



AZA Antelope and Giraffe Advisory Group Regional Collection Plan

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final

Compiled by
AZA Antelope and Giraffe Advisory Group
Steering Committee



AMERICAN ZOO AND AQUARIUM ASSOCIATION

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*Cover photo by Bill Houston, Saint Louis Zoo, February 2004: Addax in the Termit/Tin
Toumma region of Niger - perhaps the last remaining stronghold for this species.*

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Introduction

This document represents the Fourth Edition of the Regional Collection Plan (RCP) for the American Zoo and Aquarium Association Antelope and Giraffe Advisory Group. The intent of this work is to serve as a guide and tool for AZA institutions and animal managers concerned with antelope and giraffe captive management, conservation and education.

Included in the Fourth Edition of the RCP are recommendations regarding the captive antelope and giraffe programs currently recognized in North America, including conservation, education, research, veterinary/health and development priorities. These recommendations are based on a series of evaluations, space surveys, current population genetic and demographic analyses (as known), ISIS and studbook data, and information provided by the IUCN SSC Antelope Specialist Group regarding wild antelope and giraffe population status and trends. In some cases, threatened species not currently found in captivity in North America were also included as priorities for conservation actions.

This version of the RCP is intended to continue to serve as a conduit linking North American captive programs with efforts to conserve wild antelope and giraffe populations. The goal, to evaluate and manage our captive populations in North America to insure sustainable programs to contribute to conservation and awareness of these species, is of the highest priority.

AZA Antelope and Giraffe Advisory Group Mission Statement

To provide guidance and recommendations to AZA institutions regarding captive management of antelopes and giraffes in North America and to facilitate activities and programs that support antelope and giraffe species and habitat conservation in the wild

Goals of the AZA Antelope and Giraffe Advisory Group

The following goals are priorities for the AZA Antelope and Giraffe Advisory Group:

- To continue to support captive antelope and giraffe populations in cooperation with our partners internationally (EAZA, non-AZA facilities, etc) in the effort to develop and/or maintain viable *ex situ* populations.
- To continue to develop and expand education programs which promote antelope and giraffe awareness and conservation.
- To continue to support *in situ* research and conservation efforts that enhance and protect wild antelope and giraffe populations and their habitats, and to link these efforts to our *ex situ* programs as possible.
- To continue to advance the management and husbandry of captive antelope and giraffe populations through scientific investigation.
- To provide support and, when needed, animals for global antelope reintroduction efforts.

AZA Antelope and Giraffe Advisory Group Definition

The TAG's purview covers the species in the following genera which are managed in AZA institutions:

Tragelaphus
Taurotragus
Boselaphus
Tetracerus
Cephalophus
Sylvicapra
Kobus
Redunca
Pelea
Hippotragus
Oryx

Addax
Damaliscus
Alcelaphus
Connochaetes
Oreotragus
Ourebia
Raphicerus
Neotragus
Madoqua
Dorcatragus
Antilope

Aepyceros
Ammodorcas
Litocranius
Gazella
Antidorcas
Procapra
Pantholops
Saiga
Okapia
Giraffa
Antilocapra

The TAG also focuses its efforts on a limited number of *in situ* conservation programs for severely threatened antelope populations and/or habitats as prioritized by the IUCN SSC Antelope Specialist Group. An *ex situ* captive component is not a requisite for such a program, but may be considered if warranted under conservation action plans for said species.

Regional Collection Plan Development

Information Sources

ISIS and Studbook Data

Most North American captive antelope and giraffe programs managed in AZA institutions have now been assigned program leaders (studbook keepers and population managers). Program leaders are being sought for those programs which are currently vacant. The most current published studbook data and/or population analyses were utilized in our review and this information has been included on the Individual Species Sheets. Recent ISIS data was utilized for species programs for which studbooks (or registries) are not yet complete.

Space Surveys

All holders of antelope, giraffe and okapi in North America were polled in 2004 concerning their current and estimated future available space for these species. The 2004 Space Survey results are included (Appendix 1). This survey and the previous TAG Space Survey of 1999 were utilized for development of this RCP.

The Space Survey was distributed to 113 AZA facilities. 101 facilities responded to the Space Survey (89% response rate). Results of the Space Survey indicated that currently there are 3,780 spaces occupied by antelope and 393 spaces occupied by giraffe and okapi in AZA facilities, for a total of 4,173 spaces currently occupied by antelope, giraffe and okapi. Currently, the maximum number of spaces available for antelope, giraffe and okapi is 5,536 (antelope – 4,889 and giraffe/okapi – 647).

In the future, when considering the maximum number of spaces available and institutions' desires to acquire/deacquire species or increase/decrease herd sizes, the Space Survey results indicate that the maximum capacity will increase within TAG participating facilities to 4,812 spaces for antelope and 603 spaces for giraffe and okapi (Total maximum spaces in future – 5,415).

Additional space for captive management and conservation of antelope, giraffe and okapi is potentially available at several privately-owned, non-AZA facilities, but those spaces were not considered by the TAG when making population recommendations and figuring target populations. As appropriate, in accordance with AZA's non-member participation guidelines, the Antelope and Giraffe TAG hopes to collaborate with non-AZA facilities and other conservation organizations committed to the conservation of ungulates in a combined effort to build and maintain sustainable captive populations in NA.

Population Analyses

Whenever possible, population analyses completed by the program managers and small population management advisors were used as references and this information is included on the Individual Species Sheets.

Species Evaluation and Ranking

A set of selection criteria (Appendix 2) was developed and applied in the evaluation of each antelope and giraffe program currently in North American facilities. These criteria considered several factors including: abundance in North America; current and potential genetic and demographic stability; potential conservation role; and institutional and public appeal.

Number values were assigned to each criterion resulting in a number figure rank for each program. These scores are a means of comparing current antelope and giraffe programs and the values represented generally correspond to program recommendations and levels. The following ranking was applied to each species and these rankings are included on each Individual Species Sheet:

Mean Ranking	Program Assignment
0-8	No Program Recommended (NPR) or Phase Out (P/O)
8.5-14	Display/Education/Research Population (DERP) or Population Management Program
14.5-20	Species Survival Program (SSP)

The tabulated results of the Steering Committee members' rankings can be found in Appendix 3.

Target Populations

Several factors were considered prior to setting a target population for each species, including space survey results, captive population status, available population viability information provided by the program leader and his/her small population management advisor, as well as species management expertise and knowledge. The three-year target populations were figured using PM2000 when possible.

For the few programs which have not yet been analyzed, target populations were estimated by the Steering Committee based on our knowledge of this and/or similar species, the space survey responses indicating institutional interest and space available for the species. When the program managers and advisors complete the necessary analyses on these not-yet-analyzed programs, the TAG will modify the estimated population targets, if necessary.

These target populations can be found within the Antelope and Giraffe TAG Program Recommendations Summary (Table 1) and on the Individual Species Sheets.

Program Roles and Purposes

All species for which programs are recommended in this RCP contribute to the conservation and/or awareness of antelope and giraffes and their native habitats or to research intended to improve captive management or aid conservation. The roles and purposes for all antelope and giraffe species are included within the Program Recommendations Summary (Table 1), on the Individual Species Sheets, and are described below.

Conservation Support and Safety Net Population

A sustainable captive program managed to ensure against the loss of the species in the wild, and which has components which directly link to some aspect of *in situ* conservation for the species.

Conservation Link and Education Population

A sustainable captive program that is maintained to ensure minimal input from wild populations, and which contributes to *in situ* conservation efforts for the species by generating interest and support, or through interpretive education programs for zoos and zoo visitors. The need for released animals in field programs is not immediate, and the management of the population for release is not considered a priority.

Education and Display Population

A sustainable managed captive program that will require minimal input from wild populations. The program is intended for species that do not have strong conservation links, but which are important elements of mixed-species or other displays, and/or may be utilized in zoo education programs.

Research Population

A captive program that is maintained in a sustainable program to provide data for research, either basic or applied, intended to improve captive antelope and giraffe management and/or contribute to antelope conservation.

***in situ* Focus**

A species focus program recommended to generate awareness, participation, and conservation support (technical, financial, educational materials, etc.) for severely threatened antelope populations and/or habitats as prioritized by the SSC Antelope Specialist Group. An *ex situ* captive component is not a requisite for such a program, but may be considered if warranted under conservation action plans for said species.

Program Management Categories

The levels at which species are to be managed was selected by the Steering Committee from the commonly-used management categories identified by WCMC and these management categories can be found within the Program Recommendations Summary (Table 1), on the Individual Species Sheets, and are described below.

SSP, Species Survival Plan

An SSP program provides intense genetic and demographic management for a captive population. A studbook must be established and maintained, a management group must be elected from the Institutional Representatives, and breeding/transfer recommendations for the population, as well as other population management directions, must be provided on a regular basis. Participation in SSP programs is now mandatory for AZA accredited institutions and related facilities and compliance with recommendations by all participating institutions is expected.

Some antelope SSPs represent critically endangered species and should be maintained for the future, even if long-term program goals may not be optimal. The TAG insures a commitment to intensely manage these programs and make every attempt to maximize program goals, as suggested below. Founder acquisition may be an important component in maintaining long-term SSP program goals. However, founder acquisition is affected by many logistical variables (international regulation, quarantine availability, international cooperation and partners) and is therefore unpredictable.

If an SSP program has contributed to a reintroduced population, (e.g. Arabian oryx), program goals and targets may be re-evaluated and/or the status and level of such a program may be reviewed and revised by the TAG.

Exceptions to antelope and giraffe SSP program goals exist and each program has been evaluated for its merit and recommended for its value to our AZA institutions. The following are general program guidelines for Antelope and Giraffe TAG SSP programs:

Conservation and Safety Net SSP Program

Strive to retain 90% genetic diversity in the population for 100 years or better

PMP, Population Management Plan

The objectives of an antelope or giraffe PMP program are similar to those of the SSP program, but management is less intense (i.e. an elected management group is not required and participation by institutions is not mandatory). A studbook must be established and maintained and analysis of the population and breeding/transfer recommendations for the population are produced by the population manager on a regular basis. Participation in PMP programs is encouraged, but not mandatory. There is no management group within PMP programs.

Because of the varied roles and purposes for antelope and giraffe PMPs, antelope and giraffe population goals are not easily compared. Some PMP programs are important from a conservation standpoint, but may be compromised by the loss of genetic diversity over the captive program life (prior to genetic management). Other PMP programs are in a growth state and can be expected to expand (at an unknown rate) depending on the work of the TAG, the importation of additional founders, etc. Still other PMP programs are important from a conservation or education standpoint, but

have experienced a decline in capacity and genetic diversity, and will depend on management and/or the importation of additional founders. Founder acquisition is affected by many fluctuating variables (international regulation, quarantine availability, international cooperation and partners) and is therefore unpredictable.

Exceptions to antelope and giraffe PMP program goals exist and each program has been evaluated for its merit and recommended for its value to our AZA institutions. The following are general program guidelines for Antelope and Giraffe TAG PMP programs:

Conservation and Safety Net PMP Program

Strive to retain 90% genetic diversity in the population for 100 years or better

Conservation Link and Education PMP Program

Strive to retain 80-90% genetic diversity in the population for 50 years or better

Education and Display Population PMP Program

Strive for 60% genetic diversity in the population for 20-50 years or better

DERP, Display/Education/Research Population

Populations which do not need genetic or demographic management are classified as DERP populations. These are programs which are sustained by recruitment from outside the population and which require only a registry or other form of population monitoring.

ISF, *in situ* Focus

These programs are recommended explicitly for conservation purposes and are often directed at critically endangered antelope species as designated by the IUCN Antelope Specialist Group. ISF designation should serve as a conduit for and endorsement of conservation support. A captive component is not recommended for these species but would be considered if so required.

Phase In

Species which are not currently a managed captive population but are desired as a program due to the potential to contribute to conservation, education or research goals are designated as Phase In populations. These species may already be in captivity in North America, or an importation may be sought. A studbook and studbook keeper will be needed as the population and program are developed. Target populations may be set for these programs as they develop.

Phase Out

Populations which exist in captivity in North America and have been historically managed but are no longer viable due to genetic, demographic, or capacity complications are designated as Phase Out programs. Existing studbooks for species so designated may be maintained to track the phase out process.

TAG Guidelines

Antelope and Giraffe Disposition Guidelines

The ethical disposition of antelope and giraffe from our institutions has been of paramount concern for managers. The AZA Antelope and Giraffe TAG has chosen to address this point from several angles:

1. The AZA Antelope and Giraffe TAG RCP identifies species for continued captive work. These recommended species reflect value to our institutions through their ability to educate the public, to generate interest and awareness concerning antelope and giraffe species, and to contribute to antelope and giraffe conservation. The RCP also recommends methods of management which allow captive antelope and giraffe populations to flourish and perpetuate in proportion with demand, space and animal visibility.
2. As these recommended captive antelope and giraffe management programs are implemented, training and education programs will be initiated. Program leaders are recommended to participate in training courses which create an understanding of captive population management in hopes of efficiently managing all future captive antelope and giraffe in our institutions. Education programs are being developed through the TAG which create an awareness of the successes, and describe the limitations, of our zoological programs, and are aimed toward our visitors and supporters.

Animal Disposition Task Force

The Antelope and Giraffe Advisory Group Animal Disposition Task Force was formed in 1996 to review institutional disposition policies and make recommendations to institutions concerning animal disposition policy, and antelope and giraffe disposition in particular. The disposition task force surveyed all antelope holding institution disposition policies, which indicated that antelope holding institutions have a wide range of policy coverage, from the most comprehensive, to policies which are considerably more open to interpretation. *Note: AZA Acquisition/Disposition Guidelines were developed in 2000.

While the Antelope and Giraffe Advisory Group recognizes the regional and institutional differences among antelope and giraffe holding institutions and the subsequent range of institutional policies, it is important that there be consistent, responsible methods of handling the transfer of animals among institutions, and especially when moving antelope and giraffe out of managed populations.

The Antelope and Giraffe Advisory Group recommends that each participating institution adopt the AZA standards for animal disposition as outlined under the AZA Code of Ethics. The disposition policy survey outlined the following elements which the Antelope and Giraffe Advisory Group feels are applicable to antelope and giraffe holding institutions and which are recommended for consideration and inclusion in all TAG participating institutions' animal disposition policies:

- A mission statement describing the roles, goals and activities of the institution.
- Language showing adherence to AZA's Code of Ethics.
- A written commitment to provide a high level of animal care.
- A statement on the rationales of deacquisitioning animals.
- A statement regarding compliance with all applicable state and federal regulations.
- A written position on the use of euthanasia as it relates to deacquisition of collection animals.
- A requirement for recipient profiles (definition of recipients for which profiles are required).
- Recipient screening information including:
 - o Does the recipient provide animals for hunting ranches?
 - o Does the recipient provide animals for auctions?
 - o Does the recipient provide animals for research? If yes, under what conditions?

Euthanasia

The Antelope and Giraffe TAG recognizes that euthanasia is a management tool that may be practiced by institutions as a means of managing population size and therefore program capacity and resources. The decision to utilize euthanasia as a management tool is at the discretion of the individual institution, and should follow the acquisition and disposition policy set by each institution, as outlined in the AZA Acquisition/Disposition Guidelines.

Non Member Partners

Many AZA antelope and giraffe programs work closely with non-AZA institutions and individuals to accomplish the goals of particular antelope and giraffe conservation programs. These are often mutually beneficial relationships and may be integral to the success of some programs. These non-AZA institutions often can provide resources unavailable in zoo environments due to the lack of spatial, exhibit and marketing constraints. The Antelope and Giraffe TAG encourages these partnerships within our programs and to our institutions and population managers, to address program capacity, sustainability, resources and conservation goals and priorities. The AZA Wildlife Conservation and Management Committee has developed guidelines for non-member participation in AZA SSP programs.

AZA Antelope and Giraffe Advisory Group
2005 Program Recommendations Summary
for
Antelope and Giraffes

Table 1. Antelope and Giraffe TAG Program Recommendations Summary, 2005.

Species	Program	Program Role	Target Population	Program Leader
Forest/Woodland Antelope Subgroup				
Eastern giant eland <i>Taurotragus derbianus gigas</i>	PMP	Conservation Support and Safety Net	75	Vacant
Western giant eland <i>Taurotragus derbianus derbianus</i>	ISF	<i>in situ</i> Focus	0	Steve Shurter The Wilds
Common eland <i>Taurotragus oryx spp.</i>	PMP	Education and Display	200 comb w/ Cape eland	Stephanie Dolly Zoo New England
Cape eland <i>Taurotragus oryx oryx</i>	PMP	Education and Display	200 comb w/ common eland	Stephanie Dolly Zoo New England
Lowland nyala <i>Tragelaphus angasii</i>	PMP	Education and Display	150	Mary Richards Disney's Animal Kingdom
Mountain nyala <i>Tragelaphus buxtoni</i>	ISF	<i>in situ</i> Focus	0	Martha Fischer Saint Louis Zoo
Eastern bongo <i>Tragelaphus eurycerus isaaci</i>	SSP	Conservation Support and Safety Net	250	Ron Surratt Forth Worth Zoo
Southern lesser kudu <i>Tragelaphus imberbis</i>	PMP	Education and Display	100	Bill Houston Saint Louis Zoo
Harnessed bushbuck <i>Tragelaphus scriptus scriptus</i>	Phase Out	n/a	0	n/a
Greater kudu <i>Tragelaphus strepsiceros</i>	PMP	Education and Display	281	Phillip Sigler Disney's Animal Kingdom
Sitatunga <i>Tragelaphus spekei</i>	PMP	Education and Display	75	Gil Myers Baltimore Zoo
Roan antelope <i>Hippotragus equines</i>	PMP	Education and Display	100	Andi Kornack Binder Park Zoo
Sable antelope <i>Hippotragus niger</i>	PMP	Education and Display	191 comb w/ Zambian sable	Jill Piltz Disney's Animal Kingdom
Zambian sable antelope <i>Hippotragus niger kirkii</i>	PMP	Conservation Link and Education	191 comb w/ sable antelope	Jill Piltz Disney's Animal Kingdom
Giant sable antelope <i>Hippotragus niger varianni</i>	ISF	<i>in situ</i> Focus	0	Sharon Joseph Houston Zoo
Impala <i>Aepyceros melampus</i>	DERP	Education and Display	150	Danielle Graham Disney's Animal Kingdom
Black-faced impala <i>Aepyceros melampus petersi</i>	ISF	<i>in situ</i> Focus	0	Sharon Joseph Houston Zoo

Species	Program	Program Role	Target Population	Program Leader
Springbok <i>Antidorcas marsupialis spp.</i>	Phase Out	n/a	0	Joe Christman Disney's Animal Kingdom
South African springbok <i>Antidorcas m. marsupialis</i>	PMP	Education and Display	75	Joe Christman Disney's Animal Kingdom
Blackbuck <i>Antilope cervicapra</i>	DERP	Education and Display	150	n/a
Southern gerenuk <i>Litocranius walleri walleri</i>	PMP	Conservation Link and Education	150	Robert Barnes Los Angeles Zoo
Dibatag <i>Ammodorcas clarkei</i>	ISF	<i>in situ</i> Focus	0	Martha Fischer Saint Louis Zoo
Nilgai <i>Boselaphus tragocamelus</i>	DERP	Education and Display	100	n/a
Saola <i>Pseudoryx nghetinhensis</i>	ISF	<i>in situ</i> Focus	0	Steve Shurter The Wilds
Small Antelope Subgroup				
Bay duiker <i>Cephalophus dorsalis</i>	Phase Out	n/a	0	Chris Pfefferkorn Oregon Zoo
Jentink's duiker <i>Cephalophus jentinki</i>	ISF	<i>in situ</i> Focus	0	Chris Pfefferkorn Oregon Zoo
Maxwell's duiker <i>Cephalophus maxwelli</i>	DERP	Education and Display	30	Program Leader Needed
Blue duiker <i>Cephalophus monticola</i>	PMP	Education and Display	75	Joe Roman Virginia Zoo
Ader's duiker <i>Cephalophus adersi</i>	ISF	<i>in situ</i> Focus	0	Chris Pfefferkorn Oregon Zoo
Black duiker <i>Cephalophus niger</i>	DERP	Education and Display	25	Chris Pfefferkorn Oregon Zoo
Red-flanked duiker <i>Cephalophus rufilatus</i>	PMP	Conservation Link and Education	75	Chris Pfefferkorn Oregon Zoo
Yellow-backed duiker <i>Cephalophus sylvicultor</i>	PMP	Conservation Link and Education	75	Linda Rohr Zoo New England
Abbott's duiker <i>Cephalophus spadix</i>	ISF	<i>in situ</i> Focus	0	Chris Pfefferkorn Oregon Zoo
Zebra duiker <i>Cephalophus zebra</i>	ISF	<i>in situ</i> Focus	0	Chris Pfefferkorn Oregon Zoo

Species	Program	Program Role	Target Population	Program Leader
Kenyan Guenther's dik dik <i>Madoqua guentheri smithi</i>	PMP	Education and Display	75	Diane Wilson Saint Louis Zoo
Kirk's dik dik <i>Madoqua kirkii</i>	PMP	Education and Display	75	Diane Wilson Saint Louis Zoo
Silver dik dik <i>Madoqua piacentinii</i>	ISF	<i>in situ</i> Focus	0	Chris Pfefferkorn Oregon Zoo
Suni <i>Neotragus moschatus</i>	Phase Out	n/a	0	n/a
Royal antelope <i>Neotragus pygmaeus</i>	Phase Out	n/a	0	n/a
Cotton's oribi <i>Ourebi ourebia</i>	NPR	n/a	0	n/a
Beira <i>Dorcatragus megalotis</i>	ISF	<i>in situ</i> Focus	0	Martha Fischer Saint Louis Zoo
Steinbok <i>Raphiceros campestris</i>	DERP	Education and Display	25	Program Leader Needed
Crowned duiker <i>Sylvicapra grimmia caffra</i>	Phase Out	n/a	0	n/a
Klipspringer <i>Oreotragus oreotragus</i>	PMP	Education and Display	85	Joe Christman Disney's Animal Kingdom
Hartebeest Subgroup				
Jackson's hartebeest <i>Alcelaphus buselaphus jacksoni</i>	PMP	Conservation Link and Education	50	Jeff Spratt St. Catherine's Island/WCS
Cape hartebeest <i>Alcelaphus buselaphus caama</i>	Phase Out	n/a	0	n/a
Swayne's hartebeest <i>Alcelaphus buselaphus swaynei</i>	ISF	<i>in situ</i> Focus	0	Martha Fischer Saint Louis Zoo
White-bearded wildebeest <i>Connochaetes taurinus spp.</i>	PMP	Education and Display	122	Sharon Joseph Houston Zoo
Bontebok <i>Damaliscus dorcas dorcas</i>	PMP	Conservation Support and Safety Net	150	Sam Berner Disney's Animal Kingdom
Blesbok <i>Damaliscus dorcas phillipsi</i>	Phase Out	n/a	0	Sam Berner Disney's Animal Kingdom
Hunter's hartebeest, Hirola <i>Damaliscus hunteri</i>	ISF	<i>in situ</i> Focus	0	Steve Shurter The Wilds

Species	Program	Program Role	Target Population	Program Leader
Topi <i>Damaliscus lunatus jiiimela</i>	DERP	Education and Display	35	Walter Dupree Disney's Animal Kingdom
Waterbuck Subgroup				
Common waterbuck <i>Kobus e. ellipsiprymnus</i>	PMP	Education and Display	150	Michelle Smurl Brevard Zoo
Defassa waterbuck <i>Kobus ellipsiprymnus defassa</i>	Phase Out	n/a	0	Michelle Smurl Brevard Zoo
Uganda kob <i>Kobus kob thomasi</i>	Phase Out	n/a	0	n/a
Red lechwe <i>Kobus leche</i>	Phase Out	n/a	0	n/a
Kafue lechwe <i>Kobus leche kafuensis</i>	Phase Out	n/a	0	n/a
Nile lechwe <i>Kobus megaceros</i>	PMP	Conservation Link and Education	200	Matt Hohne Disney's Animal Kingdom
Rhebok <i>Pelea capreolus</i>	PMP	Education and Display	50	Program Leader Needed
Western mountain reedbuck <i>Redunca fulvorufla adamauae</i>	ISF	<i>in situ</i> Focus	0	Randy Rieches SDWAP
Aridland Antelope, Gazelles and Pronghorn Subgroup				
Addax <i>Addax nasomaculatus</i>	SSP	Conservation Support and Safety Net	200	Bill Houston Saint Louis Zoo
Scimitar-horned oryx <i>Oryx dammah</i>	SSP	Conservation Support and Safety Net	250	Ed Spevak Cincinnati Zoo
Gemsbok <i>Oryx gazella gazella</i>	PMP	Education and Display	75	Anita Schanberger Dallas Zoo
Beisa oryx <i>Oryx gazella beisa</i>	Phase Out	n/a	0	Anita Schanberger Dallas Zoo
Fringe-eared oryx <i>Oryx gazella callotis</i>	PMP	Education and Display	85	Anita Schanberger Dallas Zoo
Arabian oryx <i>Oryx leucoryx</i>	SSP	Conservation Support and Safety Net	200	Jerry Brown Disney's Animal Kingdom
Cuvier's gazelle <i>Gazella cuvieri</i>	PMP	Conservation Support and Safety Net	125	Wendy Enright The Living Desert
Addra gazelle <i>Gazella dama ruficollis</i>	SSP	Conservation Support and Safety Net	200	Ed Spevak Cincinnati Zoo

Species	Program	Program Role	Target Population	Program Leader
Mhorr gazelle <i>Gazella dama mhorr</i>	SSP	Conservation Support and Safety Net	100	Ed Spevak Cincinnati Zoo
Dorcas gazelle <i>Gazella dorcas</i>	Phase Out	n/a	0	Andrea DeMuth Busch Gardens
Grant's gazelle <i>Gazella granti</i>	PMP	Education and Display	100	Joe Devlin Busch Gardens
Thomson's gazelle <i>Gazella thomsonii spp.</i>	PMP	Education and Display	175	Jeff Andrews SDWAP
Slender-horned gazelle <i>Gazella leptoceros</i>	SSP	Conservation Support and Safety Net	150	Candice Weber The Living Desert
Nubian red-fronted gazelle <i>Gazella rufifrons laevipes</i>	Phase Out	n/a	0	n/a
Nubian soemmerring's gazelle <i>Gazella s. soemmerringii</i>	PMP	Conservation Link and Education	75	Jennifer Johnson The Living Desert
Speke's gazelle <i>Gazella spekei</i>	PMP	Conservation Link and Education	70	Martha Fischer Saint Louis Zoo
Saudi goitered gazelle <i>Gazella subgutturosa marica</i>	Phase Out	n/a	0	n/a
Persian gazelle <i>Gazella subgutturosa</i>	Phase Out	n/a	0	n/a
Pronghorn <i>Antilocapra americana</i>	DERP	Conservation Link and Education	150	Jeff Holland Los Angeles Zoo
Peninsular pronghorn <i>Antilocapra a. peninsularis</i>	ISF	<i>in situ</i> Focus	0	Jeff Holland Los Angeles Zoo
Sonoran pronghorn <i>Antilocapra a. sonoriensis</i>	ISF	<i>in situ</i> Focus	0	Jeff Holland Los Angeles Zoo
Saiga, Russian and Mongolian <i>Saiga tatarica spp.</i>	ISF	<i>in situ</i> Focus	0	Steve Shurter The Wilds
Tibetan antelope <i>Pantholops hodgsonii</i>	ISF	<i>in situ</i> Focus	0	Steve Shurter The Wilds
Przewalski's gazelle <i>Procapra przewalskii</i>	ISF	<i>in situ</i> Focus	0	Steve Shurter The Wilds
Giraffe/Okapi Subgroup				
Masai giraffe <i>Giraffa c. tippleskirchii</i>	PMP	Education and Display	150	Laurie Bingaman Lackey ISIS

Species	Program	Program Role	Target Population	Program Leader
Giraffe, retic/roth complex <i>Giraffe camelopardalis spp</i>	PMP	Education and Display	300 combined	Laurie Bingaman Lackey ISIS
Okapi <i>Okapia johnstonii</i>	SSP	Conservation Support and Safety Net	200	Ann Petric Brookfield Zoo

Forest/Woodland Antelope Subgroup Program Summary

Vice Chair: Sharon Joseph, Houston Zoo, sjoseph@houstonzoo.org

Species	Score	Level	Target	Current
Eastern bongo, <i>Tragelaphus eurycerus isaaci</i>	17	SSP	250	171
Southern renek, <i>Litocranius walleri walleri</i>	12.5	PMP	150	67
Greater kudu, <i>Tragelaphus strepsiceros</i>	12	PMP	281	162
E. giant eland, <i>Taurotragus derbianus gigas</i>	11	PMP	75	52
Lowland nyala, <i>Tragelaphus angasii</i>	11	PMP	150	113
Sable antelope, <i>Hippotragus spp.</i>	11	PMP	191 (all spp)	123
Zambian sable antelope, <i>H. n. kirkii</i>				9
Impala, <i>Aepyceros melampus spp.</i>	10.5	DERP	150	201
Impala, <i>A. m. rendilis</i>				51
Common eland, <i>Taurotragus oryx spp.</i>	10	PMP	200 (all spp)	287
Patterson's eland, <i>T. o. pattersonianus</i>				
Cape eland, <i>T. o. oryx</i>	9			
Southern lesser kudu, <i>Tragelaphus imberbis</i>	10	PMP	100	74
Sitatunga, <i>Tragelaphus spekei</i>	9	PMP	75	65
Springbok, <i>Antidorcas marsupialis spp.</i>	9	PMP	75 (all spp)	69
South African springbok, <i>A. m. marsupialis</i>	8.5			
Angolan springbok, <i>A. m. angolensis</i>				
Roan antelope, <i>Hippotragus equinus spp.</i>	8.5	PMP	100	39
Angolan roan antelope, <i>H. e. cottoni</i>				58
Blackbuck, <i>Antelope cervicapra</i>	11.5	DERP	150	317
Nilgai, <i>Boselaphus tragocamelus</i>	9.5	DERP	100	92
Western bushbuck, <i>Tragelaphus s. scriptus</i>	5	P/O	0	8
W. giant eland, <i>Taurotragus d. derbianus</i>	-	ISF	n/a	n/a
Giant sable, <i>Hippotragus niger varianni</i>	-	ISF	n/a	n/a
Black-faced impala, <i>Aepyceros melampus</i>	-	ISF	n/a	n/a
Mountain nyala, <i>Tragelaphus buxtoni</i>	-	ISF	n/a	n/a
Dibatag, <i>Ammodorcas clarkei</i>	-	ISF	n/a	n/a
Saola, <i>Pseudoryx nghetinhensis</i>	-	ISF	n/a	n/a

SPECIES:	Eastern bongo <i>Tragelaphus eurycerus isaaci</i> (Ogilby, 1837)
PROGRAM:	Species Survival Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA POPULATION: 92.134.2 (228) in 60 institutions
(International Studbook 2005)

NA MANAGED POPULATION: 64.107 (171) in 42 institutions
(SSP 2004)

PROGRAM STATUS:

INTERNAT'L STUDBOOK KEEPER: Lydia Frasier-Bosley
lfbosley@earthlink.net

SSP COORDINATOR: Ron Surratt, Fort Worth Zoo
rsurratt@fortworthzoo.org

MANAGEMENT PLAN: 2004 SSP

SPMAG ADVISOR: Bob Weise, Fort Worth Zoo
bweise@fortworthzoo.org

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Endangered/B1+2b

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 65.119.1 (185) in 43 institutions

OTHER: 11.12 (23) in 8 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Ron Surratt, Fort Worth Zoo

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 17

PROGRAM GOALS: Retain 85% gene diversity for 100 years

Population target: 250

Population characteristics: GD 94.2%, 33 founders, Growth rate 1.125, Ne/N 0.26, Generation length 6.3 yrs

Date of masterplan: 2004

Comments: All bongo in North America are of known origin and should be reported to ISIS as Eastern bongo by holding institutions. This program was upgraded to SSP status in the last iteration of the RCP, based on the conservation status of the species, in order to optimize long-term management of the captive population and to establish links with *in situ* programs. A repatriation project for bongo in the Mt. Kenya area was completed in 2004 and 4.16 animals from the NA captive population were reintroduced. The Mt. Kenya Bongo Project continues with plans for additional transfers of bongo breeding stock and continued technical and logistical support to ultimately return bongo to the forests of Mt. Kenya.

SPECIES:	Southern gerenuk <i>Litocranius walleri walleri</i> (Brooke, 1879)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education

NA MANAGED POPULATION: 25.42 (67) in 15 institutions
(NA Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Bob Barnes
rbarnes@zoo.lacity.org

MANAGEMENT PLAN: 2004 PMP

SPMAG ADVISOR: Cathleen Cox, Los Angeles Zoo
coxbain@earthlink.net

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present

OTHER: 10.11 (21) in 1 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: **12.5**

PROGRAM GOALS: Retain 80% gene diversity for 25 years

Population target: 150

Population characteristics: GD 87.5%, 16 founders, Growth rate 1.047, Ne/N 0.35, Generation length 5.0 yrs

Date of masterplan: 2004

Comments: All gerenuk in North America are of the Southern species (*Litocranius walleri walleri*) and should be reported to ISIS as such. White Oak Conservation Center has conducted some research on aggression reduction in bachelor groups of gerenuk and is currently researching assisted reproduction techniques including: semen collection, gamete storage and artificial insemination. WOCC is also seeking solutions to the permitting issues involved with the importation of biomaterials from range countries, an issue that is likely to have implications for a number of antelope species.

SPECIES:	Greater kudu <i>Tragelaphus strepsiceros</i> (Pallas, 1766)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA POPULATION: 77.152.10 (239) in 39 institutions (ISIS 2005)
NA MANAGED POPULATION: 61.101 (162) in 42 institutions (PMP 2004)

PROGRAM STATUS:

PROGRAM LEADER: Phillip Sigler, Disney's Animal Kingdom
Phillip.sigler@disney.com

MANAGEMENT PLAN: 2004 PMP

SPMAG ADVISOR: Joe Christman, Disney's Animal Kingdom
Joseph.christman@disney.com

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 39.76 (115) in 23 institutions (*T. strepsiceros*)
11.11 (22) in 8 institutions (*T. s. strepsiceros*)

OTHER: 10.22.2 (34) in 6 institutions (*T. strepsiceros*)
0.0.40 (40) in 1 institution (*T. s. strepsiceros*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 12

PROGRAM GOALS: Retain 80% gene diversity for 100 years

Population target: 281

Population characteristics: GD 94.7%, 47 founders, Growth rate 1.136, Ne/N 0.21, Generation length 5.5 yrs

Date of masterplan: 2004

Comments: A combined studbook for both forms (*T. strepsiceros* and *T. s. strepsiceros*) is recommended, maintaining sub-specific designations for those specimens for which it is known. The managed population has been reduced to include only those animals with 50% or more known pedigree. This will allow maintenance of 80% gene diversity over 100 years.

SPECIES:	Eastern giant eland <i>Taurotragus derbianus gigas</i> (Gray, 1847)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA POPULATION: 24.28 (52) in 7 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: Vacant
MANAGEMENT PLAN: Not yet completed
SPMAG ADVISOR: Bob Wiese, Fort Worth Zoo
bob@fortworthzoo.org

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present; acquisition of the more endangered
Western giant eland proposed
OTHER: 0.6 (6) in 2 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 11

PROGRAM GOALS: No available analysis information

Population target: 75 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure, if necessary.)

Population characteristics: No available analysis information

Date of masterplan: Not yet completed

Comments: Recruitment of additional institutions is critical to the long-term management of this species in North America. Founder recruitment is strongly encouraged. Husbandry research is needed for this species, particularly with regards to nutrition.

SPECIES:	Lowland nyala <i>Tragelaphus angasii</i> (Gray, 1849)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 32.77.4 (113) in 20 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Mary Richards, Disney's Animal Kingdom
mary.e.richards@disney.com

MANAGEMENT PLAN: Not yet completed, in process, see comments*
SPMAG ADVISOR: Joe Christman, Disney's Animal Kingdom
Joseph.christman@disney.com

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 47.75.16 (138) in 19 institutions

OTHER: 17.43.158 (216) in 7 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 11

PROGRAM GOALS: Analysis information not yet available, in process, see comments*

Population target: 150 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

Population characteristics: To be determined, in process, see comments*

Date of masterplan: Not yet completed

Comments: In recent years, captive breeding of lowland nyala has decreased dramatically and this species is currently in demand. Developing models and guidelines for the management of bachelor herds is a priority.

*Population management of this population is crucial. Unfortunately, this population is challenged by a high number of animals with unknown ancestry and more research into the ancestry is needed before more meaningful population analysis can be performed.

SPECIES:	Sable antelope <i>Hippotragus niger</i> (Harris, 1838) Zambian sable antelope <i>Hippotragus niger kirkii</i>
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA POPULATION: 29.93.1 (123) in 24 institutions, *H. niger* (NA Studbook 2005)
1.8 (9) in 1 institution, *H. n. kirkii* (pers. comm. San Diego Zoo 2005)

PROGRAM STATUS:

PROGRAM LEADER: Jill Piltz, Disney's Animal Kingdom
jill.m.piltz@disney.com
MANAGEMENT PLAN: 2005 PMP
SPMAG ADVISOR: Joe Christman, Disney's Animal Kingdom
Joseph.christman@disney.com

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 43.58.2 (103) in 18 institutions (*H. niger*)
16.23 (39) in 10 institutions (*H. n. niger*)
OTHER: 16.17.3 (36) in 8 institutions (*H. niger*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 11

PROGRAM GOALS: Retain 80% gene diversity for 100 years

Population target: 191

Population characteristics: GD 94.37%, 41 founders, Growth rate 1.0738, Ne/N 0.26, Generation length 7 yrs

Date of masterplan: 2005

Comments: It is thought that all the specimens in the North American captive population of sable antelope are of the South African variety, with the exception of Zambian sable antelope at the San Diego Zoo. A large number of sable antelope being held in private hands are not included in the managed population numbers above. There is currently a shortage of breeding males (many males have been sterilized), and a need to transfer males among breeding institutions in order to stimulate the production of calves. Current taxonomic analysis of wild sable populations may necessitate re-evaluation of captive program taxonomic designation.

SPECIES:	Impala <i>Aepyceros melampus</i> (Lichtenstein, 1812)
PROGRAM:	Display/Education/Research Population
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 49.115.37 (201) in 20 institutions, *A. melampus* (ISIS 2005)
20.31 (51) in 10 institutions, *A. m. rendilis* (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: Danielle Graham, Disney's Animal Kingdom
danielle.graham@disney.com
MANAGEMENT PLAN: Not yet completed, in process, see comments*
SPMAG ADVISOR: PMC

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower Risk/Conservation Dependent (*A. melampus*); Vulnerable/D1 (*A. m. petersi*)

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 43.131 (174) in 14 institutions (*A. melampus*)
4.10 (14) in 2 institutions (*A. m. petersi*)
OTHER: 6.3 (9) in 4 institutions (*A. melampus*)
5.12 (17) in 2 institution (*A. m. petersi*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: **10.5**

PROGRAM GOALS: Analysis not yet completed, in process, see comments*

Population target: 150

Population characteristics: Growth rate 1.017, Generation length 6.4 yrs, % with known pedigree = 1.43

Date of masterplan: Population analysis performed in January 2002. However, no masterplan produced due to outstanding issues with characterizing the population. See comments*.

Comments: It is recommended to continue the studbook, maintaining subspecific designations for specimens for which it is known. *Unfortunately, this population is challenged by a high number of animals with unknown ancestry and more research into the ancestry is needed before more meaningful population analysis can be performed.

SPECIES:	Common eland <i>Taurotragus oryx spp.</i> (Pallas, 1766) Cape eland <i>Taurotragus oryx oryx</i>
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 86.181.20 (287) in 33 institutions (NA Studbook 2003)

PROGRAM STATUS:

PROGRAM LEADER: Stephanie Dolly
Ruggles214@mindspring.com

MANAGEMENT PLAN: Not yet completed

A & G TAG ADVISOR: Laurie Bingaman Lackey, ISIS
Giraffe3@bellsouth.net

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 94.180.30 (283) in 55 institutions (*T. oryx*)
10.25 (35) in 3 institutions (*T. o. oryx*)

OTHER: 52.87.22 (161) in 13 institutions (*T. oryx*)
2.3 (5) in 1 institution (*T. o. oryx*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: *Taurotragus oryx spp.* **10**
Taurotragus oryx oryx **9**

PROGRAM GOALS: No available analysis information

Population target: 200, combined for all subspecies (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure, if necessary.)

Population characteristics: No available analysis information

Date of masterplan: Not yet completed

Comments: A combined program for all eland is recommended. After compilation of the studbook and analysis of the population, the decision to manage a single subspecies of a generic population may be made with greater confidence.

SPECIES:	Southern lesser kudu <i>Tragelaphus imberbis australis</i> (Blyth, 1869)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 29.44.1 (74) in 13 institutions (NA Studbook 2004)

PROGRAM STATUS:

NA REGIONAL STUDBOOK KEEPER: Melissa Miller, Saint Louis Zoo
lesserkudustudbook@stlzoo.org

POPULATION MANAGER: Bill Houston, Saint Louis Zoo
Houston@stlzoo.org

MANAGEMENT PLAN: 2004 PMP

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 20.45.1 (66) in 7 institutions

OTHER: 1.2 (3) in 1 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 10

PROGRAM GOALS: Retain 80% gene diversity for 100 years

Population target: 100

Population characteristics: GD 81.96%, 13 founders, Growth rate 1.0718, Ne/N 0.2803, Generation length 6.13 yrs

Date of masterplan: 2004

Comments: All lesser kudu are of known origin and should be designated as southern lesser kudu, *Tragelaphus imberbis australis*, in ISIS. This population is highly inbred but has grown rapidly over the last seven years. Lesser kudu are relatively easy to manage and mix well with other species. There are 13 founders, but the effective founder number is less than four. Additional institutions are sought for the long-term captive management of this species. Recruitment of additional founders is encouraged.

SPECIES:	Sitatunga <i>Tragelaphus spekei</i> (Sclater, 1863)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA POPULATION: 28.32.5 (65) in 14 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: Gil Myers, Baltimore Zoo
gmyersbaltzoo@aol.com

MANAGEMENT PLAN: Not yet completed
SPMAG advisor: Advisor needed

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 13.16.3 (36) in 12 institutions (*T. spekei*)
94.190.15 (299) in 37 institutions (*T. s. gratus*)

OTHER: 3.4 (7) in 2 institutions (*T. s. spekei*)
10.17.2 (29) in 5 institutions (*T. spekei*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9

PROGRAM GOALS: No available analysis information

Population target: 75 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

Population characteristics: No available analysis information

Date of masterplan: Not yet completed

Comments: Establishment of appropriate breeding groups will be needed upon completion of the studbook and analysis of the population. Taxonomic clarification of the population is needed and compilation of the studbook may help in this regard.

SPECIES:	Springbok <i>Antidorcas marsupialis</i> spp (Zimmerman, 1780)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 29.39.1 (69) all forms in 11 institutions (NA Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Joseph Christman, Disney's Animal Kingdom
joseph.christman@disney.com

MANAGEMENT PLAN: 2005 PMP

SPMAG ADVISOR: Joseph Christman, Disney's Animal Kingdom
Joseph.christman@disney.com

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 40.57.1 (98) in 15 institutions (*A. marsupialis*)

OTHER: 9.7 (16) in 3 institutions (*A. m. angolensis*)

12.23.85 (120) in 4 institutions (*A. m. marsupialis*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: *Antidorcas marsupialis* spp. **9**
A. m. marsupialis **8.5**

PROGRAM GOALS: Retain 60% gene diversity for 50 years

Population target: 75 combined for 3 subspecies

Population characteristics: GD 84.5%, 11 founders + 4 potential, Growth rate 1.158, Ne/N 0.22, Generation length 4.2 yrs

Date of masterplan: 2005

Comments: A combined studbook for all three forms of springbok is recommended, maintaining subspecific designations for those specimens for which they are known.

SPECIES:	Roan antelope <i>Hippotragus equinus</i> (Desmarest, 1804) Angolan roan antelope <i>Hippotragus equinus cottoni</i>
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA POPULATION: 13.24.2 (39) in 8 institutions, *H. equinus* (ISIS 2005)
21.37 (58) in 9 institutions, *H. e. cottoni* (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: Andi Kornak, Binder Park Zoo
akornak@binderparkzoo.org
MANAGEMENT PLAN: Not yet completed
SPMAG ADVISOR: Advisor needed

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 20.40 (60) in 11 institutions (*H. equinus*)
0.2 (2) in 1 institution (*H. e. bakeri*)
2.2 (4) in 1 institution (*H. e. langheldi*)
OTHER: 6.10.1 (17) in 2 institutions (*H. equinus*)
2.1 (3) in 1 institution (*H. e. koba*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 8.5

PROGRAM GOALS: No analysis information available

Population target: 100 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

Population characteristics: No analysis information available

Date of masterplan: Not yet completed

Comments: A program that replaces the generic roan antelope population with *H. e. cottoni* is preferable, but the poor outlook for the acquisition of additional founder animals may dictate the continued management of a generic population.

SPECIES:	Blackbuck <i>Antelope cervicapra</i> (Linnaeus, 1758)
PROGRAM:	Display/Education/Research Population
PROGRAM ROLE AND PURPOSE:	Education and Display

NA POPULATION: 93.159.65 (317) in 20 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: n/a

MANAGEMENT PLAN: n/a

SPMAG ADVISOR: n/a

WILD POPULATION STATUS:

CITES: Appendix III (Nepal)

IUCN: Vulnerable/A1c

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 161.301.37 (499) in 49 institutions

OTHER: 60.111.22 (193) in 12 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 11.5

PROGRAM GOALS: n/a

Population target: 150 (This population target is an estimate based on Steering Committee's knowledge of this species and the space survey responses indicating institutional interest and space available.)

Population characteristics: n/a

Date of masterplan: n/a

Comments: It is estimated that there are more than 30,000 blackbuck in private hands and feral populations in the southwest United States. The future potential need for a managed captive population of blackbuck as a hedge against diminishing numbers in the wild is of minimal value. However, the species is an important antelope representative of Asian ecosystems and therefore has a strong educational component. The species is popular and easily managed in captivity; however there are significant untraceable unknowns in the historic population database preventing detailed analysis and traditional management of the current population. Maintaining the blackbuck population in North American zoos warrants monitoring population trends as a Display/Education/Research Population. Recruitment of animals from outside the AZA captive population may be possible as the need is demonstrated.

SPECIES:	Nilgai <i>Boselaphus tragocamelus</i> (Pallas, 1766)
PROGRAM:	Display/Education/Research Population
PROGRAM ROLE AND PURPOSE:	Education and Display

NA POPULATION: 40.51.1 (92) in 17 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: n/a

MANAGEMENT PLAN: n/a

SPMAG ADVISOR: n/a

WILD POPULATION STATUS:

CITES: Not Listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 62.149.7 (218) in 35 institutions

OTHER: 39.39.11 (89) in 14 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9.5

PROGRAM GOALS: n/a

Population target: 100 (This population target is an estimate based on Steering Committee's knowledge of this species and the space survey responses indicating institutional interest and space available.)

Population characteristics: n/a

Date of masterplan: n/a

Comments: It is estimated that there are tens of thousands of nilgai in private hands and feral populations in the southwest United States. The future potential need for a managed captive population of nilgai as a hedge against diminishing numbers in the wild is of minimal value. However, the species is an important antelope representative of Asian ecosystems and therefore has a strong educational component. The species is popular and easily managed in captivity; however there are significant untraceable unknowns in the historic population database preventing detailed analysis and traditional management of the current population. Maintaining the nilgai population in North American zoos warrants monitoring population trends as a Display/Education/Research Population. Recruitment of animals from outside the AZA captive population may be possible as the need is demonstrated.

SPECIES:	Western bushbuck <i>Tragelaphus scriptus scriptus</i> (Pallas, 1766)
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	None

NA POPULATION: 3.5 (8) in 2 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: n/a
MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:

CITES: Not Listed
IUCN: Not Listed

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: 6.9.21 (36) in 3 institutions (*T. scriptus*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: n/a
AZA ANTELOPE CARE STANDARDS: n/a

SPECIES SELECTION PROCESS SCORE: 5

PROGRAM GOALS: n/a

Population target: 0

Population characteristics: n/a

Date of masterplan: n/a

Comments: Captive management of this species has long been problematic due to challenging behavior and husbandry issues. The remaining population is genetically and demographically compromised. The bushbuck program is recommended to be phased out due to low conservation priority.

Forest/Woodland Antelope Subgroup *in situ* Focus Species

Western Giant Eland *Taurotragus derbianus derbianus* (Gray, 1847)
Range: Senegal, Mali, Guinea **Wild population estimate:** <200?

Lord Derby's eland has continued to decline in Senegal. This species still occurs in Mali and Guinea, but the wild population numbers remaining in these countries are unknown. Large seasonal home ranges place the giant eland in further jeopardy as they move out of protected areas such as Niokola Koba National Park. Hunting and habitat loss due to agriculture and herders contribute to the species' demise. Very little actual protection is afforded the species and numbers continue to decline. A captive program has been initiated in the Bandia Reserve in Senegal by concerned members of the private sector. A conservation action plan is desperately needed to help conserve the remaining wild population. Technical and financial support is needed in these endeavors.

For information on how to become involved, contact Steve Shurter,
sshurter@thewilds.org

Mountain nyala *Tragelaphus buxtoni* (Lydekker, 1910)
Range: Ethiopia **Wild population estimate:** >2500

Bale Mountain National Park is a reserve representing a portion of the Afro-Alpine flora of the region. The mountain nyala is endemic to the area and a population survives inside the park, as well as in external areas. Little protection is afforded the species, despite the protected status. No management plan or conservation program has been developed for the mountain nyala and little is known of its natural history or biology, however hunting permits continue to be issued to take animals in Ethiopia. An *in situ* captive program may be warranted but it is unlikely that animals would be made available outside Ethiopia. As an endemic monotypic species this is a critically important population which deserves conservation focus and support, and which requires further research to understand the ecology of the species.

For information on how to become involved, contact Martha Fischer,
fischer@stlzoo.org

Giant sable antelope *Hippotragus niger varianni* (Harris, 1838)
Range: Angola **Wild population estimate:** >250

Disputes of the validity of this sub-species as compared with *H. n. niger* and *H. n. bakeri* continue. Historic hunting records indicate the species to have the largest horns of any sable, whether from environmental conditions or genetic variation. The giant sable lives in unique woodland areas in Angola and the remaining population is not within designated protected areas. Years of civil war have prevented accurate surveys and the remaining giant sable are known to be low in number but without accurate information. No captive program for the sub-species is known to exist. A conservation program for the species may be developed by the government of Angola. This is a priority species of

the Antelope Specialist Group and requires conservation measures to insure their survival.

For information on how to become involved, contact Sharon Joseph, sjoseph@houstonzoo.org

Black-faced impala

Range: Angola, Namibia

Aepyceros melampus petersi (Lichtenstein, 1812)

Wild population estimate: >2200

This striking sub-species of impala is considered highly threatened though it is afforded protection and is managed in both the private and government lands in range states. A captive program was attempted in North America but was not successful. Conservation support and additional captive programs may be warranted to assist the species.

For information on how to become involved, contact Sharon Joseph, shoseph@houstonzoo.org

Dibatag

Range: Ethiopia, Djibouti

Ammodorcas clarkei (Thomas, 1891)

Wild population estimate: unknown

A unique antelope from the Horn of Africa, the dibatag lives in evergreen woodland regions under heavy pressure from domestic herders and from poaching. Surveys have been conducted in the Ogaden Region in Ethiopia, however civil unrest has made accurate assessment of the remaining population challenging. Little is known of the biology or natural history of this monotypic species of antelope or of the remaining wild population. No conservation management is in place in the range states and efforts should be invested towards increasing the base of knowledge for the species. Technical and financial support is warranted towards these conservation objectives. It is unknown whether this species is held in captivity (Middle East?) however a captive program may be warranted to assist conservation goals.

For information on how to become involved, contact Martha Fischer, fischer@stlzoo.org

Saola

Range: Vietnam, Laos

Pseudoryx nghetinhensis (MacKinnon, 1993)

Wild population estimate: <2500

The recently discovered saola lives in montane forests of western Vietnam and eastern Laos in the Annamite Range. Little is known of its biology or natural history and a small population is believed to be living in the region. Protected areas are available to the species in both range countries and it has become a priority conservation species since its discovery. Captive management of the species was attempted in Vietnam and in Laos but was not successful. Support for scientific and conservation efforts for the species is recommended.

For information on how to become involved, contact Steve Shurter, sshurter@thewilds.org

Small Antelope Subgroup Program Summary

Vice Chair: *Chris Pfefferkorn, Oregon Zoo, pfefferkornc@metro.dst.or.us*

Species	Score	Level	Target	Current
Klipspringer, <i>Oreotragus oreotragus spp</i>	11	PMP	85	48
Yellow-backed duiker, <i>Cephalophus sylvicultor</i>	10	PMP	75	64
Guenther's dik dik, <i>Madoqua guentheri</i>	9.5	PMP	75	38
Kirk's dik dik, <i>Madoqua kirkii</i>	9.5	PMP	75	37
Blue duiker, <i>Cephalophus monticola</i>	9.5	PMP	75	44
Red-flanked duiker, <i>Cephalophus rufilatus</i>	9	PMP	75	44
Bay duiker, <i>Cephalophus dorsalis</i>	8.5	P/O	0	14
Black duiker, <i>Cephalophus niger</i>	8.5	DERP	25	16
Suni, <i>Neotragus moschatus</i>	7.5	P/O	0	8
Maxwell's duiker, <i>Cephalophus maxwelli</i>	7	DERP	30	10
Steinbok, <i>Raphiceros campestris</i>	6.5	DERP	25	21
Royal antelope, <i>Neotragus pygmaeus</i>	6.5	P/O	0	11
Crowned duiker, <i>Sylvicapra grimmia caffra</i>	6	P/O	0	9
Cotton's oribi, <i>Ourebi ourebia</i>	5	NPR	n/a	0
Silver dik dik, <i>Madoqua piacentinii</i>	-	ISF	n/a	n/a
Abbott's duiker, <i>Cephalophus spadix</i>	-	ISF	n/a	n/a
Jentink's duiker, <i>Cephalophus jentinki</i>	-	ISF	n/a	n/a
Zebra duiker, <i>Cephalophus zebra</i>	-	ISF	n/a	n/a
Ader's duiker, <i>Cephalophus adersi</i>	-	ISF	n/a	n/a
Beira, <i>Dorcatragus megalotis</i>	-	ISF	n/a	n/a

SPECIES:	Klipspringer <i>Oreotragus oreotragus</i> spp (Zimmerman, 1783)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 27.21 (48) in 17 institutions (NA Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Joseph Christman, Disney's Animal Kingdom
joseph.christman@disney.com

MANAGEMENT PLAN: 2005 PMP

SPMAG ADVISOR: Joseph Christman, Disney's Animal Kingdom
Joseph.christman@disney.com

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent
(*O. o. porteousi* listed as endangered)

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 1.2 (3) in 2 institutions (*O. oreotragus*)
6.2 (8) in 2 institutions (*O. o. saltatrixoides*)

OTHER: 0.0.5 (5) in 1 institution (*O. oreotragus*)
0.0.1 (1) in 1 institutions (*O. o. oreotragus*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 11

PROGRAM GOALS: Retain 70% gene diversity for 50 years, pursue the importation of new founders

Population target: 85

Population characteristics: GD 82.6%, 8 founders, Growth rate 1.042, Ne/N 0.3, Generation length 6.8 yrs

Date of masterplan: 2005

Comments: Importation of new founders is encouraged, however, the current population can be maintained if carefully managed. If founders are imported, it is recommended to develop a second parallel population to be integrated with the current population as appropriate.

SPECIES:	Yellow-backed duiker <i>Cephalophus sylvicultor</i> (Afzelius, 1815)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education

NA MANAGED POPULATION: 32.29.3 (64) in 24 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Linda Rohr, Zoo New England
lrohr@zoonewengland.com

MANAGEMENT PLAN: 2005 PMP
SPMAG ADVISOR: Colleen Lynch, PMC
clynch@lpz.org

WILD POPULATION STATUS:

CITES: Appendix II
IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS:

EUROPE: 5.3 (8) in 4 institutions (pers. comm. L. Rohr, 2005)
OTHER: Not present (ISIS 2005)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Zoological Society of San Diego
Gloria Kendall
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: **10**

PROGRAM GOALS: Retain 72% gene diversity for 100 years, pursue the importation of new founders

Population target: 75

Population characteristics: GD 88.97%, 12 founders, Growth rate 1.06, Generation length 7.87 years

Date of masterplan: 2005

Comments: Recruitment of additional holding institutions and founders is encouraged.

SPECIES:	Kenyan Guenther's dik dik <i>Madoqua guentheri smithi</i> (Thomas, 1894)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 14.23.1 (38) at 18 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Diane Wilson, Saint Louis Zoo
dwilson@stzoo.org

MANAGEMENT PLAN: Not yet completed, in process
SPMAG ADVISOR: Sarah Long, PMC
slong@lpzoo.org

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9.5

PROGRAM GOALS: Retain 46% gene diversity for 100 years

Population target: 75

Population characteristics: GD 81.67%, 7 founders, Growth rate 1.04, Ne/N 0.25, Generation length 4.29 years

Date of masterplan: Not yet completed, in process

Comments: Importation of new founders is important in support of the long term program. Additional participating institutions will be needed in the future.

SPECIES:	Kirk's dik dik <i>Madoqua kirkii</i> (Guenther, 1880)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 15.22 (37) at 15 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Diane Wilson, Saint Louis Zoo
dwilson@stzoo.org

MANAGEMENT PLAN: Not yet completed, in process
SPMAG ADVISOR: Sarah Long, PMC
slong@lpzoo.org

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 26.34 (60) in 16 institutions
OTHER: 1.3.2 (6) in 1 institution

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9.5

PROGRAM GOALS: Retain 48% gene diversity for 100 years

Population target: 75

Population characteristics: GD 86.38%, 17 founders, Growth rate 1.04, Ne/N 0.315, Generation length 4.5 years

Date of masterplan: Not yet completed, in process

Comments: Importation of new founders is important in support of the long term program. Additional participating institutions will be needed in the future.

An additional genetic issue in this population is the possible existence of different cytotypes. Studies have found that breeding individuals with different cytotypes (specifically, different chromosome numbers) could produce sterile offspring (Ryder *et al* 1989). Assuming descendants of animals have the same cytotype as their ancestors, most individuals in the living population would be Type A, having 46 chromosomes. However, some individuals in the living population are of unknown origin and therefore their cytotypes remain unknown. The PMP recommends that institutions holding these "unknown" animals submit blood samples for testing (details to be outlined in the 2005 Population Management Plan, in prep). Until the cytotypes are determined, these "unknown" animals are not recommended to breed.

SPECIES:	Blue duiker <i>Cephalophus monticola</i> (Thomas, 1789)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 24.19.1 (44) at 16 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Joseph Roman, Virginia Zoo
Joseph.roman@norfolk.gov

MANAGEMENT PLAN: 2004 PMP

A & G TAG ADVISOR: Laurie Bingaman Lackey, ISIS
Giraffe3@bellsouth.net

WILD POPULATION STATUS:

CITES: Appendix II

IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 3.4 (7) in 4 institutions (*C. monticola*)
0.4 (4) in 2 institutions (hybrids)
8.12 (20) in 2 institutions (*C. m. schultzei*)

OTHER: 1.3 (4) in 1 institution (*C. monticola*)
14.15.1 (30) in 4 institutions (*C. m. bicolor*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Found in the March 15, 2002 Bay, Black and Red-flanked Duiker studbook

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9.5

PROGRAM GOALS: Retain 84% gene diversity for 20 years

Population target: 75

Population characteristics: GD 92.1%, 98.5% pedigree known, 27 founders, Growth rate 1.032, Ne/N 0.48, Generation length 5.0 years

Date of masterplan: 2004

Comments: Importation of new founders is important in support of the long term program.

SPECIES:	Red-flanked duiker <i>Cephalophus rufilatus</i> (Gray, 1846)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education

NA MANAGED POPULATION: 27.17 (44) in 14 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Chris Pfefferkorn, Oregon Zoo
pfefferkornc@metro.dst.or.us

MANAGEMENT PLAN: 2004 PMP
A & G TAG ADVISOR: Laurie Bingaman Lackey, ISIS
Giraffe3@bellsouth.net

WILD POPULATION STATUS:

CITES: Not Listed
IUCN: Lower Risk/Conservation Dependant

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Found in the March 15, 2002 Bay, Black and Red-flanked Duiker studbook
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9

PROGRAM GOALS: Retain 75% gene diversity for 40 years, pursue the importation of new founders

Population target: 75

Population characteristics: GD 80.1%, 11 founders + 1 potential, Growth rate 1.012, Ne/N 0.43, Generation length 5.5 years

Date of masterplan: 2004

Comments: Recent recruitment of founders has occurred and has been helpful to the long-term outlook for the North American red-flanked duiker population. New holders are encouraged to participate with this duiker program.

SPECIES:	Bay duiker <i>Cephalophus dorsalis</i> (Gray, 1846)
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA MANAGED POPULATION: 8.6 (14) in 4 institutions (NA Studbook 2003)

PROGRAM STATUS:

PROGRAM LEADER: Chris Pfefferkorn, Oregon Zoo
pfefferkornc@metro.dst.or.us

MANAGEMENT PLAN: 2003 PMP
A & G TAG ADVISOR: Laurie Bingaman Lackey, ISIS
Giraffe3@bellsouth.net

WILD POPULATION STATUS:

CITES: Appendix II
IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Found in the March 15, 2002 Bay, Black and Red-flanked Duiker studbook
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 8.5

PROGRAM GOALS: n/a

Population target: 0

Population characteristics: n/a

Date of masterplan: n/a

Comments: Importation of new founders for the long term management of the North American bay duiker population is not realistic at this time. Due to low institutional interest and low captive numbers it is recommended to phase out this population to provide spaces for other duiker programs.

SPECIES:	Black duiker <i>Cephalophus niger</i> (Gray, 1846)
PROGRAM:	Display/Education/Research Population
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 9.7 (16) in 5 institutions (NA Studbook 2003)

PROGRAM STATUS:

PROGRAM LEADER: Chris Pfefferkorn, Oregon Zoo
pfefferkornc@metro.dst.or.us

MANAGEMENT PLAN: 2003 PMP
A & G TAG ADVISOR: Laurie Bingaman Lackey, ISIS
Giraffe3@bellsouth.net

WILD POPULATION STATUS:

CITES: Not Listed
IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Found in the March 15, 2002 Bay, Black and Red-flanked Duiker studbook

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 8.5

PROGRAM GOALS: Retain 60% gene diversity for 25 years, pursue the importation of new founders

Population target: 25

Population characteristics: GD 76.5%, 3 founders, Growth rate 0.974, Ne/N 0.3, Generation length 6.9 years

Date of masterplan: 2003

Comments: Despite the ranking of 8.5, the North American black duiker population's low captive numbers, poor demographics and limited institutional support warranted the TAG's decision to recommend this as a Display/Education/Research population rather than a PMP. The long-term outlook for the population is poor. This recommendation is intended to reduce space competition with other duiker species of higher conservation concern. Research on duiker husbandry will be conducted with this species and the information learned will be used to improve the management of other higher priority duiker species.

SPECIES:	Suni <i>Neotragus moschatus</i>
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA POPULATION: 1.7 (8) in 2 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: n/a
MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:

CITES: Not Listed
IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: 3.4 (7) in 3 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: n/a
AZA ANTELOPE CARE STANDARDS: n/a

SPECIES SELECTION PROCESS SCORE: 7.5

PROGRAM GOALS: n/a

Population target: 0

Population characteristics: n/a

Date of masterplan: n/a

Comments: The continuing decline in this species program and low level of institutional interest regrettably has resulted in the decision to phase out this species. Some wild suni populations are in need of conservation support and if imports became available and institutional interest revived, the species program would be reconsidered.

SPECIES:	Maxwell's duiker <i>Cephalophus maxwelli</i> (H. Smith, 1827)
PROGRAM:	Display/Education/Research Population
PROGRAM ROLE AND PURPOSE:	Education and Display

NA POPULATION: 5.5 (10) in 3 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: Program leader needed
MANAGEMENT PLAN: Not yet completed
SPMAG ADVISOR: Advisor needed

WILD POPULATION STATUS:

CITES: Not Listed
IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 0.4 (4) in 3 institutions
OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 7

PROGRAM GOALS: No available analysis information

Population target: 30 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

Population characteristics: No available analysis information

Date of masterplan: Not yet completed

Comments: This duiker program has been historically maintained in low numbers by several institutions in North America. The TAG recognizes the contrasts represented by the duiker complex and the need for continued research on captive management and husbandry issues, particularly in the field of nutrition. The Maxwell's duiker program may be valuable in contributing to these goals as a model for other duiker programs. The capacity of this program should not preclude space for similar duiker programs of greater conservation value.

SPECIES:	Steinbok <i>Raphiceros campestris</i> (H. Smith, 1827)
PROGRAM:	Display/Education/Research Population
PROGRAM ROLE AND PURPOSE:	Education and Display

NA POPULATION: 10.11 (21) in 4 institutions (pers. comm. San Diego Zoo 2005)

PROGRAM STATUS:

PROGRAM LEADER: Program leader needed
MANAGEMENT PLAN: Not yet completed
SPMAG ADVISOR: Advisor needed

WILD POPULATION STATUS:

CITES: Not Listed
IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: 6.7 (13) in 3 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 6.5

PROGRAM GOALS: No available analysis information

Population target: 25 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

Population characteristics: No available analysis information

Date of masterplan: Not yet completed

Comments: Steinbok represent a unique genus of antelope not previously successful in North America and a new program for the TAG. Recent importations have provided the potential for a conservation program based on the education and management values. The development of this new program for the TAG will be dependent upon the husbandry, management and growth of the population in the immediate term. As the program becomes successful, new holders will be needed and a source of additional founders is available. This is a unique antelope species; however the steenbok program will be managed in a way that does not compete for small antelope resources required for similar species of greater conservation concern.

SPECIES:	Crowned duiker <i>Sylvicapra grimmia caffra</i>
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA POPULATION: 4.5 (9) in 3 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: n/a

MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:

CITES: Not Listed

IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present

OTHER: 5.7 (12) in 4 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: n/a

AZA ANTELOPE CARE STANDARDS: n/a

SPECIES SELECTION PROCESS SCORE: 6

PROGRAM GOALS: n/a

Population target: 0

Population characteristics: n/a

Date of masterplan: n/a

Comments: This species is of low conservation concern and is not popular with institutions and should be phased out of North American collections.

SPECIES:	Royal antelope <i>Neotragus pygmaeus</i>
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA POPULATION: 5.6 (11) in 2 institutions (pers. comm. San Diego Zoo 2005)

PROGRAM STATUS:

PROGRAM LEADER: n/a

MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:

CITES: Not Listed

IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present

OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: n/a

AZA ANTELOPE CARE STANDARDS: n/a

SPECIES SELECTION PROCESS SCORE: **6.5**

PROGRAM GOALS: n/a

Population target: 0

Population characteristics: n/a

Date of masterplan: n/a

Comments: This species is of low conservation concern and has not been recommended for a program at this time. If husbandry is successful for the species and new founders are acquired, the TAG may reconsider this species for a program in the future.

Small Antelope Subgroup *in situ* Focus Species

Silver Dik Dik
Range: Somalia

Madoqua piacentinii (Drake-Brockman 1911)
Wild population estimate: unknown

Inhabiting a unique coastal plain ecosystem, the silver dik dik lives under extreme pressure from human encroachment, poaching, herding and agriculture in Somalia. No protection is afforded the species and no surveys have been completed to assess the population, so little is known of its biology. Conservation management and surveys are desperately needed. No captive program is known to exist.

For information on how to become involved, contact Chris Pfefferkorn, pfefferkornc@metro.dst.or.us

Abbott's duiker
Range: Tanzania

Cephalophus spadix (True 1890)
Wild population estimate: unknown

The remaining population of this large duiker lives on forested mountains in Tanzania. Protected areas include Mt. Kilimanjaro National Park, Udzwanga Mountains National Park, and Kilimobero Forest Reserve. Little is known of the biology of the species and much human pressure and logging of the forest occurs throughout its remaining range. No conservation management plans are in place for Abbott's duiker and no captive programs are in place outside Tanzania. Support for studies, surveys and conservation of Abbott's duiker are needed

For information on how to become involved, contact Chris Pfefferkorn, pfefferkornc@metro.dst.or.us

Jentink's duiker
Range: West Africa

Cephalophus jentinki (Thomas 1892)
Wild population estimate: unknown

Inhabiting primary forested areas in Liberia, Sierra Leone and Ivory Coast, the Jentink's duiker habitat is under severe pressure from logging and from hunting. Conservation of the forest blocks will help insure the species' survival, as there are adequate protected areas established within the Jentink's duiker range in all range states (Sapo National Park in Liberia, and Tai National Park in Ivory Coast are critically important). No specific conservation management plans are in place for this duiker, and government protection efforts in the countries are minimal in part due to civil unrest. A captive program for the species in North America has not been successful.

For information on how to become involved, contact Chris Pfefferkorn, pfefferkornc@metro.dst.or.us

Zebra duiker
Range: West Africa

Cephalophus zebra (Gray 1838)
Wild population estimate: unknown

Inhabiting primary forested areas in Liberia, Sierra Leone, Guinea and Ivory Coast, the zebra duiker habitat is under pressure from logging and from hunting the species as

bushmeat. Conservation of the forest blocks will help insure the species' survival as there are adequate protected areas established within the zebra duiker's range in all range states (Sapo National Park in Liberia, and Tai National Park in Ivory Coast are critically important). No specific conservation management plans are in place for this duiker, and protection efforts in these countries continue to be hampered by civil unrest. A captive program for the species in North America was not successful.

For information on how to become involved, contact Chris Pfefferkorn, pfefferkornc@metro.dst.or.us

Ader's duiker

Cephalophus adersi (Thomas 1918)

Range: Zanzibar

Wild population estimate: 1400

Found in coastal thickets and brush in Kenya and Tanzania and on Zanzibar. Ader's duiker is still hunted for meat in all range states although populations do exist in protected areas in Kenya, Arabuko – Sokoke Forest Reserve, and Jozani Forest Reserve on Zanzibar. No captive programs have been initiated however a translocation to Chumbe Island off the coast of Zanzibar has taken place. This is a priority conservation species for the Small Antelope Subgroup of ASG. Conservation efforts and support are needed.

For information on how to become involved, contact Chris Pfefferkorn, pfefferkornc@metro.dst.or.us

Beira

Dorcatragus megalotis (Menges 1894)

Range: Horn of Africa

Wild population estimate: unknown

This monotypic antelope species is found in sparsely wooded hilly areas within the region. Little is known of the ecology and biology of the species. Conservation and scientific endeavors for the species are encouraged. There is a captive group known at one facility in Qatar.

For information on how to become involved, contact Martha Fischer, fischer@stlzoo.org

Hartebeest Subgroup Program Summary

Vice Chair: Dan Beetem, St. Catherine's Wildlife Survival Center,
dbeetem@scisland.net

Species	Score	Level	Target	Current
Bontebok, <i>Damaliscus dorcas dorcas</i>	12.5	PMP	150	57
White-bearded wildebeest, <i>Connochaetes taurinus spp</i>	11	PMP	122	217
Jackson's hartebeest, <i>Alcelaphus buselaphus jacksoni</i>	9	PMP	50	31
Blesbok, <i>Damaliscus dorcas phillipsi</i>	8	P/O	0	54
Topi, <i>Damaliscus lunatus jimela</i>	7	DERP	35	21
Cape hartebeest, <i>Alcelaphus buselaphus caama</i>	6.5	P/O	0	8
Hunter's hartebeest, <i>Damaliscus hunteri</i>	9.5	ISF	n/a	n/a
Swayne's hartebeest, <i>Alcelaphus buselaphus swaynei</i>	8	ISF	n/a	n/a

SPECIES:	Bontebok <i>Damaliscus dorcas dorcas*</i> (Pallas, 1767)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA MANAGED POPULATION: 26.31 (57) at 14 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Sam Berner, Disney's Animal Kingdom
Sam.k.berner@disney.com

MANAGEMENT PLAN: 2004 PMP

SPMAG ADVISOR: Joe Christman, Disney's Animal Kingdom
Joseph.christman@disney.com

WILD POPULATION STATUS:

CITES: Appendix II

IUCN: Vulnerable

USFWS: Endangered

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 3.8 (11) in 2 institutions

OTHER: 2.3 (5) in 3 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Antelope Husbandry Manual – Alcelaphinae,
Ed. By Lance Aubery laubery@sandiegozoo.org

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 12.5

PROGRAM GOALS: Retain 75% gene diversity for 75 years

Population target: 150

Population characteristics: GD 88%, 12 founders, Growth rate 1.024, Ne/N 0.38, Generation length 6.8 years

Date of masterplan: 2004

Comments: Although the current wild population trend for this species is increasing, bontebok are still considered Vulnerable by the IUCN and Endangered by the USFWS. Due to the more critical conservation status of *Damaliscus dorcas dorcas*, the TAG recommends that blesbok be phased out of North American captive collections and be replaced with bontebok. As with other members of the hartebeest group, screening of all individuals for Malignant Catarrhal Fever is recommended.

*There is some uncertainty surrounding the subspecific identification (*Damaliscus pygargus*) of bontebok and blesbok (Wilson and Reeder, 1994). The Antelope TAG has elected to utilize the historic designation *Damaliscus dorcas*.

SPECIES:	Common wildebeest <i>Connochaetes taurinus</i> (Burchell, 1823)
PROGRAM:	Population Management Plan (<i>C. t. albojubatus</i>) No Program Recommended (<i>C. t. taurinus</i>)
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 73.94.50 (217) in 22 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Sharon Joseph, Houston Zoo

sjoseph@houstonzoo.org

MANAGEMENT PLAN: 2002 PMP

SPMAG ADVISOR: PMC

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 30.56.19 (105) in 24 institutions (*C. taurinus*)
10.15 (25) in 6 institutions (*C. t. albojubatus*)

OTHER: 31.72.4 (107) in 20 institutions (*C. t. taurinus*)

5.7.2 (14) in 4 institutions (*C. taurinus*)

0.1.54 (55) in 3 institutions (*C. t. taurinus*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 11

PROGRAM GOALS: Retain 75% gene diversity for 50 years

Population target: 122

Population characteristics: GD 89.58%, 34 founders, Growth rate 1.0821, Ne/N 0.2,

Generation length 6.1 years

Date of masterplan: 2002

Comments: Despite low conservation concerns this species is popular and important to our institutions as a unique and identifiable antelope species. Institutions wishing to keep a wildebeest species should work with *C. taurinus albojubatus*. It is not recommended to continue with a program for *C. taurinus taurinus* due to current low population numbers. As with other members of the hartebeest group, screening of all individuals for Malignant Catarrhal Fever is recommended.

SPECIES:	Jackson's hartebeest <i>Alcelaphus buselaphus jacksoni</i> (Pallas, 1766)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education

NA MANAGED POPULATION: 10.20.1 (31) at 3 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: Jeff Spratt, St. Catherine's Island
jspratt@wcs.org

MANAGEMENT PLAN: Not yet completed
SPMAG ADVISOR: Advisor needed

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Antelope Husbandry Manual – Alcelaphinae,
Ed. By Lance Aubery laubery@sandiegozoo.org
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9

PROGRAM GOALS: No available analysis information

Population target: 50 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

Population characteristics: No available analysis information

Date of masterplan: Not yet completed

Comments: The North American captive population of this species is small and is compromised genetically. The Jackson's hartebeest has been identified by the IUCN/SSC Antelope Specialist Group as a species facing long-term decline in the wild and for which a captive program will become increasingly important. Management strategies should optimize breeding opportunities for this species. The addition of new founders through importation of animals or genetic material is desperately needed to maintain this population in North American collections. Ongoing research towards artificial insemination initiated at St. Catherine's Island should continue when the herds move to White Oak Conservation Center with the closing of the Wildlife Survival Center. There are still unresolved taxonomic issues for this hartebeest species. Malignant Catarrhal Fever issues with this species should be considered as a part of the PMP management planning process.

SPECIES:	Blesbok <i>Damaliscus dorcas phillipsi</i> * (Pallas, 1767)
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA MANAGED POPULATION: 18.36 (54) at 14 institutions (NA Studbook 2001)

PROGRAM STATUS:

PROGRAM LEADER: Sam Berner, Disney's Animal Kingdom
Sam.k.berner@disney.com

MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 54.87 (141) in 28 institutions

OTHER: 3.5.30 (38) in 4 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Antelope Husbandry Manual – Alcelaphinae,
Ed. By Lance Aubery laubery@sandiegozoo.org

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 8

PROGRAM GOALS: n/a

Population target: 0

Population characteristics: n/a

Date of masterplan: n/a

Comments: The wild population of blesbok is currently stable. Due to the more critical conservation status of *Damaliscus dorcas dorcas*, the TAG is recommending that blesbok be phased out of North American captive collections and be replaced by bontebok. The studbook will continue to be maintained in order to track the population. As with other members of the hartebeest group, screening of all individuals for Malignant Catarrhal Fever is recommended.

*There is some uncertainty surrounding the subspecific identification (*Damaliscus pygargus*) of bontebok and blesbok (Wilson and Reeder, 1994). The Antelope TAG has elected to utilize the historic designation *Damaliscus dorcas*.

SPECIES:	Topi <i>Damaliscus lunatus jimela</i> * (Burchell, 1823)
PROGRAM:	Display/Education/Research Population
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 12.9 (21) at 5 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Walter DuPree, Disney's Animal Kingdom
walter.dupree@disney.com

MANAGEMENT PLAN: n/a, see comments

SPMAG ADVISOR: Joe Christman, Disney's Animal Kingdom
Joseph.christman@disney.com

WILD POPULATION STATUS:

CITES: Appendix III (*Damaliscus l. jimela*)

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present

OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Antelope Husbandry Manual – Alcelaphinae,
Ed. By Lance Aubery laubery@sandiegozoo.org

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 7

PROGRAM GOALS: Preliminary analysis of this population in 2003 indicated that genetically and demographically a long-term captive management program is not possible without additional animals/founders. No program goals were set at this time.

Population target: 35 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

Population characteristics: n/a

Date of masterplan: n/a, see comments

Comments: The wild population of this species is experiencing a downward trend. Topi have been identified by the IUCN/SSC Antelope Specialist Group as a species facing decline in the wild and for which a captive program will become increasingly more important. However, at this time, there is no North American captive program recommended for this species, due to the non-viable status of the current population. Recruitment of additional institutions and importation of additional founders would be critical for a long-term management program for this species. For now, his population shall be maintained for captive husbandry/management research. *It is believed that all topi in North American collections are *Damaliscus l. jimela*.

SPECIES:	Cape hartebeest <i>Alcelaphus buselaphus caama</i> (Pallas, 1766)
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA MANAGED POPULATION: 3.5 (8) in 2 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: n/a

MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 0.4 (4) in 1 institution

OTHER: 3.1 (4) in 2 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Antelope Husbandry Manual – Alcelaphinae,
Ed. By Lance Aubery laubery@sandiegozoo.org

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 6.5

PROGRAM GOALS: n/a

Population target: 0

Population characteristics: n/a

Date of masterplan: n/a

Comments: The current wild population trend is stable. No program is recommended for this species due to its relatively safe conservation status and the current non-viable status of the North American captive population. The TAG recommendations for this species maybe reviewed should there be potential to import additional founders for the North American population.

Hartebeest Subgroup ***in situ* Focus Species**

Hirola, Hunter's Hartebeest
Range: Kenya, Somalia

Damaliscus (Beatragus) hunteri (PL Sclater 1889)
Wild population estimate: >500

The classification of the hirola is disputed as a unique member and genus of the hartebeests. Historically found in the regions north and east of the Tana River in Kenya and Somalia, poaching, periods of drought and pressure from domestic herds have decimated the wild population. Adequate protected areas are lacking and this species is not well-protected. In the early 1970's a translocation of hirola was undertaken and 14 animals were moved from Garissa District to Tsavo National Park in Kenya. The species survived in Tsavo, but was not particularly successful; meanwhile the wild population continues to plummet.

In 1996 the Hirola Task Force was formed between the Kenya Wildlife Service, the African Wildlife Foundation and the East African Wildlife Society to promote conservation of the species and develop and implement an action plan for its survival. Surveys at the time indicated only 1500 hirola survived in Kenya, and possibly in some numbers in Somalia. An additional translocation to Tsavo was implemented and 29 more hirola were moved by an international task force in 1996. The translocated animals are being studied and protected by KWS with support from various organizations.

The hirola was brought to captivity in the US in the early 70's but did not fare well and the program was unsuccessful. The current Action Plan for the hirola does not call for *ex situ* breeding activities and export of live animals from Kenya has been banned. The TAG and institutions in the US have been supportive of the conservation efforts for the species in Kenya, including post-release monitoring of the translocated hirola, and community awareness programs in the Garissa district in Kenya where the remaining wild hirola still survive. Further support for hirola conservation activities is needed

For information on how to become involved, contact Steve Shurter, sshurter@thewilds.org

Swayne's hartebeest
Range: Ethiopia

Alcelaphus buselaphus swaynei (Pallas 1766)
Wild population estimate: 200?

The Swayne's hartebeest is a critically endangered subspecies of hartebeest endemic to the Rift Valley regions in Ethiopia and Somalia. Little protection is afforded the species throughout its range and pressure from domestic herding and poaching have contributed to its decline. A small population is known to exist in Senkelle National Park but competition with herders inside the park complicates conservation efforts and the population has declined significantly over the last two decades. Nechisar National Park is purported to contain a small historic population of Swayne's hartebeest which is also in serious decline. A translocated population of 40 animals (from Senkelle NP) were moved to Awash National Park in 1974, but were not successful and only a handful of animals were reported in the mid-90's. The serious decline of the population and no serious

protection efforts for this species results in a critical population in need of immediate conservation action and support

For information on how to become involved, contact Martha Fischer, fischer@stlzoo.org

Waterbuck Subgroup Program Summary

Vice Chair: *Randy Rieches, San Diego Wild Animal Park, rrieches@sandiegozoo.org*

Species	Score	Level	Target	Current
Nile lechwe, <i>Kobus megaceros</i>	10	PMP	200	139
Common waterbuck, <i>Kobus e. ellipsiprymnus</i>	10	PMP	150	199
Rhebok, <i>Pelea capreolus</i>	8.5	PMP	50	16
Red lechwe, <i>Kobus leche spp.</i>	8	P/O	0	59
Kafue lechwe, <i>Kobus leche kafuensis</i>	7.5	P/O	0	8
Uganda kob, <i>Kobus kob thomasi</i>	6.5	P/O	0	55
Western mtn. reedbuck, <i>Redunca fulvorufula adamauae</i>	-	ISF	n/a	n/a

SPECIES:	Nile lechwe <i>Kobus megaceros</i> (Fitzinger, 1855)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education

NA MANAGED POPULATION: 50.89 (139) at 14 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Matt Hohne, Disney's Animal Kingdom
Matt.hohne@disney.com

MANAGEMENT PLAN: 2004 PMP

SPMAG ADVISOR: Joe Christman, Disney's Animal Kingdom
Joseph.christman@disney.com

WILD POPULATION STATUS:

CITES: Appendix II

IUCN: Lower Risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 73.109 (182) in 11 institutions

OTHER: 0.0.60 (60) in 1 institution

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: In Reduncinae Husbandry Manual, ZSSD,
rieches@sandiegozoo.org

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 10

PROGRAM GOALS: Retain 80% gene diversity for 25 years

Population target: 200

Population characteristics: GD 84.21%, 7 founders, Growth rate 1.03, Ne/N 0.12, Generation length 5.2 years

Date of masterplan: 2004

Comments: A unique Reduncinae species of conservation concern, the Nile lechwe is a priority program for the TAG. The completion of a current studbook and implementation of a management plan for the species will assist to identify priorities for the regional program.

SPECIES:	Waterbuck <i>Kobus ellipsiprymnus</i> (Ogilby, 1833)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: (199) at 21 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Michelle Smurl, Brevard Zoo
msmurl@brevardzoo.org

MANAGEMENT PLAN: 2004 PMP

SPMAG ADVISOR: PMC

WILD POPULATION STATUS:

CITES: Not Listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 21.44 (65) in 9 institutions (*K. ellipsiprymnus*)
32.63.5 (100) in 17 institutions (*K. e. defassa*)

OTHER: 6.18.20 (44) in 5 institutions (*K. ellipsiprymnus*)
1.5 (6) in 2 institutions (*K. e. defassa*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: In Reduncinae Husbandry Manual, ZSSD,
rrieches@sandiegozoo.org

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: *Kobus ellipsiprymnus* **10**
Kobus ellipsiprymnus defassa **8.5**

PROGRAM GOALS: Retain 51% gene diversity for 100 years

Population target: 150

Population characteristics: GD 83.46%, 18 founders, Growth rate 1.02, Ne/N 0.1306,
Generation length 5.6 years

Date of masterplan: 2004

Comments: Institutions are encouraged to work with *K. e. ellipsiprymnus*. Specific designations for all waterbuck in NA are recommended for use in ISIS.

SPECIES:	Rhebok <i>Pelea capreolus</i> (Gray, 1851)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education Program

NA MANAGED POPULATION: 9.7 (16) at 1 institutions (pers comm. San Diego Zoo 2005)

PROGRAM STATUS:

PROGRAM LEADER: Program Leader Needed
MANAGEMENT PLAN: Not yet completed
SPMAG ADVISOR: Advisor needed

WILD POPULATION STATUS:

CITES: Not Listed
IUCN: Conservation Dependent
USFWS: Endangered

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: (18) in 1 institution

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 8.5

PROGRAM GOALS: No available analysis information

Population target: 50 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated data, the TAG will modify this population target figure if necessary.)

Population characteristics: No available analysis information

Date of masterplan: Not yet completed

Comments: The rhebok program recommendation at the PMP level represents the TAG's belief that this is a distinct antelope genus with unique characteristics and education value. This program represents an important additional species of the Reduncinae family for our TAG. As such, this representative of the waterbuck group does not compete for antelope program resources for species of higher conservation value. The potential exists for recruitment of additional founders to augment the current program for the long-term management of this species in North America. As the program and husbandry develop in the immediate future, animals may become available for additional holding institutions.

SPECIES:	Red lechwe <i>Kobus leche</i> (Gray, 1850) Kafue lechwe <i>Kobus leche kafuensis</i>
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA MANAGED POPULATION: 14.33.12 (59) in 8 institutions, *K. l. leche*
4.4 (8) in 2 institutions, *K. l. kafuensis* (ISIS 2005)

PROGRAM STATUS:
PROGRAM LEADER: n/a
MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:
CITES: Appendix II
IUCN: Lower Risk/Conservation Dependent – *K. l. leche*; Vulnerable/D2 – *K. l. kafuensis*

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:
EUROPE: 50.129.9 (188) in 23 institutions (*K. l. kafuensis*)
10.19.6 (35) in 7 institutions (*K. l. leche*)
OTHER: 0.0.84 (84) in 1 institution (*K. l. kafuensis*)
38.66.6 (110) in 12 institutions (*K. l. leche*)

RESOURCES AVAILABLE:
HUSBANDRY MANUAL: In Reduncinae Husbandry Manual, ZSSD, rieche@sandiegozoo.org
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: *Kobus leche kafuensis* **8**
Kobus leche **7.5**

PROGRAM GOALS: n/a
Population target: 0
Population characteristics: n/a
Date of masterplan: n/a

Comments: No program has been recommended for red or Kafue lechwe due to low institutional interest and decreased potential for these captive populations in North America. Though the Kafue lechwe is a species of conservation concern, the European EAZA managed program for this species is quite strong and serves as a significant captive conservation reservoir for the species. This recommendation is intended to reduce space competition for related species programs of higher conservation concern. Populations of the red and Kafue lechwe continue to be held in the private sector and in a handful of zoos in North America.

SPECIES:	Uganda kob <i>Kobus kob thomasi</i> (Erxleben, 1777)
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA MANAGED POPULATION: 14.40.1 (55) in 5 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: n/a
MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:

CITES: Not Listed
IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present
OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: In Reduncinae Husbandry Manual, ZSSD,
rrieches@sandiegozoo.org
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 6.5

PROGRAM GOALS: n/a
Population target: 0
Population characteristics: n/a
Date of masterplan: n/a

Comments: No program is recommended for Uganda kob at this time. The wild population has remained stable at 1,000,000 and the species is not of current high conservation concern.

Waterbuck Subgroup
***in situ* Focus Species**

Western mountain reedbuck
Range: Nigeria, Cameroon

Redunca fulvorufula adamauae (Afzelius 1815)
Wild population estimate: 250?

Living in the montane grassland regions of Nigeria and Cameroon, the western mountain reedbuck is severely threatened due to disturbance from livestock and hunting. No recent surveys have been completed and no active conservation programs for the species are in place, however protected areas do exist within its range including Gashaka-Gumti National Park in Nigeria. Conservation focus and support and scientific study may benefit the species. No captive program is known.

For information on how to become involved, contact Randy Rieches, rrieches@sandiegozoo.org

Aridland Antelope, Gazelle and Pronghorn Subgroup Program Summary
Vice Chair: Martha Fischer, Saint Louis Zoo, fischer@stlzoo.org

Species	Score	Level	Target	Current
Addax, <i>Addax nasomaculatus</i>	18.5	SSP	200	214
Scimitar-horned oryx, <i>Oryx dammah</i>	18	SSP	250	306
Arabian oryx, <i>Oryx leucoryx</i>	17.5	SSP	200	111
Addra gazelle, <i>Gazella dama ruficollis</i>	15	SSP	200	218
Mhorr gazelle, <i>Gazella dama mhorr</i>	14.5	SSP	100	87
Slender-horned gazelle, <i>Gazella leptoceros</i>	13	SSP	150	92
Cuvier's gazelle, <i>Gazella cuvieri</i>	12.5	PMP	125	146
Pronghorn, <i>Antilocapra Americana spp.</i>	12.5	DERP	150	172
Thomson's gazelle, <i>Gazella thomsoni</i>	10.5	PMP	175	155
Speke's gazelle, <i>Gazella spekei</i>	10.5	PMP	70	53
Nubian Soemmerring's gazelle, <i>Gazella soemmerringii soemmerringii</i>	9.5	PMP	75	54
Gemsbok, <i>Oryx gazella gazella</i>	9.5	PMP	75	87
Fringe-eared oryx, <i>Oryx gazella callotis</i>	9	PMP	85	70
Grant's gazelle, <i>Gazella granti</i>	9	PMP	100	93
Dorcas gazelle, <i>Gazella dorcas spp.</i>	9	P/O	0	27
Saudi goitered gazelle, <i>Gazella subgutturosa marica</i>	9	P/O	0	35
Beisa oryx, <i>Oryx gazella beisa</i>	8.5	P/O	0	16
Persian gazelle, <i>Gazella subgutturosa subgutturosa</i>	7	P/O	0	25
Nubian red-fronted gazelle, <i>Gazella rufifrons laevipes</i>	6.5	P/O	0	12
Saiga, <i>Saiga tatarica spp.</i>	11	ISF	n/a	n/a
Przewalski's gazelle, <i>Procapra przewalskii</i>	-	ISF	n/a	n/a
Tibetan antelope, <i>Pantholops hodgsonii</i>	-	ISF	n/a	n/a
Peninsular pronghorn, <i>Antilocapra americana peninsularis</i>	-	ISF	n/a	n/a
Sonoran pronghorn, <i>Antilocapra Americana sonoriensis</i>	-	ISF	n/a	n/a

SPECIES:	Addax <i>Addax nasomaculatus</i> (Blainville, 1816)
PROGRAM:	Species Survival Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA MANAGED POPULATION: 78.135.1 (214) in 22 institutions (SSP 2004)
TOTAL NA POPULATION: 100.173.2 (250) in 30 institutions (ISIS 2005)

PROGRAM STATUS:

INTERNAT'L STUDBOOK KEEPER: Terrie Correll, Living Desert
addax@mindspring.com

SSP COORDINATOR: Bill Houston, Saint Louis Zoo
Houstan@stlzoo.org

MANAGEMENT PLAN: 2004 SSP
SPMAG ADVISOR: Ed Spevak, Cincinnati Zoo
Ed.spevak@cincinnati-zoo.org

WILD POPULATION STATUS:

CITES: Appendix I
IUCN: Critically Endangered/A1c

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 89.130.4 (223) in 28 institutions
OTHER: 19.29.1 (49) in 7 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: **18.5**

PROGRAM GOALS: Retain 75.66% gene diversity for 100 years

Population target: 200

Population characteristics: GD 85.48%, 16 founders, Growth rate 1.172, Ne/N 0.21,
 Generation length 5.6 yrs

Date of masterplan: 2004

Comments: Recent work in Niger, Tunisia, Morocco and other addax range states in the Sahelo-Saharan region underscores the importance of maintaining our captive addax population as a potential reservoir from which a reintroduction program might one day spring.

In the past 18 months, the addax SSP has worked with our European (EEP) counterparts to establish a global captive management dataset and to set priorities for responding to the growing number of inquiries about the availability of addax for reintroduction. Additional captive breeding space is needed to improve upon the population management goals. Efforts are underway to establish partnerships with non-AZA facilities capable of making the commitment of space and other resources necessary to bring this population greater demographic and genetic stability.

Support from the captive community will also be needed for *in situ* efforts to establish protected areas and safeguard the last known wild population of significance (estimated at around 128 animals) in the Termit/Tin Toumma region of Niger. Institutions are encouraged to participate with this captive program and to support conservation initiatives for the species through the Sahara Conservation Fund.

SPECIES:	Scimitar-horned oryx <i>Oryx dammah</i> (Cretzschmar, 1827)
PROGRAM:	Species Survival Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA MANAGED POPULATION: 78.226.2 (306) in 27 institutions (SSP 2004)
TOTAL NA POPULATION: (390) in 23 institutions (pers. comm. E. Spevak)

PROGRAM STATUS:

PROGRAM LEADER: Ed Spevak, Cincinnati Zoo
ed.spevak@cincinnati-zoo.org

MANAGEMENT PLAN: 2004 SSP
SPMAG ADVISOR: Ed Spevak, Cincinnati Zoo
Ed.spevak@cincinnati-zoo.org

WILD POPULATION STATUS:

CITES: Appendix I
IUCN: Extinct in Wild

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 125.76.7 (208) in 46 institutions
OTHER: 67.82.7 (156) in 21 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: The Biology, Husbandry and Conservation of Scimitar-horned oryx, c/o EEP, Tania Gilbert,
taniag@marwell.org.uk

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 18

PROGRAM GOALS: Retain 73.89% gene diversity for 100 years

Population target: 250

Population characteristics: GD 96.04%, 32 founders, Growth rate 1.14, Ne/N 0.1576,
 Generation length 5.3 yrs

Date of masterplan: 2004

Comments: Conservation projects to return the scimitar-horned oryx to a portion of its original range are ongoing in several range states. In the past 18 months, the scimitar-horned oryx SSP has worked with the EEP to establish a global captive management dataset and to set priorities for responding to the growing number of inquiries about the availability of scimitar-horned oryx for reintroduction.

The captive program will continue to assist and participate with these efforts as a high priority for the TAG, through the Sahara Conservation Fund. Participating institutions of the SSP are encouraged to become involved in support of the efforts for this species, including habitat assessment, capacity building and reintroductions.

SPECIES:	Arabian oryx <i>Oryx leucoryx</i> (Pallax, 1777)
PROGRAM:	Species Survival Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA MANAGED POPULATION: 36.75 (111) in 22 institutions (SSP 2004)
TOTAL NA POPULATION: (~350) (pers. comm.. J. Brown)

PROGRAM STATUS:
INTERNAT'L STUDBOOK KEEPER & PROGRAM LEADER: Jerry Brown, Disney's Animal Kingdom
Jerry.I.brown@disney.com
MANAGEMENT PLAN: 2004 SSP
SPMAG ADVISOR: Bob Lacy, CBSG & Ed Spevak, Cincinnati Zoo
Ed.spevak@cincinnati-zoo.org

WILD POPULATION STATUS:
CITES: Appendix I
IUCN: Endangered/D1
OTHER: USFWS Endangered

OTHER REGIONAL PROGRAM STATUS, FROM PERS. COMM. J. BROWN, 2005:
EUROPE: (~120) individuals in 22 institutions
ASIA: (~25) individuals
MIDDLE EAST: (~4000) captive individuals, including fenced reserves in Israel, Jordan, Saudi Arabia, Oman, UAE, Qatar, Bahrain
REINTRODUCED WILD: (~300) individuals in Israel, Saudi Arabia and Oman
RESOURCES AVAILABLE:
HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 17.5

PROGRAM GOALS: Retain 82% gene diversity for 100 years
Population target: 200
Population characteristics: GD 92.3%, 13 founders, Growth rate 1.069, Ne/N 0.19, Generation length 6.5 yrs
Date of masterplan: 2004

Comments: The historic success of the Arabian Oryx World Herd has suffered setbacks in recent years in some range states due to poaching. Large numbers of Arabian oryx are held in private facilities in the US and the Middle East and trade in this species continues. Though the Arabian oryx SSP has been downgraded in population target, conservation program focus should continue to return the demographics to a healthy state, and to sustain the SSP as a Conservation and Safety Net population.

SPECIES:	Sub-Saharan oryx <i>Oryx gazella</i> spp.
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: Fringe-eared oryx, *O. g. callotis*, 23.46.1 (70) in 6 institutions (NA Studbook/PMP 2005)
 Gemsbok, *O. g. gazella*, 30.57 (87) in 12 institutions; managed population 13.42 (44) in 10 institutions (NA Studbook/PMP 2005)
 Beisa oryx, *O. g. beisa*, 4.12 (16) in 3 institutions (NA Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Anita Schanberger, aschanberg@aol.com
MANAGEMENT PLAN: 2004 PMP
SPMAG ADVISOR: Elliot Handrus, Ehandrus@att.net

WILD POPULATION STATUS:

CITES: Not Listed
IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 7.22 (29) in 5 institutions (*O. g. beisa*)
 36.90.2 (128) in 20 institutions (*O. g. gazella*)
OTHER: 7.11 (18) in 3 institutions (*O. g. beisa*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE:

<i>Oryx gazella gazella</i>	9.5
<i>Oryx gazella beisa</i>	8.5
<i>Oryx gazella callotis</i>	9

PROGRAM GOALS:

Fringe-eared oryx **Program goal:** Retain 69% gene diversity for 50 years
Population target: 85
Population characteristics: GD 70.04%, 6 founders (new founders needed = 5), Growth rate 1.172, Ne/N 0.26, Generation length 5.6 yrs

Gemsbok **Program goal:** Retain 80% gene diversity for 50 years
Population target: 75
Population characteristics: GD 88.7%, 34 founders, Growth rate 1.205, Ne/N 0.13, Generation length 5.1 yrs

Beisa oryx **Program goal:** n/a
Population target: n/a
Population characteristics: n/a

Date of masterplan: 2005

Comments: All three species of sub-Saharan oryx are of relatively low conservation concern but are representative programs of their respective ecosystems and regions. It is recommended that institutions consider working with oryx species of higher conservation concern.

SPECIES:	Addra gazelle <i>Gazella dama</i> Mhorr gazelle <i>Gazella dama mhorr</i> (Pallas, 1766)
PROGRAM:	Species Survival Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA MANAGED POPULATION: Mhorr gazelle 26.62 (88) in 11 institutions (NA Studbook 2004)
Addra gazelle 67.124 (191) in 24 institutions (NA Studbook 2004)

PROGRAM STATUS:

STUDBOOK KEEPERS: Mhorr gazelle, Tracy Sorenson, Disney's Animal Kingdom, tracy.sorenson@disney.com
Addra gazelle, Steve Metzler, Disney's Animal Kingdom, steve.f.metzler@disney.com

SSP COORDINATOR: Ed Spevak, Cincinnati Zoo
Ed.spevak@cincinnati-zoo.org

MANAGEMENT PLAN: 2004 SSP
SPMAG ADVISOR: Ed Spevak, Cincinnati Zoo

WILD POPULATION STATUS:

CITES: Appendix I
IUCN: Endangered/A1c, C1 (both forms)
OTHER: USFWS Endangered

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Mhorr gazelle 20.39 (59) in 9 institutions
Addra gazelle 4.6 (10) in 2 institutions

OTHER: Mhorr gazelle 1.3 (4) in 1 institution
Addra gazelle 0.1 in 1 institution

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE:

<i>Gazella dama mhorr</i>	14.5
<i>Gazella dama</i>	15

PROGRAM GOALS:

Mhorr gazelle: **Program goal:** Retain 60% gene diversity for 50 years
Population target: 100
Population characteristics: GD 63.48%, 7 founders, Growth rate 1.01, Ne/N 0.2759, Generation length 6 yrs

Addra gazelle: **Program goal:** Retain 80% gene diversity for 50 years
Population target: 200
Population characteristics: GD 90.9%, 24 founders, Growth rate 1.22

Date of masterplan: 2004

Comments: The dama gazelle complex is of high conservation concern due to their declining or extinct wild populations. The combined EEP and SSP populations of Mhorr gazelle retain less than 250 spaces for an extinct wild species. The only significant population of addra gazelle outside its range is in captivity in North America. Conservation programs for these species in range states continue to be developed through the Sahara Conservation Fund. Institutions are highly encouraged to consider working with these species and to support conservation efforts for them.

SPECIES:	Slender-horned gazelle <i>Gazella leptoceros</i> (Cuvier, 1842)
PROGRAM:	Species Survival Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA MANAGED POPULATION: 37.55 (92) at 11 institutions (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: Candice Weber, Living Desert
cweber@livingdesert.org

MANAGEMENT PLAN: 2002 PMP

SPMAG ADVISOR: PMC

WILD POPULATION STATUS:

CITES: Appendix III

IUCN: Endangered/C1 + 2a

Other: USFWS Endangered

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 6.9 (15) in 2 institutions

OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 13

PROGRAM GOALS: Retain 65% gene diversity for 50 years

Population target: 150

Population characteristics: GD 59.09%, 3 founders, Growth rate 1.08

Date of masterplan: 2002

Comments: Wild populations of slender-horned gazelles have been severely reduced in number and remaining populations are fragmented. The slender-horned gazelle is a high priority conservation species and institutions are encouraged to consider participating in this program. The recruitment of additional founders is encouraged. Conservation programs for this species in African range states continue to be developed through the Sahara Conservation Fund and are a high priority of the TAG.

SPECIES:	Cuvier's gazelle <i>Gazella cuvieri</i> (Ogilby, 1841)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA MANAGED POPULATION: 54.92 (146) at 12 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Wendy Enright, Living Desert
wenright@livingdesert.org

MANAGEMENT PLAN: 2004 PMP

SPMAG ADVISOR: Sarah Long and Colleen Lynch, PMC
slong@lpzoo.org or clynch@lpzoo.org

WILD POPULATION STATUS:

CITES: Appendix III

IUCN: Endangered/C2a

OTHER: USFWS Endangered

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present (ISIS 2005)

ALMERIA: 36.42 (pers. comm., 2003)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: **12.5**

PROGRAM GOALS: Retain 41% gene diversity for 100 years

Population target: 125

Population characteristics: GD 57.28%, 3 founders, Growth rate 1.02, Ne/N 0.2501, Generation length 4.88 years

Date of masterplan: 2004

Comments: The Cuvier's gazelle program is a priority for the TAG and conservation efforts for the species in range states is ongoing. Institutions are encouraged to participate with the captive program and to support conservation initiatives for the species through the Sahara Conservation Fund.

SPECIES:	Thomson's gazelle <i>Gazella thomsoni</i> (Guenther, 1884)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 38.111.6 (155) at 26 institutions (NA Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Jeff Andrews, San Diego Wild Animal Park
jandrews@sandiegozoo.org

MANAGEMENT PLAN: 2005 PMP

SPMAG ADVISOR: Elliot Handrus, ehandrus@att.net

WILD POPULATION STATUS:

CITES: Not Listed

IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 22.19 (41) in 6 institutions

OTHER: 10.22.2 (34) in 8 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: **10.5**

PROGRAM GOALS: Retain 85% gene diversity for 50 years

Population target: 175

Population characteristics: GD 86.8%, 38 founders, Growth rate 1.093, Ne/N 0.22, Generation length 4.1 years

Date of masterplan: 2005

Comments: The Thomson's gazelle remains popular and is an important component of mixed species African exhibitry. Due to their low conservation concern it is recommended that institutions consider replacing Thomson's gazelles with a gazelle species of higher conservation priority.

SPECIES:	Speke's gazelle <i>Gazella spekei</i> (Blyth, 1863)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education

NA MANAGED POPULATION: 27.26 (53) at 8 institutions (NA Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Martha Fischer, Saint Louis Zoo
fischer@stlzoo.org

MANAGEMENT PLAN: 2005 PMP

WILD POPULATION STATUS:

CITES: Not Listed

IUCN: Vulnerable/C1

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present

OTHER: Several privately-owned herds exist in Middle East

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 10

PROGRAM GOALS: Retain 65% gene diversity for 30 years

Population target: 70

Population characteristics: GD 77.5%, 6 founders, Growth rate 1.032, Ne/N 0.23, Generation length 4.3 years

Date of masterplan: 2005

Comments: The Speke's gazelle program continues to grow slowly however recruitment of additional founders is needed and possible importations are being pursued. Additional institutions are needed for this growing population to hold breeding and bachelor herds.

Conservation support for Horn of Africa antelope is a high priority for the IUCN SSC Antelope Specialist Group and several projects are listed within the Antelope and Giraffe TAG's Action Plan. Support of the zoo community will be needed to conduct a survey of Speke's gazelles and other wildlife in the Ogaden region of Ethiopia in 2005-2006.

SPECIES:	Nubian Soemmerring's gazelle <i>Gazella soemmerringii soemmerringii</i> (Cretzschmar, 1828)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education

NA MANAGED POPULATION: 24.28.2 (54) in 4 institutions (NA Studbook 2004)

PROGRAM STATUS:

PROGRAM LEADER: Jennifer Johnson, Living Desert
jjohnson@livingdesert.org

MANAGEMENT PLAN: 2004 PMP

SPMAG ADVISOR: Sarah Long and Colleen Lynch, PMC
slong@lpzoo.org or clynch@lpzoo.org

WILD POPULATION STATUS:

CITES: Not Listed

IUCN: Vulnerable/C1

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present

OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9.5

PROGRAM GOALS: Retain 53% gene diversity for 100 years

Population target: 75

Population characteristics: GD 79.62%, 12 founders, Growth rate 1.03, Ne/N 0.174,
Generation length 5.81 years

Date of masterplan: 2004

Comments: As a growing gazelle conservation program in North America, new holding institutions are being sought and the recruitment of additional founders is encouraged. This antelope program is a unique representation of ungulate conservation challenges in the Horn of Africa region and will continue to be prioritized as the program is successful.

SPECIES:	Grant's gazelle <i>Gazella granti</i> (Brooke, 1872)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 34.58.1 (93) in 16 institutions (PMP 2002)
NA POPULATION: 44.62.1 (107) in 21 institutions (NA studbook 2002)

PROGRAM STATUS:
PROGRAM LEADER: Joe Devlin, Busch Gardens-Tampa
joe.devlin@buschgardens.com
MANAGEMENT PLAN: 2002 PMP
SPMAG ADVISOR: Elliot Handrus, ehandrus@att.net

WILD POPULATION STATUS:
CITES: Not Listed
IUCN: Lower Risk/Conservation Dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:
EUROPE: Not present
OTHER: 7.8 (15) in 1 institution

RESOURCES AVAILABLE:
HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9

PROGRAM GOALS: Retain 60% gene diversity for 50 years
Population target: 100
Population characteristics: GD 66.63%, 12 founders, Growth rate 1.16
Date of masterplan: 2002

Comments: The Grant's gazelle is of low conservation concern but is a representative of East African ungulate systems. It is recommended that institutions consider working with gazelle species programs of higher conservation concern.

SPECIES:	Dorcas gazelle <i>Gazella dorcas</i> spp. (Linnaeus, 1758)
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA MANAGED POPULATION: 11.16 (27) in 5 institutions (NA Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Andrea DeMuth, Busch Gardens-Tampa
andrea.demuth@buschgardens.com

MANAGEMENT PLAN: 2005 PMP

SPMAG ADVISOR: Elliot Handrus, ehandrus@att.net

WILD POPULATION STATUS:

CITES: Appendix III

IUCN: Vulnerable/A1c

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 54.62 (116) in 4 institutions (*G. dorcas*)
29.37 (66) in 6 institutions (*G. d. neglecta*)

OTHER: 1.3 (4) in 1 institution (Hybrid)
10.10 (20) in 2 institutions (*G. d. isabella*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 9

PROGRAM GOALS: n/a

Population target: 0

Population characteristics: GD 59.8%, 10 founders, Growth rate 1.031, Ne/N 0.23, Generation length 5.1 years

Date of masterplan: 2005

Comments: The decline of wild dorcas gazelle populations appears to be less precipitous than other allied species, and as such, this species is of lower conservation priority at this time. Field conservation initiatives do exist for this species through the Sahara Conservation Fund.

The captive population is not popular and institutions are recommended to consider gazelle programs of higher conservation priority. The continued evaluation of the captive program to ascertain subspecific designations is recommended with any specific populations identified being prioritized over a generic population.

SPECIES:	Goitered gazelle <i>Gazella subgutturosa</i> spp (Guldenstaedt, 1780)
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA MANAGED POPULATION: *G. s. marica* 13.22 (35) in 4 institutions (ISIS 2005)
G. s. subgutturosa 9.16 (25) in 1 institution (ISIS 2005)

PROGRAM STATUS:
PROGRAM LEADER: n/a
MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:
CITES: Not Listed
IUCN: Lower Risk/Near Threatened (*G. s. subgutturosa*)
Vulnerable/C2a (*G. s. marica*)
OTHER: USFWS Endangered (*G. s. marica*)

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:
EUROPE: 13.48 (61) in 9 institutions (*G. s. subgutturosa*)
OTHER: 240.305 (545) in 4 institutions (*G. s. marica*)

RESOURCES AVAILABLE:
HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: *G. s. subgutturosa* 7
G. s. marica 9

PROGRAM GOALS: n/a
Population target: 0
Population characteristics: n/a
Date of masterplan: n/a

Comments: The vast range of the goitered gazelles and the current low conservation concern for these populations make these programs a low priority for the TAG. The sand gazelle (*G. s. marica*) population in North America is now at low numbers with little institutional interest in the species. Despite the conservation concerns of the wild sand gazelle population and the genetic and phenotypic uniqueness of this gazelle species, it is recommended that institutions consider other gazelle programs of higher conservation priority.

SPECIES:	Nubian red-fronted gazelle <i>Gazella rufifrons laevipes</i> (Gray, 1846)
PROGRAM:	Phase Out
PROGRAM ROLE AND PURPOSE:	n/a

NA MANAGED POPULATION: 4.8 (12) in 1 institution (ISIS 2005)

PROGRAM STATUS:

PROGRAM LEADER: n/a
MANAGEMENT PLAN: n/a

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Vulnerable/A1c

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 4.5 in 2 institutions
OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed
AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 6.5

PROGRAM GOALS: n/a

Population target: 0

Population characteristics: n/a

Date of masterplan: n/a

Comments: Due to the current low numbers and reduced viability of the population, no captive program is currently recommended for this species. Should the current positive growth trend continue, this program should be re-evaluated in the next iteration of the RCP.

SPECIES:	Pronghorn <i>Antilocapra americana</i> spp. (Ord, 1815)
PROGRAM:	Display/Education/Research Population
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education

NA MANAGED POPULATION: American pronghorn 79.91.1 (171) in 34 institutions (NA Studbook 2005)
Mexican pronghorn 0.1 in 1 institution (NA Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Jeff Holland, Los Angeles Zoo
jholland@zoo.lacity.org

MANAGEMENT PLAN: Not yet completed

SPMAG ADVISOR: Cathleen Cox, Los Angeles Zoo
coxbain@earthlink.net

WILD POPULATION STATUS:

CITES: Not listed

IUCN: Lower risk/Conservation dependent (*A. a. mexicana*)

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: Not present

OTHER: Not present

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Not yet completed

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 12.5

PROGRAM GOALS: No available analysis information

Population target: 150 (This population target is an estimate based on Steering Committee's knowledge of this and similar species and on the space survey responses indicating institutional interest/space available. When further analysis occurs with updated date, the TAG will modify this population target figure, if necessary)

Population characteristics: No available analysis information

Date of masterplan: Not yet completed

Comments: As a unique ungulate and an important component of North American landscapes, the pronghorn remains a popular program. Programs for pronghorn populations of conservation concern (*A. a. peninsularis*, *A. a. sonorensis*) are on-going and participating institutions are encouraged to support these efforts (See ISF Focus species, page 92).

Aridland Antelope, Gazelle and Pronghorn Subgroup *in situ* Focus Species

Saiga, Mongolian and Russian *Saiga tatarica* spp. (Linnaeus, 1766)

Range: Russia, Mongolia, Kazakhstan, China **Wild population est:** ? declining drastically

The continuing critical decline of the Russian saiga and Mongolian saiga in range states requires significant applied conservation efforts to counter the negative effects of population declines and continued poaching. Captive breeding is recommended as a component of the international conservation program. The implementation of a program in North America has been suggested through an importation of founders, however, the captive husbandry for this species is challenging. Institutions are encouraged to support range state conservation efforts for the species through the TAG

For information on how to become involved, contact Steve Shurter, sshurter@thewilds.org

Przewalski's gazelle, Dzeren

Procapra przewalskii (Buchner, 1891)

Range: China and Mongolia

Wild population estimate: <500

An inhabitant of arid grasslands associated with the Tibetan plateau, the Przewalski's gazelle has lost nearly all of its habitat to agriculture and herders. A small population survives in the Qinghai Lake Region of China. Conservation efforts and studies of the remaining gazelles are ongoing but the herding pressure has not diminished and only small protected areas are available to the animals. A conservation action plan was developed in 2004 which may include a captive focus. Technical and financial support for the conservation plan will be helpful to the species survival and is recommended.

For information on how to become involved, contact Steve Shurter, sshurter@thewilds.org

Tibetan antelope, Chiru

Pantholops hodgsonii (Abel, 1826)

Range: India, Tibet, China

Wild population estimate: <30,000

An inhabitant of high elevation grasslands, the Tibetan antelope continues to be persecuted for its unique hair and hide which are used to make high quality wool for the garment trade. Efforts in recent years to stem the poaching and reduce the trade have been somewhat successful, however the wild population has been severely compromised and continues to decline, and conservation measures are required to assist its recovery. Scientific studies and support for conservation of the Tibetan antelope are needed.

For information on how to become involved, contact Steve Shurter, sshurter@thewilds.org

Peninsular pronghorn

Antilocapra americana peninsularis (Ord, 1815)

Sonoran pronghorn

Antilocapra americana sonoriensis

Range: Southwest US, Mexico

Wild population estimates: *A. a. peninsularis* 200

A. a. sonoriensis 742

The Peninsular and Sonoran pronghorn populations are distinct and endangered in their natural ranges. A program for the Peninsular pronghorn has been implemented by the Mexican government with support from US zoos at the Viscaïno Biosphere Reserve on the Baja Peninsula. A captive propagation component has been successful in raising pronghorn for release in the Reserve. A conservation program for the Sonoran pronghorn has been implemented jointly by the Mexican government, the USFWS and Arizona Game and Fish to conserve and propagate this endangered species in both countries. US zoos are providing technical assistance with the captive propagation portion managed by USFWS and AGF.

For information on how to become involved, contact Jeff Holland, jholland@zoo.lacity.org

Giraffe Subgroup Program Summary

Vice Chair: *Ann Petric, Brookfield Zoo, anpetric@brookfieldzoo.org*

Species	Score	Level	Target	Current
Okapi, <i>Okapia johnstoni</i>	17.5	SSP	200	90
Reticulated giraffe, <i>Giraffa camelopardalis reticulata</i>	14.5	PMP	300	373
Rothchild's giraffe, <i>Giraffa camelopardalis baringo</i>	13			
Giraffe (generic), <i>Giraffa camelopardalis</i>	12			
Masai giraffe, <i>Giraffa camelopardalis tippelskirchii</i>	13.5	PMP	150	59

SPECIES:	Okapi <i>Okapia johnstoni</i> (Lankester, 1901)
PROGRAM:	Species Survival Plan
PROGRAM ROLE AND PURPOSE:	Conservation Support and Safety Net

NA MANAGED POPULATION: 42.48 (90) in 23 institutions (NA database 2004)

PROGRAM STATUS:

PROGRAM LEADER: Ann Petric, Brookfield Zoo
anpetric@brookfieldzoo.org

MANAGEMENT PLAN: 2004 SSP
SPMAG ADVISOR: Sarah Long, PMC
slong@lpzoo.org

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower risk/Near Threatened

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 24.24 (48) in 14 institutions
OTHER: 2.5 (7) in 2 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Randy Rieches, San Diego WAP
rrieches@sandiegozoo.org

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 17.5

PROGRAM GOALS: Retain 90% gene diversity or greater for 20 years (81% gene diversity for 100 years)

Population target: 200

Population characteristics: GD = 92.7%, 25 founders, Growth rate 1.02, Generation length 10.2 years

Date of masterplan: 2004

Comments: The okapi remains popular with North American institutions as a unique species and as a strong conservation program representing African rainforest protection. New holders are being sought as the program continues its growth. The recruitment of additional founders is recommended.

SPECIES:	Reticulated/Rothchild's Giraffe <i>Giraffa camelopardalis</i> spp (Linnaeus, 1758)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Education and Display

NA MANAGED POPULATION: 136,237 (373) in 83 institutions (Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Laurie Bingaman Lackey
giraffe3@bellsouth.net

MANAGEMENT PLAN: 2004 PMP
A & G TAG ADVISOR: Laurie Bingaman Lackey
giraffe3@bellsouth.net

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower risk/Conservation dependent

OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2005:

EUROPE: 114,147 (261) in 65 institutions (*G. c. baringo*)
62,44 (106) in 37 institutions (*G. c. reticulata*)
OTHER: 11.9 (20) in 8 institutions (*G. c. baringo*)
50.78 (128) in 42 institutions (*G. c. reticulata*)

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Amy Burgess, Disney's Animal Kingdom
amy.burgess@disney.com

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: *Giraffa camelopardalis reticulata* – **12**
Giraffa camelopardalis baringo - **13**

PROGRAM GOALS: Retain 90% gene diversity for 200 years

Population target: 352

Population characteristics: GD = 97.8%, 103 founders, Growth rate 1.07, Ne/N 0.33,
Generation length 10.4 years

Date of masterplan: 2004

Comments: Recruitment of additional institutions and importation of additional founders are not necessary to the long-term management of this subspecies in North America. Husbandry, particularly nutrition, requires investigation.

SPECIES:	Masai Giraffe <i>Giraffa camelopardalis tippelskirchii</i> (Linnaeus, 1758)
PROGRAM:	Population Management Plan
PROGRAM ROLE AND PURPOSE:	Conservation Link and Education Population

NA MANAGED POPULATION: 20.39 (59) in 20 institutions (Studbook 2005)

PROGRAM STATUS:

PROGRAM LEADER: Laurie Bingaman Lackey
giraffe3@bellsouth.net

MANAGEMENT PLAN: 2002 PMP
A & G TAG ADVISOR: Laurie Bingaman Lackey
giraffe3@bellsouth.net

WILD POPULATION STATUS:

CITES: Not listed
IUCN: Lower risk/Conservation dependent

OTHER REGIONAL PROGRAM STATUS, FROM INTERNAT'L STUDBOOK 2005:

EUROPE: 1.3 (4) in 2 institutions
OTHER: 15.19 (34) in 10 institutions

RESOURCES AVAILABLE:

HUSBANDRY MANUAL: Amy Burgess, Disney's Animal Kingdom
amy.burgess@disney.com

AZA ANTELOPE CARE STANDARDS: Under revision

SPECIES SELECTION PROCESS SCORE: 13.5

PROGRAM GOALS: Retain 83% gene diversity for 100 years or 90% gene diversity for 16 years

Population target: 150

Population characteristics: GD = 92.8%, 20 founders, Growth rate 1.02, Generation length 11.8 years

Date of masterplan: 2002

Comments: Recruitment of additional institutions and importation of additional founders are critical to the long-term management of this subspecies in North America. Husbandry, particularly nutrition, requires investigation.

Appendix 1. Antelope & Giraffe TAG Space Survey Results. Compiled by C. Pfefferkorn, Oregon Zoo, 2005

Antelope Species currently in the collection	Current # of spaces M/F/U	Maximum # of spaces M/F/U	Desired # of spaces for antelope species M/F/U	(# of respondents increasing space for this species); # of individuals M/F/U	# of respondents maintaining present space	# of respondents removing species from collection M/F/U	Species to be acquired in the future	Desired # of animals to be acquired M/F/U	# of institutions desiring to acquire species in the future
Forest/Woodland Antelope Subgroup									
Eastern giant eland	25.36.0	17.29.7	18.27.3		5		Yes	0.3.10	2
Common eland	8.6.0	10.77.7	9.78.5	(3) 1.2.5+ unk	8	(1) 0.1.0			
Cape eland	0.3.0	0.6.0	0.6.0		1	(1) 0.1.0			
East African eland	8.16.0	4.17.0	4.14.0		3				
Lowland nyala	12.40.0	20.61.4	18.58.3	(1) 0.2.0	10	(2) 0.5.0	Yes	3.7.0	2
Eastern bongo	48.98.1	57.131.36	49.117.15	(1) 0.0.3	33	(2) 2.5.0	Yes	6.11.8	7
Southern lesser kudu	28.43.0	26.42.31	24.41.22	(2) 2.7.0	10	(1) 1.4.0	Yes	5.10.0	1
Lesser kudu									
Western bushbuck	0.1.0					(1) 0.1.0	Yes	3.6.0	1
Greater kudu	48.83.3	39.118.59	39.107.40	(3) 1.3.12	22	(2) 1.2.0	Yes	1.3.0	1
Sitatunga	21.43.0	8.45.12	10.54.4	(1) 1.8.0	6	(1) 2.5.0	Yes	7.16.0	3
Roan antelope	14.29.1	14.34.6	13.34.3	(1) 0.1.0	4		Yes	6.20.0	4
Angolan roan antelope	2.10.0	4.14.4	4.13.3		2				
Sable antelope	16.59.0	19.83.15	18.81.14	(1) 1.1.0	13	(3) 3.3.0			
S. sable	1.9.0	4.14.0	4.14.0	(2) 3.5.0					

Antelope Species currently in the collection	Current # of spaces M/F/U	Maximum # of spaces M/F/U	Desired # of spaces for antelope species M/F/U	(# of respondents increasing space for this species); # of individuals M/F/U	# of respondents maintaining present space	# of respondents removing species from collection M/F/U	Species to be acquired in the future	Desired # of animals to be acquired M/F/U	# of institutions desiring to acquire species in the future
antelope									
Impala	26.61.2	31.92.14	29.81.31	(3) 5.14.17	11	(1) 0.3.0			
Kenyan impala	22.36.1	13.70.3	10.65.0	(1) 0.4.0	3	(1) 12.4.0			
Black-faced impala							Yes	3.6.0	1
Springbok	0.1.0	1.5.0	0.1.0	(1) 2.4.4	1		Yes	1.3.0	1
S. African springbok	3.14.0	4.26.0	4.15.0	(1) 2.17.0		(1) 0.11.0	Yes	1.5.0	1
Angolan springbok									
Blackbuck	81.213.12	82.219.12	79.194.0	(1) 0.2.0	7	(2) 1.14.0			
Southern gerenuk	30.42.1	32.55.25	28.54.12	(2) 3.4.0	15	(2) 1.4.0	Yes	1.2.0	1
Gerenuk									
Northern gerenuk									
Nilgai	29.30.0	27.42.2	27.37.0	(2) 1.6.0	4				
Small Antelope Subgroup									
Common crowned duiker	9.4.0	3.3.3	3.3.0		1	(2) 4.1.0			
Bay duiker	6.6.0	6.6.2	6.6.0	(1) 1.1.1	2	(1) 1.0.0	Yes	1.3.0	1
Black duiker	10.7.0	9.9.7	9.10.5	(2) 1.3.0	3		Yes	1.1.0	1

Antelope Species currently in the collection	Current # of spaces M/F/U	Maximum # of spaces M/F/U	Desired # of spaces for antelope species M/F/U	(# of respondents increasing space for this species); # of individuals M/F/U	# of respondents maintaining present space	# of respondents removing species from collection M/F/U	Species to be acquired in the future	Desired # of animals to be acquired M/F/U	# of institutions desiring to acquire species in the future
Jentink's duiker									
Maxwell's duiker	11.10.0	9.9.0	9.9.0		2	(2) 2.3.0			
Blue duiker	11.14.0	11.14.7	10.12.5	(1) 0.1.0	7	(3) 2.1.0	Yes	2.2.0	2
Red-flanked duiker	22.18.0	15.15.22	14.14.12	(1) 0.0.1	10		Yes	5.9.0	3
Yellow-backed duiker	19.18.1	24.22.18	22.23.7	(6) 4.6.1	13		Yes	5.9.0	5
Zebra banded duiker	1.0.0					(1) 1.0.0	Yes	3.6.0	2
Kenyan Gunther's dikdik	10.18.1	15.28.14	14.29.1	(1) 0.1.0	10		Yes	7.10.0	2
Somali Kirk's dikdik									
Kirk's dikdik	14.17.2	14.23.9	12.23.5	(2) 1.2.0	9				
Cavendish's Kirk's dikdik									
Akeley's suni	0.1.0	1.1.0	1.1.0		1		Yes	1.2.0	1
Zulu suni	2.5.0	5.7.5	7.11.0	(1) 4.3.0	1		Yes	3.6.0	2
Suni	0.1.0					(1) 0.1.0	Yes	1.1.0	1
Klipspringer	17.16.2	14.16.13	15.16.4	(1) 1.1.0	8	(2) 4.1.0	Yes	2.3.0	1
Zimbabwean	6.1.0	2.0.0	2.0.0		2	(1) 4.1.0	Yes	2.3.	1

Antelope Species currently in the collection	Current # of spaces M/F/U	Maximum # of spaces M/F/U	Desired # of spaces for antelope species M/F/U	(# of respondents increasing space for this species); # of individuals M/F/U	# of respondents maintaining present space	# of respondents removing species from collection M/F/U	Species to be acquired in the future	Desired # of animals to be acquired M/F/U	# of institutions desiring to acquire species in the future
klipspringer									
Cape klipspringer							Yes	6.6.0	2
Cotton's oribi									
Hartebeest Subgroup									
Cape hartebeest	2.2.0	2.10.0	2.10.0		1				
Jackson's hartebeest	9.20.0	9.26.6	10.26.6	(1) 1.0.0	2				
Black wildebeest									
Blue wildebeest							Yes	2.10.0	1
E. white-bearded wildebeest	34.103.15	26.104.27	24.107.17	(1) 0.0.5	7				
W. white-bearded wildebeest									
Wildebeest spp unknown							Yes	1.3.0	1
Bontebok	25.27.0	20.50.14	17.46.2	(3) 1.5.0	6				
Blesbok	16.27.0	12.47.0	12.38.0		6		Yes	2.0.0	1

Antelope Species currently in the collection	Current # of spaces M/F/U	Maximum # of spaces M/F/U	Desired # of spaces for antelope species M/F/U	(# of respondents increasing space for this species); # of individuals M/F/U	# of respondents maintaining present space	# of respondents removing species from collection M/F/U	Species to be acquired in the future	Desired # of animals to be acquired M/F/U	# of institutions desiring to acquire species in the future
Hunter's hartebeest									
Topi, Jimela									
Topi	7.5.0	6.12.6	6.12.6		3	(1) 1.0.0	Yes	3.7.0	2
Aridland Antelope, Gazelle and Pronghorn Subgroup									
Addax	62.132.0	38.153.47	29.142.35		16	(1) 2.0.0	Yes	1.2.0	1
Scimitar-horned oryx	32.149.0	26.151.22	24.137.15		14	(4) 2.10.0			
Gemsbok	16.52.0	5.43.16	5.43.10		5	(3) 12.9.0	Yes	1.2.0	1
Beisa oryx	2.8.0					(1) 2.8.0	Yes	1.10.10	1
Fringe-eared oryx	12.31.0	16.33.0	14.29.0		4		Yes	1.10.10	1
Arabian oryx	22.66.0	27.88.25	20.76.20	(2) 3.10.0 + unk	9	(4) 4.13.0	Yes	0.4.0	1
Cuvier's gazelle/Edmi	22.48.0	19.53.31	12.41.12		5	(1) 0.2.0	Yes	1.10.10	1
Mhorr gazelle	24.48.1	22.62.24	21.58.12		8		Yes	1.6.6	1
Addra gazelle	41.72.0	51.109.36	49.108.15	(2) 6.2.0	15	(1) 0.4.0	Yes	1.6.0	1
Dorcas gazelle	15.19.0	8.18.8	8.18.0		3	(1) 2.3.0			
Grant's gazelle	17.38.0	13.42.2	13.42.1	(1) 1.3.0	7	(1) 0.1.0			
Slender-horned gazelle	38.57.0	34.65.25	31.75.21		9		Yes	6.16.0	3
Nubian red-	5.7.0	5.15.0	5.15.0		1				

Antelope Species currently in the collection	Current # of spaces M/F/U	Maximum # of spaces M/F/U	Desired # of spaces for antelope species M/F/U	(# of respondents increasing space for this species); # of individuals M/F/U	# of respondents maintaining present space	# of respondents removing species from collection M/F/U	Species to be acquired in the future	Desired # of animals to be acquired M/F/U	# of institutions desiring to acquire species in the future
fronted gazelle									
Nubian Soemmerring's gazelle	21.34.0	16.41.8	16.41.0	(1) 2.4.4	4		Yes	7.18.0	4
Speke's gazelle	22.19.0	23.31.10	23.31.0	(1) 0.1.0	6		Yes	1.1.0	1
Saudi goitered gazelle	8.19.0	8.24.6	8.24.3		4	(1) 1.0.0			
Persian goitered gazelle	9.17.0	5.15.0	5.15.0		1				
Thomson's gazelle	45.89.2	50.143.72	60.142.12	(6) 18.15.19	15	(2) 1.6.0	Yes	2.6.2	2
Saiga							Yes, if available	15.40.0 + unk	3
Pronghorn	28.31.1	15.38.40	17.28.30	(3) 2.8.0	11	(2) 1.1.0			
Waterbuck Subgroup									
Common waterbuck	73.129.0	60.129.13	63.127.3	(1) 0.2.0	12	92) 11.12.0	Yes	0.0.35	2
Defassa waterbuck	15.50.0	10.42.0	7.32.0		3	(2) 3.14.0			
Kob	14.27.0	9.29.0	9.29.0		3				
Kafue flats lechwe									

Antelope Species currently in the collection	Current # of spaces M/F/U	Maximum # of spaces M/F/U	Desired # of spaces for antelope species M/F/U	(# of respondents increasing space for this species); # of individuals M/F/U	# of respondents maintaining present space	# of respondents removing species from collection M/F/U	Species to be acquired in the future	Desired # of animals to be acquired M/F/U	# of institutions desiring to acquire species in the future
Nile lechwe	55.64.0	49.80.4	47.68.0	(2) 4.3.0	8	(3) 6.23.0			
Red lechwe	3.20.0					(1) 3.20.0			
Giraffe/Okapi Subgroup									
Reticulated giraffe	66.136.0	63.214.73	58.198.46	(10) 3.16.9	42	(2) 1.1.0			
Masai giraffe	16.23.0	13.37.19	12.27.19	(2) 1.1.2	12				
Rothschild's giraffe	12.30.0	14.61.5	14.61.0	(1) 0.2.0	6	(1) Unk			
Baringo giraffe									
Nubian giraffe									
Angolan giraffe									
Hybrid giraffe	8.15.0	8.12.2	8.10.2		6	(2) 0.5.0			
Giraffe, no subsp/unk provenance	6.12.0	6.20.0	6.20.0		3	(2) 0.2.0			
Okapi	32.37.0	32.49.19	27.47.12	(1) 1.1.0	16		Yes	4.5.0	3
Total Antelope Spaces	3,780	4,889	4,300	(66) 295		(65) 289		506	
Total Giraffe/Okapi Spaces	393	647	567	(14) 36		(7) 9		9	
Total Spaces	4,173	5,536	4,867	331		298		515	

Appendix 2. Antelope & Giraffe TAG Species Selection Criteria

1. Will the captive population serve as a reservoir for genetic or demographic diversity for wild populations?
2 = need for captive population as a genetic reservoir great
1 = need for captive population as a genetic reservoir unknown or not significant at this time
0 = generic population, not suitable for reintroduction
2. If a captive population presently exists, is the current population genetically and demographically viable?
2 = population is relatively healthy genetically and demographically, and there are sources for additional founders as needed in the future
1 = population is compromised genetically and/or demographically, but the outlook for acquisition of additional founders is good
0 = population is compromised genetically and/or demographically, and the outlook for acquisition of additional founders is not good

OR

3. If a captive population doesn't presently exist, is there potential for the development of a viable captive population?
2 = animals are readily available from other captive programs or from wild or rescued populations and institutions are interested in acquiring them
1 = animals are readily available from other captive programs or from wild or rescued populations, but institutional commitment will need to be sought
0 = there are few or no known sources of founders to begin a captive program
4. Is there husbandry expertise for the species?
2 = easily bred and maintained in captivity
1 = moderate success in breeding and management
0 = difficult to breed and/or maintain in captivity
5. Is there educational value to keeping the species in captivity?
2 = species has unique ecological, physiological or conservation characteristics that may be used in wildlife interpretation and/or conservation education
1 = species lacks unique characteristics as given above, but is in a managed program which may be used to teach about the role of captive wildlife in conservation
0 = species has no unique ecological, physiological or conservation characteristics and is not a part of a managed program

6. Is the species taxonomically unique?
2 = monotypic genus (only one extant member of the genus)
1 = monotypic species (only one form, no subspecies)
0 = several (or many) species and/or subspecies
7. What is the degree of threat to the species in the wild? (using Mace-Lande, Endangered Species Act, and/or IUCN)
2 = threatened or endangered
1 = unknown or low risk
0 = safe or not listed
8. What is the species' degree of exhibit appeal?
2 = species is charismatic, has unique appearance, is familiar to visitors, and/or has good public relations/marketing potential
1 = species adds aesthetic element to mixed-species or zoogeographic exhibits, otherwise little-noticed by visitors
0 = species is generally cryptic, has low profile, and/or is generally overlooked by visitors
9. What is the species' ability to generate attention and support for field conservation programs?
2 = an *in situ* program exists with strong ties
1 = there is a potential or an existing *in situ* program, but there are presently no ties to the captive program
0 = an *in situ* program for the species is unknown or non-existent
10. What is the species' ability to serve as a research or management model for more endangered taxa, or, is there a need for conservation or management research on the species to improve captive management?
2 = is currently serving as a model in either basic or applied research
1 = research potential exists as a model population, basic husbandry research is needed for the species
0 = no need to use the species as a model, low conservation priority does not warrant research at this time
11. Is there sufficient institutional interest and commitment to support inclusion of the species?
2 = space and other critical resources are easily obtainable, species is popular and in demand by institutions
1 = space and critical resources are needed and development of a program will probably help secure additional space
0 = space and other critical resources will be difficult to obtain, species not popular with institutions

12. What is the species' ability to be managed in mixed-species exhibits?

2 = presently managed in mixed-species exhibits with few problems

1 = potential is good for mixed-species management, certain groups (i.e. nonbreeding or same-sex groups) are successful in mixed-species exhibits

0 = potential for management in mixed-species exhibits is low or unknown

Appendix 3: Antelope & Giraffe TAG Species Evaluation Summary (see Appendix 2 for column heading definitions)

Species-subspecies	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	Total	Mean
E. giant eland	10	11	9	11	9	10	16	12	11	12	12.5	12	8	8	11	162.5	11
Cape eland	13	11	5	5	8	10.5	11	10	6	9	12	10	8	6	7	131.5	9
Common eland	11	12	9.5	10	11	11.5	13	10	6	9	12.5	12	10	5	7	149.5	10
Lowland nyala	11	12	12	15	12	10	12	9	13	10	9.5	11	9	8.5	10	163.5	11
E. bongo	20	22	14	17	17	18.5	18	18	20	17	18.5	17	7	16.5	17	257.5	17
S. lesser kudu	11	12	8.5	12	7.5	9	10	11	9	11	13.5	9	6	9	8	146.5	10
W. bushbuck	5	6	2	7	4.5	8	3	8	7	6	5.5	6	2	2	4	76	5
Greater kudu	112	15	11	12	10	12.5	13	10	13	11	11.5	12	10	11	14	177.5	12
Sitatunga	8	11	6.5	11	8	9.5	8	9	9	10	9.5	9	9	8	11	136.5	9
Roan antelope	6	9	8.5	7	9.5	7	12	10	8	10	12.5	8	4	8.5	10	130	8.5
Sable antelope	9	12	8.5	10	10	11	14	10	10	9	13	10	11	10.5	15	163	11
Zambian sable antelope	7	10	6	11	5.5	4	24	20	8	9	6	7	6	9	11	122.5	8
Impala	9	12	9.5	11	14	9	9	9	12	11	12.5	8	11	13.5	8	158.5	10.5
Springbok	12	11	8	9	9	9.5	8	9	9	8	9	5	8	11.5	7	133	9
S. African springbok	8	9	6.5	9	10	7	9	9	11	9	9	5	5	11.5	9	127	8.5
Blackbuck	14	12	14	9	13.5	8	12	11	9	12.5	14	11	11	14.5	10	175.5	11.5
S. gerenuk	13	14	12	10	13.5	10	13	12	11	12	14	13	16	14.5	13	191	12.5
Nilgai	7	12	9	8	13	1	9	10	12	10	12	11	10	7.5	9	149.5	9.5
Crowned duiker	3	9	5.5	6	7	4	5	10	7	5	7	4	5	4.5	9	91	6
Bay duiker	7	13	6.5	5	10	8	8	9	10	9.5	9.5	6	9	10	8	128.5	8.5
Jentink's duiker	7	12	8.5	11	8	12	10	11	7	10	10	3	6	11.5	9	136	9
Maxwell's duiker	5	11	4.5	2	8	8	7	9	8	6	7	6	8	9	7	105.5	7
Blue duiker	9	12	5.5	5	11	13	7	10	12	8	10.5	7	8	11	10	139	9.5
Black duiker	8	13	7	5	9.5	8	11	9	7	8	9	8	9	10	9	130.5	8.5

Species-subspecies	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	Total	Mean
Red-flanked duiker	9	14.5	8	6	11	9	10	9	9	8	9	8	9	10	8	137.5	9
Yellow-backed duiker	9	13	12	10	12.5	12	9	11	10	10	10.5	7	4	12	10	152	10
Zebra duiker	7	13	8.5	8	4.5	9	11	11	8	9.5	6	4	3	12	12	126.5	8.5
Kenyan Gunther's dikdik	6	13	9.5	8	11.5	8	11	10	11	8	12	6	10	7.5	10	141.5	9.5
Kirk's dikdik	6	13	9.5	8	11.5	8	11	10	11	8	12	5	12	7.5	9	141.5	9.5
Suni	4	12	4.5	7	6	7	7	9	10	7	7.5	5	8	7.5	10	111.5	7.5
Royal antelope	6	7	4.5	7	4	7	7	8	9	7	7	5	6	7	9	100.5	6.5
Steenbok	4	8	5.5	6	5	9	6	11	5	6	8	4	4	6	11	98.5	6.5
Klipspringer	8	13	9	12	13	12.5	9	11	12	10	11.5	9	17	12	9	168	11
Cotton's oribi	4	7	2.5	6	4.5	5	4	10	3	7	7	2	7	4	5	78	5
Jackson's hartebeest	9	12.5	8.5	10	5.5	10.5	8	10	6	9	11	10	10	11.5	7	138.5	9
Cape hartebeest	6	6	3.5	10	5	3	6	10	4	8	7.5	10	5	8	5	97	6.5
Black wildebeest	8	8.5	6	11	4.5	6	10	10	6	6	14	9	3	9	9	120	8
E. white-bearded wildebeest	13	8.5	11	10	13	6	12	11	11	12	12	11	12	11.5	12	166	1
Bontebok	13	13.5	9.5	12	13	8	12	12	14	12	14	14	17	13.5	12	189.5	12.5
Blesbok	8	8	6.5	10	9	4	9	9	5	8	6	10	9	9.5	8	119	8
Topi	4	10.5	5.5	10	7.5	4	7	7	6	8	7.5	9	5	7	6	104	7
Common waterbuck	10	11	9	12	8	9	11	11	7	9	9	10	10	8	10	144	10
Defassa waterbuck	6	11	7.5	12	6.5	9	9	11	7	8	8	9	9	8	10	131	8.5
Kob	4	5	8	11	6	7	5	8	7	6	7	7	5	8	3	97	6.5

Species-subspecies	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	Total	Mean
Red lechwe	6	8	6.5	8	9	9	5	8	7	6	7	9	9	6	7	110.5	7.5
Kafue lechwe	5	11	6	6	11	12	7	11	6	7	6	8	7	7	7	117	8
Nile lechwe	5	11	10	11	9	12	15	11	6	12	9	9	12	10.5	11	153.5	10
Rhebok	3	9	4.5	6	11	10	6	11	10	11.5	8.5	8	12	10	10	130.5	8.5
Addax	18	18	16	18	16.5	18.5	19	21	20	18	19	19	21	17	20	279	18.5
Scimitar-horned oryx	19	19	17	18	15.5	17	20	20	21	18	18	17	19	16.5	15	270	18
Arabian oryx	18	18	16	18	14.5	17	20	15	21	16	19	15	19	18.5	17	261.5	17.5
Fringe-eared oryx	8	9	7	11	8	10	10	11	7	9	7	9	10	9	10	135	9
Beisa oryx	7	10	6	10	8	10	8	11	7	8	7.5	7	11	9	8	127.5	8.5
Gemsbok	8	9	9.5	12	8	10	10	11	8	9	7.5	7	11	10.5	8	138.5	9.5
Cuvier's gazelle	11	16	11	11	13	13	14	14	11	13	14	10	9	13	15	187.5	12.5
Addra gazelle	10	18	14	17	14	13	18	14	14	16	14	14	16	15.5	16	223	15
Mhorr gazelle	13	17	12	17	10.5	11	18	15	14	16	15	13	15	15.5	14	216	14.5
Nubian Soemmerring's gazelle	7	12.5	9.5	10	7	8	11	15	9	9.5	8	7	10	5.5	12	141	9.5
Nubian red-fronted gazelle	5	10	4	9	4	5	7	12	9	7.5	6	6	3	5.5	5	98	6.5
Speke's gazelle	10	12.5	9.5	12	8.5	6.5	11	16	10	10.5	9.5	11	8	8	13	156	10.5
Saudi goitered gazelle	10	13	8.5	10	9.5	8	8	13	7	10	12.5	9	2	7.5	9	137	9
Persian gazelle	3	13	4.5	8	9	7	4	10	7	6	5	7	5	6.5	7	102	7
Thomson's gazelle	11	11	11	8	11	6	10	10	13	10	8.5	11	17	8	9	154.5	10.5
Dorcas gazelle	9	9	9.5	12	10.5	7	7	14	11	10	8	7	4	9	6	133	9
Slender-horned gazelle	13	16	11	18	12.5	9.5	14	15	16	15	13	10	12	13	10	198	13
Grant's gazelle	6	12	8	9	11.5	9	9	10	9	9	9	10	12	4.5	9	137	9

Species-subspecies	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	Total	Mean
Pronghorn	12	13	9.5	15	14	13	14	10	12	12	15	14	16	7	12	188.5	12.5
Rothchild's giraffe	8	14	14	13	Nr	11	14	15	14	15	13.5	15	13	10	12	*181.5	13
Reticulated giraffe	13	16	14	13	Nr	12.5	16	15	16	15	14.5	17	18	12.5	12	*204.5	14.5
Masai giraffe	13	14.5	14	13	12	11	15	14	16	15	14.5	15	15	11	12	205	13.5
Giraffe	8	9	13	11	12	10	14	14	16	9	11	16	16	11	12	181.5	12
Okapi	20	16	15	18	15.5	19	18	19	19	16	14	18	18.5	17	18	260.5	17.5
Species of concern																	
Mountain nyala	6		5	8			14	12	10	8				12.5	12	87.5	9.5
W. giant eland	8		7.5	12			13	12	12	10				11	11	96.5	10.5
Giant sable antelope	8		7.5	10			15	11	10	10				13	15	99.5	11
Four-horned antelope	10		9	6			15	12	10	8				11	10	91	10
Dibatag	10		7	7			12	13	11	8				12.5	10	90.5	10
Black-faced impala	8		8	11			9	9	12	11				12.5	13	93.5	10.5
Ader's duiker	7		6	7			13	10	10	8				12	6	79	9
Ruwenzori red duiker	6		6	5			9	10	7	7				8	8	66	7.5
Abbot's duiker	Nr		5.5	7			11	10	7	7				11	5	63.5	8
Silver dikdik	6		5	5			10	10	8	9				10	8	71	8
Swayne's hartebeest	7		5.5	6			11	11	7	9				7	7	70.5	8
Hirola	9		7	6			14	10	8	7			6	11	8	86	9.5
Mountain Reedbuck	4		5	6			10	9	11	10				7	7	69	7.5
Acacia gazelle	7		6	3			8	10	8	8				8	9	67	7.5

Species-subspecies	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	Total	Mean
Muscat gazelle	7		6	3			8	10	8	8				8	9	67	7.5
Saudi gazelle	9		7	4			9	11	8	8				10	9	75	8.5
Pelzeln's gazelle	7		5.5	3			8	10	8	8				9	7	65.5	7.5
Beira	8		5.5	7			8	12	9	9				10	9	77.5	9
Mongolian saiga	10		9.5	10			8	10	12	13				9.5	9	91	10
Russian saiga	10		11	10			15	10	12	10				10.5	12	100.5	11
Chiru	11		10	5			13	15	13	14				13	7	80	9
Przewalski's gazelle	3		8	5			11	12	10	11				13	7	80	9
Saola	14		9.5	5			14	12	11	9				13	10	97.5	11
Peninsular pronghorn	10		10	8			15	12	12	15				11	12	105	11.5

Appendix 4. Antelope & Giraffe TAG Guidelines for NA Regional Studbooks

Goal

Maintain and distribute a North American regional studbook on a species or group of species to assist in the effective demographic and genetic management of the population(s).

Requirements of Studbook Keepers:

- Studbook keeper must be supported by an AZA accredited institution
- Studbook keeper must have sufficient time to dedicate to communication with holders and with the TAG, to complete studbook research and development and to produce timely annual updates
- Studbook keeper must have institutional commitment and support for training (AZA Population Management I) as well as for studbook production and distribution
- Studbook keeper must attend AZA Population Management I within 18 months of TAG approval of studbook petition

Recommendations:

- Access to email is strongly recommended, though not required, for studbook keepers
- If the studbook keeper has also volunteered to serve as the PMP coordinator, attendance at AZA's Population Management II is strongly recommended within 12 months of publication of the first edition of the studbook

Responsibilities of Studbook Keepers:

- First edition of the complete regional studbook must be developed and distributed within 18 months of TAG approval of studbook petition
- Regular communication must occur with holding institutions (at least annually) to record births, deaths and transfers in order to keep studbook up-to-date
- Regular communication must occur with the Antelope and Giraffe TAG Vice Chair for the subgroup under which the studbook falls. Studbook/population status reports must be provided to the TAG for annual and mid-year meetings, if requested
- Studbook update must be published and distributed annually
- Complete studbook (current and historical data) must be published and distributed every three years
- Timely, accurate information must be provided to the Population Manager as needed/requested for development of the PMP or SSP

Studbook Format and Guidelines

All Antelope and Giraffe TAG studbooks must conform to the standards established by WCMC and the TAG.

The first edition of a studbook must undergo review and be approved by the TAG's Steering Committee *prior to publication.*

Subsequent editions need not be reviewed prior to publication, but all programs will be periodically reviewed by the Steering Committee. It is important that Antelope and Giraffe TAG programs consistently maintain standards of quality and professionalism.

Cover/Title Page

The cover of the studbook and/or title page should include the edition number and publication date of the studbook, the date span covered by the information within, and the name and institution of the studbook keeper. Contact information for the studbook keeper, including mailing address, phone and FAX number, and email address (if possible) should be provided on the title page.

Studbook Disclaimer

The following disclaimer must be included after the title page of every studbook:

Copyright (publication date) by (studbook keeper's institution name). All rights reserved. No parts of this publication may be reproduced in hard copy, machine-readable or other forms without advance written permission from the (studbook keeper's institution name). Members of the American Zoo and Aquarium Association (AZA) may copy this information for their own use as needed.

The information contained in this studbook has been obtained from numerous sources believed to be reliable. AZA and the (studbook keeper's institution name) make a diligent effort to provide a complete and accurate representation of the data in its reports, publications, and services. However, AZA and the (studbook keeper's institution name) do not guarantee the accuracy, adequacy, or completeness of any information. AZA and the (studbook keeper's institution name) make no warranties or representations of any kind, express or implied, including but not limited to warranties of merchantability of fitness for particular purpose. AZA and the (studbook keeper's institution name) disclaim all liability for errors or omissions that may exist and shall not be liable for any incidental, consequential, or other damages (whether resulting from negligence or otherwise) including, without limitation, exemplary damages or lost profits arising out of or in connection with the use of this publication.

Because the technical information provided in the studbook can easily be misread or misinterpreted unless properly analyzed, AZA and the (studbook keeper's institution name) strongly recommend that users of this information consult with the studbook keeper in all matters related to data analysis and interpretation.

Introduction

The introduction should provide a background on systematics, status and distribution of wild populations and ecological information. Collection managers often use the studbook as a reference tool, so the text provided must be accurate and reliable. Systematics information should include the common and scientific name(s) used both presently and historically. Taxonomic sources must be cited. Present and former distributions should be provided, and level of threat should be provided, cited to any and all relevant sources (CITES, IUCN, ESA, etc). Information on specific threats to wild populations or causes for decline of wild populations should be included. Ecological information should include diet lifespan, age at maturity, reproductive information, social grouping patterns and any other relevant information. Husbandry information, or references to published husbandry manuals, should be provided if possible.

Conventions

Conventions used in the data presentation (definitions of data fields, etc., particularly if User Defined Fields are used) must be provided.

Sparks Reports

Different views of the dataset are possible through SPARKS. The first edition must include all animals in the database, listed in chronological (studbook number) order, as well as a separate view of living animals listed by institution. After publication of the first edition, living-only data sets may be provided, with a complete historical view provided every third year. It is also helpful to provide views of various event types during the span of a studbook. Following the conventions of the ISIS system, all studbooks must employ an entirely numerical numbering system. Alphabetical characters in studbook numbers must be avoided to facilitate computerization and compatibility with the ISIS system.

Institution List

An institution list, providing names, addresses, and phone numbers for all institutions appearing in the SPARKS report is necessary and must be included in every edition of the studbook. Where possible, the names, phone numbers and email addresses of contact persons at each institution should be included.

Bibliography

A bibliography of references cited in the body of the studbook must be provided if other publications are cited in the studbook. A bibliography of species references is very helpful for collection managers and is encouraged, but not required in studbooks.

Publication

Publication of the first edition of a regional studbook should take place within 18 months of approval by the Antelope and Giraffe TAG Steering Committee.

Upon publication, an electronic copy of the studbook should be sent to the following:

- All holding institutions listed in the studbook (those institutions that held the species historically should only receive the editions that are historical in scope, unless otherwise requested)
- SSP coordinator or PMP manager
- Antelope and Giraffe TAG Chair
- Antelope and Giraffe TAG Vice-Chair for studbook's subgroup
- AZA Assistant Director, Conservation and Science (send both studbook and SPARKS backup) Note: If you would like to have your studbook published on the AZA website, please send your formatted studbook as a Word or PDF document and indicate that you would like it published on the Web.
- WCMC Vice-Chair for studbooks
- Chair IUDZG/WZO
- USFWS Office of Scientific Authority
- The IUCN Specialist Group Chair, if applicable
- International Studbook Keeper, if applicable
- Program coordinators in other regions, if applicable
- ISIS, printable form (Word or PDF format) and SPARKS backup

If you have any questions about these guidelines, please contact the subgroup Vice-Chair responsible for your species or any other member of the Antelope and Giraffe TAG Steering Committee.

Appendix 5. Antelope and Giraffe TAG Guidelines for Population Management Plans

Goal

To coordinate the population management, provide animal husbandry advice and serve as a “champion” for select antelope species to insure the existence of a sustainable conservation population for the future.

Requirements of PMP Managers

An Antelope and Giraffe TAG PMP Manager must meet the following requirements:

- Support by an AZA-accredited institution.
- Minimum of 3 years of management experience with the PMP species (or a similar species)
- Sufficient time and adequate institutional support and resources to communicate regularly with Institutional Representatives (IRs), to manage the PMP according to the TAG’s guidelines and timelines and to participate in TAG activities that pertain to the PMP species
- Access to email for TAG and PMP communication purposes
- Institutional commitment and support for training (AZA Population Management II) as well as for PMP Breeding and Transfer Plan production and distribution
- Communicate and work with IRs on an annual basis to identify current institutional wants/needs and to determine present maximum carrying capacity *prior to* analyzing the population and developing the annual Breeding and Transfer Plan
- Work with a SPMAG Advisor or PMC Biologist to produce standardized Breeding and Transfer Plans using studbook data that is as up-to-date as possible
- Produce a Breeding and Transfer Plan annually for all Antelope and Giraffe TAG PMPs (Giraffe PMP is exception)
- Disseminate the Breeding and Transfer Plan to all IRs and assist IRs in implementing this Plan
- Remain knowledgeable of on-going *ex situ* and *in situ* projects and serve as the TAG’s “champion” for the PMP species.
- Communicate regularly with the Antelope and Giraffe TAG Vice Chair for the PMP’s subgroup. Provide population status reports for annual and mid-year TAG meetings as requested.

Recommendations:

- Attend AZA Population Management II *within 12 months* of publication of the first edition of the studbook.

PMP Format and Content Guidelines

All Antelope and Giraffe TAG PMPs must conform to the standards established by AZA and as instructed in the AZA Population Management II course. **All Antelope and Giraffe TAG PMP Managers are strongly recommended to attend AZA Population Management II within 12 months of the publication of the first edition of the studbook.**

The Draft and Final versions of the Breeding and Transfer Plan should consist of the following sections:

Executive Summary (one page):

- Current population size and number of participating institutions

- Brief description of historic population size: maximum size, growing, declining, etc.
- Target population size per Antelope and Giraffe TAG's Regional Collection Plan
- State if the plan is the first iteration, or include the year of the last plan
- Current gene diversity and implications for long-term viability, including years to 90% GD, number of potential founders, etc.
- Summary tables for demographic and genetic data (include same information as tables described under full report, below)
- Special problems for the populations (e.g., reproductive, husbandry, space limitations, perception, etc.)
- Number of births and number of pairs recommended, including brief information about how numbers were determined and how pairs were identified
- Summary actions: numbers of breed pairs, transfers (to form new pairs and for other reasons), exports, and imports

Full Report:

- Table of Contents
- Descriptive Section
 - *Cover page:* Species (common and Latin name), Date, SPMAG Advisor or PMC Biologist, and PMP Manager
 - *Acknowledgements page:* Include host of meeting, dates of meeting (if any), attendees, other contributors. Also include contact information for the PMP Manager
 - *Introduction:* Brief review of species history in captivity, role of the conservation population, TAG/RCP goals for the population, list of previous plans/updates (with dates and SPMAG/PMC advisor listed)
 - *Assumptions and Managed Population:* Provide numbers for living population in the studbook, managed population, and an explanation of discrepancies between the living and the managed population (e.g., exclusions due to age, sterility, non-member institutions, unknown pedigree, etc). Explain any assumptions made during the development of the plan (or refer to previously made assumptions in analytical database). List the source of data (studbook/analytical studbook) and conventions, use of kinship vs. kinship value, etc. List software used in analyses (e.g. SPARKS, PM2000, etc)
 - *Demography:* Give a brief discussion of population trends (size, structure, rates/directions of change) vs. demographic goals. This section should include an age pyramid and appropriate additional figures, particularly those that show age specific information. Depending on the population, some appropriate figures to include are: plots of the populations size vs time (i.e., census graph of conservation vs wildborn population per year), or age specific fecundity, mortality, and/or reproductive value. Do not include plots that are not integral to the discussion of demographic trends or status. In addition a demography summary table should include:
 - Current population size; population size from previous pan (if available)
 - Target population size
 - Number of specimens excluded from genetic analysis
 - Mean generation time (T)
 - Lambda

- *Genetics*: A brief discussion of current genetic status vs goals and length of program. A graph of founder representation could be included if relevant to the genetics discussion. In addition a genetics summary should include:
 - # Founders
 - Founder Genome Equivalent (FGE)
 - Gene Diversity (GD) Retained
 - Population Mean Kinship
 - Mean Inbreeding (F)
 - Effective Population Size (Ne)
 - % Unknown in Analyzed Population
 - # Potential Founders
 - Potential FGEs
 - Potential GD
 - Years to 90% GD
 - GD at 100 years
- *Management Plan Synopsis and/or Strategy*: A brief description of what needs to be done to meet the goals (e.g. grow population to size X, recruitment of X number of founders, differential breeding over and under-represented lineages, etc). Any Capacity or Goals-type analyses – viability or sustainability synthesis should be here. This section should describe breeding strategy (low mean kinship or new founders, etc) and demographic strategy (few pairs, 10 pairs to make five offspring, etc). The management plan summary should include:
 - Number of births recommended or planned
 - Number of pairs recommended or planned
 - Number of animals involved (if multiple/polygamous pairings)
 - Number of transfers for breeding purpose and number of transfers for other reason
 - Number of imports or exports recommended
 - Any other management recommendations made (e.g. recommended contraceptions, sexing of unknown individuals, etc)
- *Recommendations Section of Full Report* (Use SPARK-plugin or PM2000 if possible)
 - Meeting/preparation Information/assumptions
 - Specimen-by-specimen recommendations: summary of recommendations for every animal in the management plan
 - Institution-by institution recommendations: detailed recommendations for each and every institution. These should contain appropriate explanations for why each specimen received the recommendation (low mean kinship, highest mean kinship, etc) and the general priority of the breeding pairs.
- *Appendices*: Should include the following if not in the main text
 - Male and Female Life Tables
 - List of animals excluded from genetic analyses (if applicable)
 - Ordered Mean Kinship list
 - MateRX MSI Matrix (if appropriate)
 - Definitions
 - Summary of data export

Publications and Distribution

- Publication of the first edition of a PMP Breeding and Transfer Plan should take place within 12 months of the first publication of the studbook and annually thereafter.
- A draft of the first edition of the breeding and transfer report must undergo review and be approved by the TAG's Steering Committee *prior to publication*. A draft of subsequent editions of the breeding and transfer report must undergo review by the Vice-Chair of the PMP's subgroup *prior to publication*.

After approval by the TAG Steering Committee (1st edition) and/or the Subgroup Vice-Chair (subsequent editions), the Draft Breeding and Transfer Plan should be sent to each participating institution in the PMP with:

- A cover letter from the PMP coordinator
 - An Executive Summary of the state of the population
 - Specimen-by-specimen recommendations in the form of a summary table (SPARK-plugin, PM2000 or similar report)
 - Institution-by-institution recommendations
- Additionally the Draft Breeding and Transfer Plan in PDF format should be posted on the AZA website for a 30-day review and comment period. When the draft is posted for review, the PMP manager should send out notification on the Antelope TAG listserv (antelope@lists.aza.org) to notify all interested individuals that the Plan is available for review.

Following the 30-day review and comment period, the Final Breeding and Transfer Plan should be distributed as follows:

- All holding institutions participating in the management program
- Studbook keeper
- Antelope and Giraffe Advisory Group Chair
- Antelope and Giraffe Advisory Group Vice-Chair for PMP's subgroup
- AZA Assistant Director, Conservation and Science – a PDF format of the Final Breeding and Transfer Plan should be sent for posting on the Member's Only section of the AZA website
- WCMC Vice-Chair for Studbooks

If you have any questions about these guidelines, please contact the TAG subgroup Vice-Chair responsible for your program or any other member of the Antelope and Giraffe Advisory Group Steering Committee.

Appendix 6. AZA Antelope and Giraffe TAG Organizational Structure

The AZA Antelope and Giraffe TAG was initiated in 1992. This TAG serves as an advisory group to AZA participating facilities for antelope, giraffe and okapi captive and field conservation. The Antelope and Giraffe TAG leadership group consists of a Chair and six appointed Vice-Chair Subgroup Coordinators and six elected Steering Committee members.

The Antelope and Giraffe TAG Chair's primary responsibility is to lead the TAG as it coordinates, facilitates and progresses toward the goals of its cooperative management and conservation programs.

The six Vice-Chair Subgroup Coordinators are appointed by the Steering Committee. The Vice-Chair's responsibilities include coordination of the activities of his/her subgroup and serving as an advisor and a TAG liaison for the program managers within his/her subgroup.

The Antelope and Giraffe TAG Secretary is responsible for conducting all TAG elections and communicating election results within the Steering Committee, to facilities and to AZA. The Secretary is also responsible for recording minutes at all TAG meetings and distributing the minutes to the TAG membership. The TAG Treasurer is responsible for organizing the TAG's financial matters.

Steering Committee

The Antelope and Giraffe TAG Steering Committee is made up of six individuals elected from the TAG/SSP Institutional Representatives (IRs). The Steering Committee members are elected by the IRs based on their ungulate management expertise, the historical commitment of their facilities toward ungulate management and conservation and/or their demonstrated leadership abilities.

The Steering Committee members are elected to three-year terms, with terms staggered. Once a year, a Call for Interest is conducted and each facility has an opportunity to put its IR up for election to the Steering Committee at that time.

Steering Committee Responsibilities

All Steering Committee members are expected to participate in the activities of the Antelope and Giraffe TAG. Steering Committee members must have the professional commitment and the institutional support to fulfill the following responsibilities:

- Dedicate sufficient time to carry out Antelope and Giraffe TAG duties
- Attend at least one Antelope and Giraffe TAG meeting per year
- Have access to email

Advisory Groups

To most effectively pursue the goals outlined in its Mission Statement, the Steering Committee of the Antelope and Giraffe TAG partners with a team of Advisors who assist with the management and conservation efforts of the TAG/SSP. Six advisors currently work with the Antelope and Giraffe TAG: Education, Field Conservation, Nutrition, Reproduction, Research, Population Management and Veterinary Medicine.

Institutional Representatives

According to the AZA guidelines for TAGs, each participating facility may designate an Institutional Representative (IR) to the TAG if it so chooses. The IR is the primary point of contact with the TAG, will receive all TAG communications and is responsible for disseminating TAG information within his/her facility. IRs are responsible for voting to elect Steering Committee Members.

The participating facilities of the Antelope and Giraffe TAG and the IRs for each facility are listed in Appendix 6.

The Steering Committee and Advisors for the TAG communicate throughout the year via email. There are two listservs available for various communications about TAG business and/or animal management.

antelopeirs@lists.aza.org is a listserv that includes the TAG Chair, Vice-Chairs, Steering Committee and IRs. This listserv is used to provide a confidential method of communicating among the Steering Committee and IRs, and for conducting TAG business (discussions, voting, etc.)

antelope@lists.aza.org is a listserv that includes the members of the above list as well as many individuals interested in antelope, giraffes and okapi. This listserv is used for more general communications with and between the TAG and IRs.

Appendix 7: Antelope and Giraffe TAG Leadership, Advisors and Institutional Representatives

Name	Email	Institution
Stephanie DeGesero	Stephanie.degesero@abilenetx.com	Abilene Zoological Gardens
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Appendix 8. Suggested Protocol for Preshipment Health Screening of Antelope Species

The institutions involved in the transfer of an antelope must communicate prior to the transfer. The receiver should be given the opportunity to request preshipment tests; ideally, the medical records and specimen report will be sent to the receiving institution prior to shipment. When determining the preshipment tests, the veterinary medical officer for the state of destination should be contacted regarding any tests that may be required before the specimen(s) can enter the state.

- I. Minimum Health Screen
 - a. Signalment and Medical History
 - i. An ARKs specimen report will provide most of the required information
 - ii. Copies of medical records, AAZK transfer forms and a health certificate should be available to the receiving institution
 - b. Preshipment Procedures
 - i. Establish a means of permanent identification of the animal, e.g. ear notch, transponder, freeze brand, etc.
 - ii. Physical examination, routine, hooftrim, serum bank, and a qualitative examination for endoparasites
 - iii. Prophylactic or therapeutic anthelmintic treatment and boosting of vaccines, e.g. tetanus toxoid
- II. Supplemental Testing: Additional health screening tests will be determined by the sending institution's existing policy which may be influenced by previous or existing disease problems, the requests from the receiving institution and the requirements of the state of destination.
 - a. Tuberculin skin testing consistent with state regulations
 - b. Rectal culture for enteric pathogens
 - c. Serological tests as indicated, e.g. Malignant Catarrhal Fever
 - d. Routine CBC, Chemistry panel
 - e. Screen for *Mycobacteria paratuberculosis*, i.e. Johne's disease by one or more of the following methods:
 - i. Radiometric culture (DNA probe)
 - ii. ELISA
 - iii. Standard culture methods

Appendix 9. Malignant Catarrhal Fever, Scott A. Gearhart, DVM, San Antonio Zoo

Malignant Catarrhal Fever (MCF) is a poorly understood, potentially devastating, reportable viral disease of exotic and domestic ruminants, making it of utmost importance to the zoo and wildlife ranching communities.

Cause/Etiology MCF is caused by *Herpesvirus*. Three similar types of herpesviruses have been discovered in conjunction with MCF: Ovine herpesvirus 2 (OHV-2), Alcelaphine herpesvirus 1 (AHV-1) and Alcelaphine herpesvirus 2 (AHV-2). AHV-2 has been found primarily in topi and hartebeest, and is generally considered to be nonpathogenic. The other two types, OHV-2 and AHV-1, have been implicated in causing clinical illness in susceptible species. OHV-2 is generally found in sheep but may be found in goats as well. AHV-1, as far as is known, is only carried by wildebeest. Infected individuals of these species (sheep, goats and wildebeest) will commonly show no signs of MCF.

Susceptible species All species of domestic and exotic ruminants are considered to be vulnerable to infection with MCF.

Transmission Close contact between reservoir and susceptible animals is the most typical means of transmission. Wildebeest calves are most commonly infected via nasal and ocular secretions though they have been known to contract the virus from the dam across the placenta. Fomites, or mechanical carriers of agents, such as shared feed and water pans, as well as individual keepers, may also serve as significant sources of transmission. Those ruminants other than sheep or wildebeest, which contract either OHV-2 or AHV-1 are considered to be “dead end hosts” and thus are not directly responsible for the spread of disease to other animals.

Clinical signs A great deal of confusion about MCF results from its ability to manifest itself in a variety of ways in multiple organ systems. Perhaps the most consistent clinical signs of the condition are high fever, profuse mucoid nasal and ocular discharges and corneal edema, or what looks like a “cloudiness” in the eyes. Other potentially significant findings of the disease might be grossly enlarged lymph nodes, crusting around the muzzle, mouth lesions, lameness, circling, tremors or gastrointestinal signs. Often animals will die without showing any premonitory signs, particularly cervids.

Diagnosis Several methods of testing for MCF are currently available, and are well described in the paper Klieforth.

Treatment There is no specific treatment for the disease; supportive care such as fluids, antibiotics and topical ointments for the eye lesions may help to sustain survivors. Some animals may recover from MCF, but may remain latently infected for life and consequently could suffer a recrudescence, or relapse, at any time. As noted above, these individuals are not infectious to other animals.

Prevention No vaccine presently exists for MCF. Testing would be indicated for any domestic or exotic ruminants showing any potential clinical signs of the disease (fever, nasal discharge, eye problems, etc). Diagnostic screening for any of the viral agents is recommended for all newborn, as well as older Alcelaphine (particularly if the herd status is unknown). It is also considered to be good practice to screen for OHV-2 in any sheep or goats that may be held by the individual or institution. Obviously, it is imperative that precautions be taken to physically separate natural hosts (sheep, goats, wildebeest) from other susceptible ruminant species, especially if the MCF status of the hosts is not known.

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