large town with an active meat trade to Bangui.

Reserve de Faune de la Nana Barya (2,300 km²) is the sole reserve located in the west of the country. Once again, this area has been abandoned by protection authorities for almost 30 years. Because of its proximity to greater Central African population and its border with Chad, poaching pressure has undoubtedly been high. There are no recent reports on the status of wildlife populations in this reserve.

Reserve de Faune de Zémongo (10,100 km²). This large reserve once held a large population of elephants and a rich Sudanoguinean-Guinean antelope fauna, including bongo. It too has been abandoned by protection authorities for the past 30 years. Because of its isolation and border with Sudan, poaching pressure has been high from Sudanese caravans. Antelope populations are still relatively high. In the past few years several safari companies have started on the border of the reserve, which is starting to afford some control over the situation there.

In my opinion, the Central African Government does not have the resources to protect most areas designated as 'Reserve de Faune.' A more realistic approach to protecting these areas, I believe, is to turn them over to private hunting organizations. If properly monitored, these organizations can provide the investment in capital and manpower to afford these reserves some protection, and this is, in fact, what has happened in many cases. However, at present, the hunting companies have no vested interest in protecting these reserves because they are not officially designated as hunting concessions. New legislature is currently being considered that will give hunting concessionaires greater power as far as antipoaching is concerned. If this becomes a reality and the reserves receive protection from the private safari companies, in collaboration with the Ministry of Water, Forests, Hunting and Fisheries, the situation in these reserves should improve considerably.

SOME OF THE LARGEST PROBLEMS FACING C. A. R. WILDLIFE

Drought has caused a great deal of damage in the north of the country. I estimate that there has been at least a 60% decrease in plant biomass in certain areas over the past four years. This is obviously devastating to the watersheds, [contributing] to potential decrease in wildlife population, because of over-concentration around watering places and all the problems that entails. Their potential to come back [decreases] each year that the drought persists. Another few years with below-average rains will truly be a disaster. Last season there was an increase but it did not even come close to recharging the watersheds that had had subaverage precipitation for so long.

Poaching. In 1983-84 poaching levels reached a peak in the CAR. There has been a marked decrease over the past two years due to a number of reasons: 1) Elephant populations have been reduced to the point that some ivory poachers have stopped hunting elephants; 2) improving civil situation in Chad; 3) much more aggressive antipoaching meaures taken by numerous people that has given a clear message about the consequences of illegal hunting, especially to Chadian and Sudanese people who come to the CAR for the sole reason of pillaging its resources. If efforts continue in the same direction the future looks bright.

Illegal passage of tens if not hundreds of thousands of cattle into the CAR. I see this as the single greatest threat to the future of the country. The increase in the number of nomads, from a great variety of tribes, over the past three years is truly astonishing. They have completely invaded the sourthern reaches of the country. Their cattle are largely unvaccinated, they are totally uncontrolled, and the herds are unquestionably the greatest threat to wildlife in the north. It is time to take decisive action to control the situation, if it is not too late already.

Rinderpest. The epizootic of 1983 was devastating to populations of eland, buffalo, and warthogs. We probably lost at least 60% of the herds of these species throughout the country. This epizootic was most likely brought on by the uncontrolled nomadic herds passing into the CAR. This is the second epizootic in the past 20 years [and] the first had just as devastating an effect on wildlife. Every effort should be made to see that future outbreaks of this disease can be prevented.

AN OVERVIEW OF ANTELOPE DISTRIBUTION, ABUNDANCE AND STATUS IN THE CAR

"Over the past few weeks I have gathered up all of the information currently available on the antelopes of the Central African Republic. This has been drawn from our own reports and firsthand sightings, recent aerial census data collected by Iain Douglas-Hamilton et al (1985), all annual reports from professional hunting organizations, and odd reports from various individuals around the country.

In the coming year much more information should become available as the result of a survey, produced by the Ministry of Water, Forests, Hunting and Fisheries, that requires all hunting concessionaires to report on the status and exact localities of a wide range of species. Although these data are not quantitative, they will give us an excellent idea of the status and distribution

P. S. A letter Mike wrote on 4 April adds an interesting sidelight to the above account.

"I just had lunch with another hunting concessionaire today, so thought you would like to fill in another blank on the CAR map...The concession that we're talking about is near the Sudan border east of the town of Ouadda at the camp called Kaouadja. It is bordered on the south by the division of the Kotto and Chinko watersheds, on the west by the Koumou River, then about 150° to the division of the watersheds on the north by the Ouadd-Ouandja road, there following the Yata-Ngaya Reserve southern border. The eastern boundary is the Sudan border. "As far as animals go, they [the concessionaires] have never been in the northeastern half of the concession, so can't say anything about that. They say that the northwest of the concession has been poached out by people in the 'town' of Ouandja, which is a large diamond camp with about 6000 people in the dry season, all of them meat eaters. This southwestern part of the concession, however, has good populations of antelope. Here's the rundown:

Eland - good growing population, herds of 15-20, lots of young, several hundred in SW part of reserve.

Bushbuck - populations high and stable, lots of excellent trophies.

Sitatunga - never seen.

Bongo - never seen.

Kob - dense populations along the Kotto, Kaouadja, and Woulou rivers. Lots of good trophies.

Waterbuck - not as common as kob but still good populations along some rivers.

Reedbuck -- not really common but seen frequently along some rivers.

Bubales (two subspecies) -- the most abundant animal in the concession, seen commonly in herds of 15-20.

Vivian Wilson has also sent in a report about the CAR, recounting the three-week visit he and his son made in January to gather information about duikers. Although this is decidedly *un embarras de richesses*, Wilson's account complements Fay's, in that he stayed as the guest of a safari operator who has a shooting concession in the southeastern corner of the country. The concessionaire had reported to Clive Spinage, who provided the contact, that seven duiker species occurred in the area but, Vivian reports, "Apart from the four species mentioned above [yellow-backed, red-flanked, blue, and western Grimm's or bush duiker], there was no sign of any other species." This despite exceptionally good visibility, the tall grass in the moist savanna habitat having been burnt and replaced by a greenflush. As for other antelopes, "both large and small were not common in the area, nor were there fresh signs of giant eland, roan, hartebeest, kob or waterbuck. However, these species do occur closer to the Mbomou River, where a giant eland and a waterbuck were actually collected by the safari client accompanied by the professional hunter."

EAST AND NORTHEAST AFRICA

ETHIOPIA

Chris Hillman's dedicated efforts to secure the protection of the Bale Mountains for the benefit of the mountain nyala and other endemic organisms, which were summarized in the last Gnusletter, continue to bear fruit. In a letter to Rod East (26 Jan '87), he writes, "The Bale Management Plan has been acted upon as far as we are able here, without any funds coming in from overseas...However...we have, through discussion with the local administration, and through co-incidence with the villagisation policy and new agricultural rulings about the use of slopes in agriculture, managed to remove all settlement and agriculture from the Gojera enclave, and add it to the Park. Thus the optimum mountain nyala area is now well over 150 km^2. Recent discussions suggest that the Gaysay area will also be doubled in the next couple of years, so bringing the total area for mountain nyala at these altitudes to over 300 km^2, we hope.

"The animals are certainly making the most of it. We went through there for a drive yesterday evening and there are nyala all through. Less than a year since it was done, the grass has actually flowered for the first time in memory and the *Juniperus* trees begin to look less haggard as the red scars of cut wood disappear beneath new bark. There were many males; these have always been a puzzle at this time of year, so it is good to know they do go up in altitude as we suspected.

"There are real moves underway now, to establish a second conservation area for the species up in the Chercher Mountains in Harerghe Region, an area previously used for hunting, but where returns were getting very poor."

Regarding the identity of the red duiker spotted last fall on an expedition to the southern Bale Mts. N. P. (also noted in the last Gnusletter), Chris writes, "We still have yet to confirm the identity of the *Cephalophus* duiker in the Harenna Forest, but enough of us have seen it to be certain it is there. It is reasonably likely to be the same as the "red" duiker of Somalia and the Kenya coast...If Peter Grubb says the Imatong duikers are *C. weynsi*, far be it from me to argue with him! I have not seen them, I have only drawn on the available literature, and talked to Kingdon, who had not seen them either. If he [Grubb] has examined skins he will have a much better idea."

TANZANIA

A report by Iain Douglas-Hamilton on the results of an October, 1986 aerial survey of the Selous Reserve, Mikumi N. P., and surrounding areas (total coverage 74,000 km^2, sample intensity of 4%) reached Rod East in time for the information about antelopes that it contains to be included in Part One of the Antelope Survey. In the Summary, Iain writes, "Of the other large mammal species, buffalo, giraffe, and wildebeeste show no significant trend. However, hartebeeste, sable, zebra, and possibly eland have declined, especially in the north east, probably due to human offtake for meat." The apparent decline in these species is based on comparison with estimates made in 1976 and 1979. For the whole region surveyed, the differences between 1976 and 1986 (according to table 4 in the report) are: hartebeeste –56% (from 34,500 to 15,300), sable –55% (9700 to 4400), zebra –50% (44,400 to 22,300), and eland – 61% (78,00 to 4300). However, Alan Rodgers (in litt. to R. East, 24 Mar '87) has expressed doubts about the accuracy of the ungulate counts and counsels a cautious interpretation, and as Iain himself points out, "These species...have the capacity for rapid recovery."

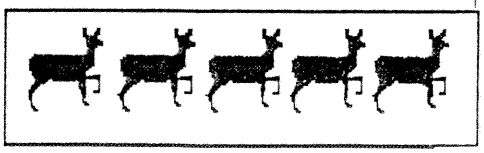
Unfortunately the same cannot be said

of the rhino and elephant, whose precipitous decline is only too plainly documented by the aerial survey. Douglas-Hamilton's conclusion: "It appears that rhinoceros have suffered a 98% decline in 10 years [from 2541 to 51], while elephants have declined by 50% in the same period...In both cases intensified poaching has been identified as the cause of decline." Although 55,000 ± 20% elephants still surive within the census zone, "dead elephants were counted and estimated at a population of 11,400±21%."

"Poaching was obviously heavy," Iain reports, "and occurring all over the Selous at the time of the survey...Extended snare lines, several kilometers long, were seen 9 km north of Mtemere together with heavy concentrations of bones from butchered animals. Some waterholes were completely surrounded with a ring of snares, and we saw one large and several small poachers' camps."

"It has been reported that a considerable Somali population lives in Songea, most of them immigrants within the last 10 years, and that nearly all of them are involved in encouraging poaching and in trading illegal tusks. As long ago as 1977, Douglas-Hamilton wrote to the Directors of Wildlife and National Parks warning them that certain Somalis were moving into southern Tanzania from Kenya with the intention of exploiting the large elephant population there. Mikumi National Park, an ecological extension of the northwestern Selous, has also undergone heavy rhino and elephant poaching. According to the Chief Park Warden, Mr. Kibasa, and his deputy Mr. Balozi, there were reportedly 12 gangs operating in the southern part of the park at the time of the survey. The park authorities are reacting vigorously and had, on the 26th of June, ambushed a party of well-armed poachers carrying 46 tusks...Though hampered by lack of equipment and roads, they are much better endowed in this respect than the Wildlife Division in the Selous."

"There also appears to be some evidence that ivory poachers benefit from their connections in high places."



SOUTH CENTRAL AND SOUTHERN AFRICA

ZAMBIA

As Co-Director of the Luangwa Integrated Resource Development Project (P. O. Box 510249, Chipata), Richard Bell is involved in a major effort to integrate development with sustainable use of natural resources. An excerpt from a report he wrote last August, entitled Progress of Phase I and Proposals for Phase II, conveys an idea of what this project intends to accomplish.

"The Luangwa Valley is a natural asset of international, national and local importance. Its wildlife populations are among the richest in Africa, while its soils, forests and water resources have high productive potential. However, as a result of poor access, lack of infrastructure, and preservationist attitudes, the potential of the valley's resources has not been realised, while its most important wildlife populations are being decimated by illegal hunting. Most of the valley's resources are underutilised, while local communities receive few benefits from those that are utilised, and remain disadvantaged. Wildlife resources of high commercial value are overexploited illegally, the profits being siphoned out of the area and even outside Zambia. Local communities have little incentive to discourage this illegal traffic. The objectives of LIRDP are as follows:

(i) To improve the standard of living of the people living in the project area through sustainable use of the full range of the area's natural resources, including agriculture, forestry, wildlife and water resources;

(ii) To cover the costs of adminstration of LIRDP, and

(iii) Without prejudice to the above, to provide revenues and other benefits at the national level.

The LIRDP area has been defined as the South Luangwa National Park (9,050 sq km) plus the Lupande Game Management Area (4800 sq km). The total area of 15,000 sq km is considered to be of manageable size for a pilot project and to contain an appropriate balance of human and wildlife resources. The Lupande GMA is equivalent to the Mambwe Sub-District of Chipata District, Eastern Province. It is also equivalent to the Kunda Chieftainship of Senior Chieftainess Nsefu and its five subsidiary chieftainships. It therefore forms a discrete sociopolitical and administrative entity. The population is about 25,000 people, making this the most densely populated part of the Luangwa Valley. The South Luangwa National Park is one of Africa's more important conservation areas formerly containing about 33,000 elephants, a large population of black rhinoceros and abundant other wildlife. Currently, the elephant and rhino populations are seriously depleted by illegal hunting.

The essence of LIRDP is to increase the productivity and revenue earning potential of the natural resources in the project area, and to redistribute the benefits in favour of the people in the area, who have in the past paid the greatest price for wildlife conservation in terms of alientated land, lost opportunity of resource use, and damage to life and livelihood by wildlife.

The objectives of LIRDP are derived from a set of policy decisions taken at the national level, as follows:

(i) The programmes of government departments concerned with land use and marketing should be coordinated at the local level to produce a land-use programme compatible with the particular socio-economic and ecological conditions in the area;

(ii) The activities of non-government organizations in the area, including aid agencies, research agencies, wildlife utilisation companies and the tourist industry, should be coordinated with the land use programme at the same level;

(iii) A mechanism should be developed for ensuring local inputs into decision-making with respect to land use planning and the use of revenues and other benefits derived from the area's natural resources; and

(iv) Revenues derived from the use of natural resources in the area should be returned to the area for reinvestment in the local economy.

These policy decisions follow directly from the national policies of Decentralisation and Diversification. LIRDP may be

regarded as a trial of the implementation of these policies with respect to natural resource use. These policies may be applicable to extensive areas in Zambia and elsewhere, to those areas with significant non-agricultural indigenous resources which have been consistently under-valued in conventional development planning."

BOTSWANA

Clive Spinage (*in lit.* to Rod East, 29 Feb '87) reports that an aerial survey of Botswana's wildlife is currently underway. It will be particularly interesting to find out how many wildebeeste have survived the drought and the game fences. As Clive points out, "Botswana has a drought cycle of approximately 20 years and the major antelope populations have probably dropped to a tenth of what they were a few years ago."

SOUTH AFRICA

Rod East has compiled the first draft of the Antelope Survey chapter on South Africa, a 29-page single-spaced ms. plus 6 maps. The individuals who contributed the information (apart from published sources) appear as the authors of the chapter. All but Anthony Hall-Martin, who is active in the Elephant Specialist Group, are ASG members. The individuals, the departments they represent, and what they contributed are as follows: J. L. Anderson, Bophuthatswana National Parks, antelope status checksheets and various other contributions since 1982; S. C. J. Joubert, S. A. National Parks, status checksheet (Jan. 1982) and information on antelope populations in Kruger N. P. (Aug. 1986); A. Hall-Martin, S. A. National Parks, information on antelopes in the other national parks, based mainly on internal scientific reports resulting from aerial surveys; P. H. Lloyd, Cape Provincial Department of Nature and Environmental Conservation, data on Cape parks and reserves provided in November, 1986; S. Vrahimis, Orange Free State Branch of Nature Conservation, information on OFS antelope populations provided in 1986 and 1987); R. D. Carr, Transvaal Nature Conservation Division, data provided in November, 1986; and M. E. Keep, Natal Parks Board, iwho provided information in October, 1984, January and April 1986.

SWA/NAMIBA

Last December P. T. Van Der Walt, Director of Nature Conservation and Recreation Resorts, submitted a detailed report on the distribution and status of antelopes in Namibia. There was so much information that Rod decided not to copy it all for me, as he usually does, but just to send me the draft chapter when he was finished compiling all the data. Tbe 24-page manuscript I recently received gives a very concise but complete account of conservation measures in the country, and of each antelope species. The following brief description of Namibia's principal parks and game reserves appears under Conservation Measures Taken.

"Proclaimed conservation areas... protect substantial parts of all three major biomes...and form the basis of the country's expanding tourist industry. Efficient law enforcement is a vital element of the protection of these areas. Almost all of the antelope populations of the country's conservation areas are currently stable or increasing.

The large conservation areas reflect the systems approach adopted as the national conservation strategy, with the emphasis on maintaining the greatest possible natural species diversity. The Namib-Naukluft Park, for example, has been enlarged progressively to a size of >49,000 sq km, making it the largest park on the African continent. This park extends from the canyons north of the Kuiseb River, sand dunes south of the Kuiseb, and the Naukluft massif (970 sq km of cliffs, canyons, plateaux, and bushy valleys) which towers over the surrounding desert and plains. The Namib-Naukluft Park supports major populations of coastal desert and escarpment wildlife, such as thousands of gemsbok and springbok on the desert plains, numerous klipspringer on the steeper slopes of the Naukluft and the Kuiseb River canyon, smaller numbers of kudu in areas of thornbush, and the largest surviving concentration of Hartmann's mountain zebra. The Skeleton Coast Park, which includes the gravel plains and coastal dunes of the northern Namib, also contains significant numbers of gemsbok and springbok.

Etosha National Park protects a very large area of mopane savanna, bushland and grass-covered plains around the vast, saline, seasonally inundated Etosha Pan. It protects a major savanna antelope community, including all 10 species characteristic of the savanna biome plus the rare black-faced impala. Lower numbers of savanna antelope species (largely reintroduced) [also introduced, e. g. wildebeest -Ed.] occur in the much smaller Daan Viljoen Game Park (the major protected area of highland savanna), Hardap Game Reserve, and the Von Bach Recreation Resort.

Waterberg Plateau Park includes the savanna-covered plateau, the steep cliffs which surround the plateau on its eastern and western sides, and denser woodland on the plains below. This park contains a diverse antelope community, including a naturally occurring eland population. Preservation of rarer ungulate species such as roan, sable, and buffalo...is given priority in this area. Western Caprivi Game Reserve and the newly established Mahango and Khaudom Game Parks protect populations of most of the rare antelope species of the far northeast of the country" (mentioned in May, 1986 Gnusletter).

NEAR EAST

ISRAEL

Thanks to Simon Stuart, another expert on antelopes of the Near East has come forward to help with the Antelope Survey. Bill Clark (PhD), who lives in Jerusalem (P. O. Box 7274) sent in Antelope Inventory Report Forms for the five species that occur in Israel: *Gazella gazella* (including *G. g. gazella* and a second subspecies), *G. dorcas isabella (saudiya), Oryx leucoryx, O. dammah, and Addax nasomaculatus.* In his covering letter of 24 March to Rod East, Clark explains:

"The three gazelle types currently occur in nature here, the mountain gazelle being particularly numerous [but see Richard Schuster's report in January, 1986 Gnusletter]. Most authorities, including Ellerman and Morrison-Scott, claim Israel's dorcas gazelle is *G. d. saudiya.* No local authority, however, agrees. We are nearly in full accord that the subspecies is *G. d. isabella* (the North African type).

"The three larger antelopes are kept at our Hai-Bar wildlife restoration facility,

which is a fenced tract of about 12 km² of desert/savanna habitat in the Negev. I am currently working on the Israeli plan for the reintroduction of *Oryx leucoryxc* from the Hai-Bar stock. This likely will occur within the next few years (it is really just a matter of financing).

"The two remaining antelopes [scimitar-horned oryx and addax], as well as the mountain gazelle, can be made available to legitimate authorities with responsible programs for species reintroduction into former habitats...Israel is prepared to provide the animals quietly, without any publicitiy, and through third-parties if necessary, just so long as any reintroduction program is conducted by a responsible agency and the requirements of CITES are met. We are interested in the good conservation of these species."

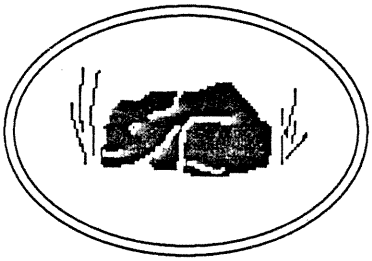
QATAR

A letter from Colin Groves (19 Mar. '87) reports the existence of a very important private collection of desert antelopes.

"I recently returned from a two-week trip to the Middle East, where I took part in a symposium on wildlife conservation in Saudi Arabia, and also visited Bahrain, U. A. E. and Qatar. In Qatar I met the brothers Sheik Khalid and Sheik Hassan Al-Thani, who have built up (and continue to add to) a large, and extremely significant, collection of living, breeding groups of arid-country antelopes at their property at Al-Wabra, near Doha. They have gazelles from the Arab countries, Iran and Pakistan; but the really special collections are those from Africa: Somalia, Sudan, and Chad. They make regular field trips to one or other of these countries, capturing if feasible (with attention to the conservation status and prospects of the species concerned), and in any case surveying areas and making videos.

"In view of their familiarity with these key countries for antelope conservation, you might be interested to contact them. In particular, the impression I gained about Chad was very different from the one in the January Gnusletter; but they think that in the northern part of Somalia conditions are not too bad (plenty of beiras, for example; and incidentally, they have about 15 at Al-Wabra, which they are anxiously hoping will breed).

The person to write to, initially, would be the vet who is associated with them: Dr. Faris Al-Timimi, Doha Veterinary Practice, P. O. Box 6328, Doha, Qatar."



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