



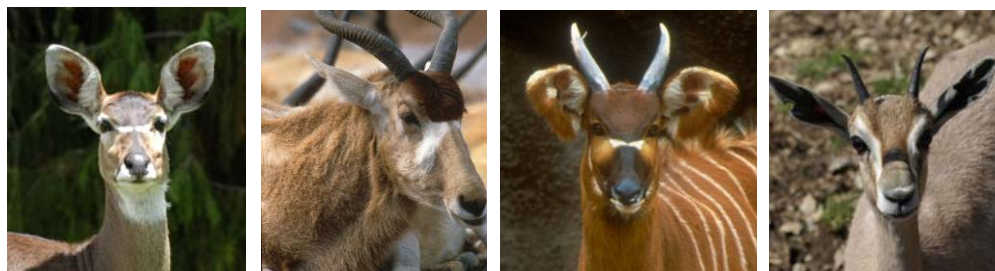
# **AZA Antelope and Giraffe Advisory Group Regional Collection Plan**

Fifth Edition

**Approved April 2009**

Compiled by  
AZA Antelope and Giraffe Advisory Group  
Steering Committee, Advisors and Institutional Representatives

**ASSOCIATION  
OF ZOOS &  
AQUARIUMS**



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*Regional Collection Plan edited by Martha Fischer, Saint Louis Zoo*

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### Introduction

This document represents the Fifth Edition of the Regional Collection Plan (RCP) for the Association of Zoos and Aquariums (AZA) Antelope and Giraffe Taxon Advisory Group (TAG). The intent of this work is to serve as a guide and a tool for AZA institutions and animal managers concerned with antelope, giraffe and okapi management, conservation and education.

Included in this edition of the RCP are recommendations regarding the antelope, giraffe and okapi programs currently managed in AZA, 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), studbook and/or ISIS 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 North America were also included as priorities for conservation actions.

This version of the RCP is intended to serve as a conduit linking AZA programs with efforts to conserve wild antelope, giraffe and okapi populations. The goal of managing our populations in AZA - to insure sustainable programs which will contribute to the conservation and awareness efforts for the species in our care - is of the highest priority.



## AZA Antelope and Giraffe Advisory Group Mission Statement

To provide guidance and recommendations to AZA institutions regarding management of antelope, giraffe and okapi and to facilitate activities and programs that support antelope, giraffe and okapi conservation in the wild

### **Goals of the AZA Antelope and Giraffe TAG**

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

- To continue to support AZA antelope, giraffe and okapi 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 *in situ* and *ex situ* antelope, giraffe and okapi awareness and conservation.
- To continue to support *in situ* research and conservation efforts that enhance and protect wild antelope, giraffe and okapi 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 AZA antelope, giraffe and okapi populations through scientific investigation.
- To provide support and, when needed, animals for global reintroduction efforts.

### **AZA Antelope and Giraffe TAG Definition**

Ninety-two antelope species occur in Africa, Europe, the Middle East, Asia and North America and are included under the umbrella of this TAG. Because the management and facilities necessary to care for giraffe and okapi are very similar to that of antelope, the management of these two non-antelope species is also included under the umbrella of this TAG. The TAG's purview covers 94 species of antelope, giraffe and okapi in the following 35 genera:

<i>Taurotragus</i>	<i>Boselaphus</i>	<i>Ourebia</i>	<i>Oryx</i>
<i>Tragelaphus</i>	<i>Pseudoryx</i>	<i>Alcelaphus</i>	<i>Gazella</i>
<i>Hippotragus</i>	<i>Cephalophus</i>	<i>Connochaetes</i>	<i>Antilocapra</i>
<i>Aepyceros</i>	<i>Madoqua</i>	<i>Damaliscus</i>	<i>Saiga</i>
<i>Antidorcas</i>	<i>Neotragus</i>	<i>Beatragus</i>	<i>Pantholops</i>
<i>Antelope</i>	<i>Dorcatragus</i>	<i>Kobus</i>	<i>Procapra</i>
<i>Litocranius</i>	<i>Raphicerus</i>	<i>Pelea</i>	<i>Okapia</i>
<i>Ammodorcas</i>	<i>Sylvicapra</i>	<i>Redunca</i>	<i>Giraffa</i>
	<i>Oreotragus</i>	<i>Addax</i>	<i>Tetracerus</i>

**Table 1. Genera under purview of AZA Antelope and Giraffe TAG**

In addition to the genera which are managed within AZA institutions, the TAG also focuses some of its conservation efforts on a limited number of *in situ* conservation programs for severely threatened antelope populations as prioritized by the IUCN SSC Antelope Specialist Group. The TAG's *in situ* Focus (ISF) programs are recommended to generate awareness, participation, and conservation support for certain species. An *ex situ* component is not a requisite for such a program, but may be considered if warranted and recommended within conservation action plans for said species.

During the life of the previous edition of the Antelope and Giraffe TAG RCP, the IUCN SSC Antelope Specialist Group reviewed and revised the taxonomic classification of several antelope species. In some cases, the taxonomic name used by ISIS and IUCN differ. These differences are noted in [Table 2](#) as well as on the Individual Species Pages.

Common name	ISIS	IUCN
<b>Forest Woodland Subgroup</b>		
Eastern giant eland	<i>Taurotragus derbianus gigas</i>	<i>Tragelaphus derbianus gigas</i>
Western Giant Eland	<i>Taurotragus derbianus derbianus</i>	<i>Tragelaphus derbianus derbianus</i>
Common eland	<i>Taurotragus oryx</i>	<i>Tragelaphus oryx</i>
Cape eland	<i>Taurotragus oryx oryx</i>	<i>Tragelaphus oryx oryx</i>
<b>Small Antelope Subgroup</b>		
Maxwell's duiker	<i>Cephalophus maxwellii</i>	<i>Philantomba maxwellii</i>
Blue duiker	<i>Cephalophus monticola</i>	<i>Philantomba monticola</i>
Suni	<i>Neotragus moschatus</i>	<i>Nesotragus moschatus</i>
<b>Aridland Antelope, Gazelle and Pronghorn Subgroup</b>		
Gemsbok	<i>Oryx gazella gazella</i>	<i>Oryx gazelle</i>
Beisa oryx	<i>Oryx gazella beisa</i>	<i>Oryx beisa beisa</i>
Fringe-eared oryx	<i>Oryx gazella callotis</i>	<i>Oryx beisa callotis</i>
Addra gazelle	<i>Gazella dama ruficollis</i>	<i>Nanger dama ruficollis</i>
Mhorr gazelle	<i>Gazella dama mhorr</i>	<i>Nanger dama mhorr</i>
Grant's gazelle	<i>Gazella granti</i>	<i>Nanger granti</i>
Thomson's gazelle	<i>Gazella thomsonii</i>	<i>Eudorcas thomsonii</i>
Nubian red-fronted gazelle	<i>Gazella rufifrons laevipes</i>	<i>Eudorcas rufifrons laevipes</i>
Nubian Soemmerring's gazelle	<i>Gazella soemmerringii soemmerringii</i>	<i>Nanger soemmerringii</i>

**Table 2. Taxonomic name differences between ISIS and IUCN SSC Antelope Specialist Group.**

### **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 zoo and field conservation.

### **Officers**

The Antelope and Giraffe TAG leadership group consists of a Chair (elected) and five Vice-Chair Subgroup Coordinators (appointed) and nine elected Steering Committee members. One of the elected SC members also serves as Secretary. A Treasurer is appointed by the Steering Committee and is not required to be a member of the Steering Committee.

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 Vice-Chair Subgroup Coordinators are appointed by the Steering Committee. A Vice-Chair's responsibilities include coordination of the activities of his/her subgroup and serving as an advisor, a mentor and a TAG liaison for the program leaders 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 nine 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.

The Antelope and Giraffe TAG conducts an annual Call for Interest to advertise and encourage IR and Steering Committee participation. During the Call for Interest period, every AZA institution has an opportunity to identify an IR for the Antelope and Giraffe TAG if they have not previously done so. At the same time every AZA institution has an opportunity to add its IR to the ballot to be considered during the Steering Committee election.

The TAG's annual Calls for Interest are distributed to all AZA Accredited Institutional Members and Certified Related Facilities, including those facilities which are not yet involved in the Antelope and Giraffe TAG, in order to raise awareness of and to encourage participation in Antelope and Giraffe TAG programs, partnerships and activities.

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 and participate in TAG discussions and decisions
- Attend at least one Antelope and Giraffe TAG meeting per year
- Have access to email

### **Advisors**

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. Eight advisors currently work with the



Antelope and Giraffe TAG to counsel TAG participants and Program Leaders on their fields of expertise as they relate to antelope, giraffe and okapi: Education, Nutrition, Reproduction, Research 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 Antelope and Giraffe TAG Steering Committee, Advisors and Program Leaders and their contact information are listed in [Appendix 1](#).

### **Listservs**

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](mailto:antelopeirs@lists.aza.org) is a closed 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](mailto:antelope@lists.aza.org) is an open listserv that includes the members of the above list as well as many individuals from AZA institutions who are interested in antelope, giraffes and okapi. This listserv is used for more general communications with and between the TAG and AZA members who are interested in antelope and giraffe.

## **Regional Collection Plan Development**

### **Information Sources**

#### *ISIS and Studbook Data*

Most North American antelope and giraffe programs managed in AZA institutions have now been assigned program leaders (studbook keepers and population managers). Program leaders will continue to be sought, as needed, as vacancies occur. 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<sup>1</sup> was utilized for species programs for which studbooks (or registries) are not yet complete or for which studbook data are outdated.

#### *Space Surveys*

All holders of antelope, giraffe and okapi in North America were polled in 2008 concerning their current and estimated future available space for these species. The 2008 Space Survey results

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<sup>1</sup> ISIS Abstracts, 2008. <http://app.isis.org/abstracts/abs.asp>

are included in [Appendix 2](#). This survey and the previous TAG Space Surveys from 3<sup>rd</sup> and 4<sup>th</sup> Editions of the Antelope and Giraffe TAG RCP<sup>2,3</sup> were utilized for development of this RCP. All AZA Accredited Institutional Members and Certified Related Facilities were asked to respond to a Space Analysis Survey. Email and/or phone call requests for information were sent out three times to each institution in order to achieve AZA's desired response rate. Ample time and opportunity were given to respond to the survey so after three requests, it was assumed that non-response to the survey by an institution indicated its lack of interest in participating in the AZA Antelope and Giraffe TAG now or in the next 3-5 years.

Overall, 192 of 232 surveyed facilities responded to the Space Analysis Survey (82.8% response rate). Of the 40 non-responders, 24 of the institutions are not currently holding antelope, giraffe or okapi and the current institutional foci (aquariums, butterfly houses, etc) of these 24 non-responding facilities suggest that they are unlikely to hold antelope, giraffe or okapi now or in the next 3-5 years. If these 24 institutions are included into the Space Analysis results with an assumed response of 0.0.0 for current, maximum and future holding, the response rate (actual + assumed responses) increases to 93%.

Results of the 2008 Space Survey indicate that currently there are 3,135 spaces occupied by antelope and 492 spaces occupied by giraffe and okapi in AZA accredited institutions and certified related facilities, for a total of 3,627 spaces currently occupied by antelope, giraffe and okapi. Currently, the maximum number of spaces available for antelope, giraffe and okapi is 6,485 (antelope – 5,597 and giraffe/okapi – 888).

When considering the maximum number of spaces available and institutions' desires to acquire/deacquire species or increase/decrease herd sizes 3-5 years in the future, the 2008 Space Analysis results indicate that the maximum capacity within TAG participating facilities in 3-5 years is projected to be 4,554 spaces for antelope and 772 spaces for giraffe and okapi (Total maximum spaces in future – 5,326).

<b>Maximum Space Available in 3-5 years</b>	<b>1999</b>	<b>2005</b>	<b>2008</b>
Antelope Spaces	5,481	4,812	4,554
Giraffes/Okapi Spaces	430	603	772
Total Maximum Space Available in 3-5	5,911	5,425	5,326

**Table 3. Comparison of projected maximum space available for antelope, giraffe and okapi in 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> editions of RCP.**

When compared to Space Survey results compiled in the previous two editions of the Antelope and Giraffe TAG RCP in [Table 3](#), this edition of the RCP is projecting a decrease in future available space for antelope and an increase in future available space for giraffes and okapi in AZA facilities 3-5 years in the future. While the projected increase in space for giraffes and okapi is positive, the projected decrease in space for antelope of nearly 1,000 spaces since the 1999 Space Survey and the decline in overall future space for antelope, giraffe and okapi

<sup>2</sup> Carter, S. and S. Shurter, editors, 1999. AZA Antelope and Giraffe Regional Collection Plan, Third Edition, 1999.

<sup>3</sup> Fischer, M. and S. Shurter, editors, 2005. AZA Antelope and Giraffe Regional Collection Plan, Fourth Edition, 2005.

(combined) through the last three RCPs are greatly concerning. Marketing and awareness campaigns to promote AZA participation in antelope, giraffe and okapi programs have always been a high priority for the TAG, but it is obvious that additional effort to promote the TAG's important conservation programs will be needed during the life of the current RCP.

Additional space for management and conservation of antelope, giraffe and okapi is potentially available at several privately-owned, non-AZA facilities, but that space was 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 populations in NA and conserve these species in the wild.

### *Population Analyses*

Whenever possible, population analyses completed by the program leaders and small population management advisors were used as references when developing the recommendations within this RCP and this information is included on the Individual Species Sheets.

### *Species Evaluation and Ranking*

As per AZA guidelines, all of the antelope and giraffe species in AZA Accredited Institutions and Certified Related Facilities were ranked according to their potential ability to contribute to the conservation of their wild counterparts. For the development of this RCP, the Antelope and Giraffe TAG used the ranking system it used previously when developing the 3<sup>rd</sup> and 4<sup>th</sup> editions of its RCP. This numerical ranking system includes a set of selection criteria ([Appendix 3](#)) which consider several factors about each species including: abundance in North America; current and potential genetic and demographic stability; potential conservation role; and institutional and public appeal.

The members of the Steering Committee processed each species through the ranking system by selecting a number value for each criterion which were then added together to arrive at a total, or a ranking, between 0 and 22 for each species, with 0 representing a species of low priority and 22 representing a species of high priority. The rankings produced by the Steering Committee members were then averaged resulting in a mean "team ranking" for each species. The tabulated results of the Steering Committee members' rankings can be found in [Appendix 4](#).

The species rankings are a means of comparing current TAG programs. The rankings generally, but not always, correspond to program recommendations as presented in [Table 4](#). The program rankings and the program recommendations can be found on each Individual Species Sheet.

Mean Ranking	General Guidelines for Assigning Program Management Level
0-8	No Program Recommended (NPR) or Phase Out (P/O)
8-14	Display/Education/Research Population (DERP) or Population Management Program (PMP)
14-22	Species Survival Program (SSP)

**Table 4. General guidelines for assigning program management level using species ranking scores.**

Sixteen of the 65 species held in AZA institutions fall outside of these general guidelines for program recommendations. Exceptions to these general guidelines are listed in [Table 5](#) along with the justifications for these exceptions.

<b>Program</b>	<b>Score</b>	<b>Program Management Level According to General Guidelines</b>	<b>Actual Program Recommendation</b>	<b>Justification for Exception</b>
Maxwell's duiker	8	DERP or PMP	P/O	Small unviable population in AZA; space needed for other duiker species
Bay duiker	8	DERP or PMP	P/O	Small unviable population in AZA; space needed for other duiker species
Royal antelope	7	P/O	DERP	Emerging program; unique species; Not managed in other regional zoo programs
Blesbok	8.5	DERP or PMP	P/O	Strong EEP program present; space needed for bontebok PMP
Topi	7	P/O	DERP	Institutional interest exists; Not managed in other regional zoo programs
Defassa waterbuck	8	DERP or PMP	P/O	Strong EEP program present; space needed for common waterbuck PMP
Ugandan Kob	7.5	P/O	DERP	Program category recommendation currently being re-evaluated by TAG
Rhebok	7	P/O	PMP	Emerging program; unique species; Not managed in other regional zoo programs
Mhorr gazelle	14	SSP	P/O	Strong EEP program; small unviable population in AZA; space needed for Addra Gazelle SSP
Speke's gazelle	12.5	DERP or PMP	SSP	Not managed in other regional zoo programs; Endangered status
Dorcas gazelle	11	DERP or PMP	P/O	Small unviable population in AZA; spaced needed for other gazelle species
Saudi goitered gazelle	9	DERP or PMP	P/O	Small unviable population in AZA; space needed for other gazelle species
Nubian red-fronted gazelle	8.5	DERP or PMP	P/O	Small unviable population in AZA; space in AZA devoted to other gazelle species
Persian gazelle	8	DERP or PMP	P/O	Strong programs in other regions; Space needed for more endangered gazelle species
Beisa oryx	8	DERP or PMP	P/O	Strong EEP program; space needed for other oryx species
Masai giraffe	14	SSP	PMP	Previously an SSP program, but downlisted; currently operating very well as a PMP

**Table 5. Exceptions to general program management level guidelines and justifications for exceptions.**

In addition to the numerical system historically used by the TAG to rank its programs, the TAG also processed each of its recommended programs through the Management Assessment Criteria Table as suggested by AZA to provide an additional layer of evaluation and a different perspective for double-checking that the TAG has assigned the appropriate management level for the programs under the TAG's purview. The results of this assessment exercise were in line with the program levels identified with the numerical ranking system in most cases. The completed Management Criteria Assessment Table can be found in [Appendix 5](#).

### Target Populations

Several factors were considered prior to setting a target population for each species, including space survey results, population status in North America, available population viability information provided by the program leader and his/her small population management advisor, as well as species management expertise and knowledge. Whenever possible, population analyses completed by the program leaders and small population management advisors (PMC or SPMAG) were used as references when developing the target population recommendations within this RCP.

All but five of the TAG's 39 programs recommended for formal (SSP or PMP) management have been analyzed in partnership with one or more small population management advisors from the PMC and/or SPMAG. 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 five pending programs are analyzed by the program leaders and advisors, the TAG will modify the estimated population targets if warranted. The five programs which have not yet been analyzed are as follows:

<b>Program</b>	<b>Analysis pending with PMC and/or SPMAG</b>	<b>In this RCP, target population estimated by:</b>
Roan Antelope (PMP)	June 2009 (PMC)	TAG Steering Committee
Lowland Nyala (PMP)	Schedule TBD	TAG Steering Committee
Steenbok (PMP)	Schedule TBD	TAG Steering Committee
Jackson's Hartebeest (PMP)	Schedule TBD	TAG Steering Committee
Rhebok (PMP)	Schedule TBD	TAG Steering Committee

**Table 6. Estimated target populations not determined through population analysis.**

One program (Sable antelope) was analyzed by a SPMAG advisor and the PMC but the high percentage of unknown pedigrees in the database prohibited complete analysis and target population determination. A target population estimate for this population was determined by the SPMAG advisor and the program leader based on their knowledge of this and/or similar species, the current level of institutional interest and space available for the species.

The TAG has recommended 11 DERP programs within this RCP for which studbooks and formal analysis are not required. For the 11 DERP programs, 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.

In order for all of the TAG's recommended programs to meet their current target populations, a total of 6,249 spaces will be needed. The current maximum space available for antelope, giraffe and okapi in AZA Institutions and Certified Related Facilities according to the 2008 space survey results is 6,485. Thus, adequate space is available within AZA Accredited Institutions and Certified Related Facilities for the current program target population recommendations represented in this RCP.

The recommended target populations for each DERP, PMP and SSP species can be found within the Program Recommendations Summary ([Table 8](#)) 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 management or aid conservation. The roles and purposes for all species are included within the Program Recommendations Summary ([Table 8](#)), on the Individual Species Sheets, and are described below.

#### **Conservation Support and Safety Net Population**

A sustainable *ex situ* 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 *ex situ* 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 *ex situ* 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 *ex situ* program that is maintained in a sustainable program to provide data for research, either basic or applied, intended to improve 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 IUCN SSC Antelope Specialist Group. An *ex situ* 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 AZA and by the Antelope and Giraffe TAG. These management categories can be found within the Program Recommendations Summary ([Table 8](#)), on the Individual Species Sheets, and are described below.

#### **SSP, Species Survival Plan**

An SSP program provides intense genetic and demographic management for an AZA population. A studbook must be established and maintained 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, addax, scimitar-horned oryx, bongo), 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. 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.

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 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 *ex situ* component is not recommended for these species but would be considered if so required.

**P/I, Phase In**

Species which are not currently a managed *ex situ* 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 programs 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.

**P/O, Phase Out**

Populations which exist 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**

### **AZA Antelope and Giraffe TAG Action Plan**

The Action Plan for the Antelope and Giraffe TAG has evolved to include the prioritization of antelope management, health, education, conservation, and research efforts. These action areas are intended to focus institutional efforts and support in linking *ex situ* and *in situ* antelope, giraffe, and okapi conservation and management programs.

The goals of the Action Plan include:

- antelope and giraffe *ex situ* conservation program development.
- strategies to promote global antelope and giraffe conservation and species diversity.
- education programs that create awareness, understanding, and appreciation of antelopes and giraffes.
- multi-disciplinary research designed to improve the health, welfare, and management, of managed and free living antelope and giraffe populations.
- bovidae health and veterinary issues that impact conservation programs or wild populations.
- partnerships to achieve mutual and bio-diverse conservation goals.

### **Summary of Priorities for 2009-2013**

- Promote conservation program development and assist program leaders as possible to achieve TAG and antelope and giraffe conservation program goals. (Program Management)
- Promote and support *in situ* conservation initiatives for antelope and habitats related to priority AZA programs. (Conservation)
- Update Antelope and Giraffe TAG website and materials (Education)
- Develop importation protocols and methods to import frozen gametes of non-domestic ruminants. (Research-Assisted Reproduction)
- Ongoing infectious disease monitoring and vigilance for bovid diseases in AZA institutions, which may seriously impact conservation program health and management. (Animal Health)

The full version of the AZA Antelope and Giraffe TAG Action Plan is provided in [Appendix 6](#).

### **Non-AZA Partners**

Many AZA antelope, giraffe and okapi programs work closely with non-AZA institutions and individuals to accomplish the goals of their 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 leaders, 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 TAG Disposition Guidelines**

The ethical disposition of antelope, giraffe and okapi 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 work. These recommended species reflect value to our institutions through their ability to educate the public, to generate interest and awareness concerning antelope, giraffe and okapi, and to contribute to antelope, giraffe and okapi conservation. The RCP also recommends methods of management which allow *ex situ* antelope, giraffe and okapi populations to flourish and perpetuate in tandem with institutional interest, demand and space availability.
2. As these recommended antelope, giraffe and okapi 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 *ex situ* population management in hopes of efficiently managing all future antelope, giraffe and okapi 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.

### **Animal Disposition Task Force**

The Antelope and Giraffe TAG Animal Disposition Task Force was formed in 1996 to review institutional disposition policies and make recommendations to institutions concerning animal disposition policy, and antelope, giraffe and okapi 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 TAG recognizes the regional and institutional differences among antelope, giraffe and okapi 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, giraffe and okapi out of managed populations.

The Antelope and Giraffe TAG 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 TAG feels are applicable to antelope, giraffe and okapi 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:
  - Does the recipient provide animals for hunting ranches?
  - Does the recipient provide animals for auctions?
  - 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.



**AZA Antelope and Giraffe Advisory Group**  
**2009 Program Recommendations Summary**  
**for**  
**Antelope, Giraffe and Okapi**



### **2009 AZA Antelope and Giraffe TAG Program Recommendations**

The 5<sup>th</sup> edition of the AZA Antelope and Giraffe TAG RCP reviewed 84 species/subspecies and is recommending 8 SSPs, 31 PMPs, 11 DERPS, 0 Phase In, 15 Phase Outs and 19 ISFs.

A summary of the program recommendations of all five editions of the Antelope and Giraffe TAG RCP is found below in [Table 7](#).

<b>Programs</b>	<b>1995</b>	<b>1997</b>	<b>1999</b>	<b>2005</b>	<b>2009</b>
<b>SSP – Species Survival Plan</b>	3	6	10	8	8
<b>PMP – Population Management Program</b>	42	42	36	33	31
<b>DERP – Display/Education/Research</b>	n/a	11	2	8	11
<b>Phase In</b>	n/a	n/a	0	0	0
<b>Phase Out or NPR</b>	n/a	n/a	36	18	15
<b>MFR - Manage for Replacement (category not used in later editions of RCP)</b>	13	11	n/a	n/a	n/a
<b>Pending more information</b>	2	6	1	0	0
<b><i>in situ</i> Focus (category not used in early editions of RCP)</b>	n/a	n/a	n/a	20	19
<b>Total Programs Reviewed</b>	<b>112</b>	<b>95</b>	<b>85</b>	<b>87</b>	<b>84</b>

**Table 7. Program recommendations summary of all five editions of the RCP.**

A summary table with the program recommendation and Program Leader changes that have occurred between the 4<sup>th</sup> and 5<sup>th</sup> editions of the RCP can be found in [Appendix 7](#).

The AZA Antelope and Giraffe TAG Program Status Table listing the date each program was initiated, the current Program Leader for each program and the date he/she assumed leadership and the date of the last publication of each studbook, PMP or SSP is provided for your information in [Appendix 8](#).

**Table 8. AZA Antelope and Giraffe TAG Program Recommendations, 2009**

Species	Program	Program Role	Target Population	Program Leader
<b>Forest/Woodland Antelope Subgroup</b>				
Eastern giant eland <i>Taurotragus derbianus gigas</i>	DERP	Conservation Support and Safety Net	75	n/a
Western giant eland <i>Taurotragus derbianus derbianus</i>	ISF	<i>in situ</i> Focus	0	Steve Shurter White Oak Cons. Center
Common and Cape eland <i>Taurotragus oryx spp.</i>	PMP	Education and Display	200	Stephanie Dolly with support from Zoo New England
Lowland nyala <i>Tragelaphus angasii</i>	PMP	Education and Display	150	Laurie McGivern Houston Zoo
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	150	Tim Wild Kansas City Zoo
Harnessed bushbuck <i>Tragelaphus scriptus scriptus</i>	P/O	n/a	0	n/a
Greater kudu <i>Tragelaphus strepsiceros</i>	PMP	Education and Display	200	Andrea DeMuth Brookgreen Gardens
Sitatunga <i>Tragelaphus spekii</i>	PMP	Education and Display	75	Gil Myers Smithsonian's National Zoo
Roan antelope <i>Hippotragus equinus</i>	PMP	Education and Display	100	Andi Kornack Binder Park Zoo
Sable antelope <i>Hippotragus niger</i>	PMP	Education and Display	150	Jill Piltz Disney's Animal Kingdom
Zambian sable antelope <i>Hippotragus niger kirkii</i>	PMP	Conservation Link and Education	30	Jill Piltz Disney's Animal Kingdom
Giant sable antelope <i>Hippotragus niger variani</i>	ISF	<i>in situ</i> Focus	0	Sharon Joseph Houston Zoo
Impala <i>Aepyceros melampus</i>	DERP	Education and Display	150	n/a

Species	Program	Program Role	Target Population	Program Leader
Black-faced impala <i>Aepyceros melampus petersi</i>	ISF	<i>in situ</i> Focus	0	Sharon Joseph Houston Zoo
Springbok <i>Antidorcas marsupialis spp.</i>	P/O	n/a	0	n/a
South African springbok <i>Antidorcas m. marsupialis</i>	PMP	Education and Display	100	Jessica Scallan Tulsa Zoo
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	Sharon Joseph Houston Zoo
<b>Small Antelope Subgroup</b>				
Bay duiker <i>Cephalophus dorsalis</i>	P/O	n/a	0	n/a
Jentink's duiker <i>Cephalophus jentinki</i>	ISF	<i>in situ</i> Focus	0	Jeff Holland Los Angeles Zoo
Maxwell's duiker <i>Cephalophus maxwellii</i>	P/O	n/a	0	n/a
Blue duiker <i>Cephalophus monticola</i>	PMP	Education and Display	75	Sarah Ksiazek Kansas City Zoo
Ader's duiker <i>Cephalophus adersi</i>	ISF	<i>in situ</i> Focus	0	Jeff Holland Los Angeles Zoo
Black duiker <i>Cephalophus niger</i>	DERP	Education and Display	25	n/a
Red-flanked duiker <i>Cephalophus rufilatus</i>	PMP	Conservation Link and Education	75	Chris Pfefferkorn Oregon Zoo
Yellow-backed duiker <i>Cephalophus silvicultor</i>	PMP	Conservation Link and Education	75	Linda Rohr Bachers Milwaukee Zoo

Species	Program	Program Role	Target Population	Program Leader
Abbott's duiker <i>Cephalophus spadix</i>	ISF	<i>in situ</i> Focus	0	Jeff Holland Los Angeles Zoo
Zebra duiker <i>Cephalophus zebra</i>	ISF	<i>in situ</i> Focus	0	Jeff Holland Los Angeles Zoo
Kenyan Guenther's dik dik <i>Madoqua guentheri smithi</i>	PMP	Education and Display	75	Paige McNickle Phoenix Zoo
Kirk's dik dik <i>Madoqua kirkii</i>	PMP	Education and Display	75	Paige McNickle Phoenix Zoo
Silver dik dik <i>Madoqua piacentinii</i>	ISF	<i>in situ</i> Focus	0	Jeff Holland Los Angeles Zoo
Suni <i>Neotragus moschatus</i>	P/O	n/a	0	n/a
Royal antelope <i>Neotragus pygmaeus</i>	DERP	Education and Display	50	n/a
Beira <i>Dorcatragus megalotis</i>	ISF	<i>in situ</i> Focus	0	Martha Fischer Saint Louis Zoo
Steenbok <i>Raphicerus campestris</i>	PMP	Education and Display	75	Bonnie Heather Holland Los Angeles Zoo
Crowned duiker <i>Sylvicapra grimmia caffra</i>	P/O	n/a	0	n/a
Klipspringer <i>Oreotragus Oreotragus</i>	PMP	Education and Display	100	Michael Lebanik Disney's Animal Kingdom
<b>Hartebeest Subgroup</b>				
Jackson's hartebeest <i>Alcelaphus buselaphus jacksoni</i>	PMP	Conservation Link and Education	50	<i>Vacant</i>
Cape hartebeest <i>Alcelaphus buselaphus caama</i>	P/O	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	Kristen Wolfe Disney's animal Kingdom
Bontebok <i>Damaliscus pygargus dorcas</i>	PMP	Conservation Support and Safety Net	152	Liesl King Disney's Animal Kingdom

Species	Program	Program Role	Target Population	Program Leader
Blesbok <i>Damaliscus pygargus phillipsi</i>	P/O	n/a	0	n/a
Hunter's hartebeest, Hirola <i>Beatragus hunteri</i>	ISF	<i>in situ</i> Focus	0	Martha Fischer Saint Louis Zoo
Topi <i>Damaliscus lunatus jimela</i>	DERP	Education and Display	35	n/a
<b>Waterbuck Subgroup</b>				
Common waterbuck <i>Kobus e. ellipsiprymnus</i>	PMP	Education and Display	150	Michelle Smurl Brevard Zoo
Defassa waterbuck <i>Kobus ellipsiprymnus Defassa</i>	P/O	n/a	0	n/a
Uganda kob <i>Kobus kob thomasi</i>	DERP	n/a	75	n/a
Red lechwe <i>Kobus leche</i>	DERP	n/a	100	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	Michael Langridge San Diego Zoo
Western mountain reedbuck <i>Redunca fulvorufula adamauae</i>	ISF	<i>in situ</i> Focus	0	Randy Rieches SDWAP
<b>Aridland Antelope, Gazelles and Pronghorn Subgroup</b>				
Addax <i>Addax nasomaculatus</i>	SSP	Conservation Support and Safety Net	250	Bill Houston Saint Louis Zoo
Scimitar-horned oryx <i>Oryx dammah</i>	SSP	Conservation Support and Safety Net	250	Ed Spevak Saint Louis Zoo
Gemsbok <i>Oryx gazella gazella</i>	PMP	Education and Display	75	Justin Chuven SDWAP
Beisa oryx <i>Oryx gazella beisa</i>	P/O	n/a	0	n/a
Fringe-eared oryx <i>Oryx gazella callotis</i>	PMP	Education and Display	85	Justin Chuven SDWAP

Species	Program	Program Role	Target Population	Program Leader
Arabian oryx <i>Oryx leucoryx</i>	SSP	Conservation Support and Safety Net	200	Terrie Correll Tulsa Zoo
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	Ann Petric
Mhorr gazelle <i>Gazella dama mhorr</i>	P/O	n/a	0	n/a
Dorcas gazelle <i>Gazella dorcas</i>	P/O	n/a	0	n/a
Grant's gazelle <i>Gazella granti</i>	PMP	Education and Display	100	Christy Poelker Saint Louis Zoo
Thomson's gazelle <i>Gazella thomsonii spp.</i>	PMP	Education and Display	175	Lanny Brown Phoenix Zoo
Slender-horned gazelle <i>Gazella leptoceros</i>	SSP	Conservation Support and Safety Net	75	Terrie Correll Tulsa Zoo
Nubian red-fronted gazelle <i>Gazella rufifrons laevipes</i>	P/O	n/a	0	n/a
Nubian Soemmerring's gazelle <i>Gazella soemmerringii</i>	PMP	Conservation Link and Education	75	Stacey Feige Konwiser The Living Desert
Speke's gazelle <i>Gazella spekei</i>	SSP	Conservation Support and Safety Net	100	Martha Fischer Saint Louis Zoo
Saudi goitered gazelle <i>Gazella subgutturosa marica</i>	P/O	n/a	0	n/a
Persian gazelle <i>Gazella subgutturosa</i>	P/O	n/a	0	n/a
Pronghorn <i>Antilocapra americana</i>	DERP	Conservation Link and Education	150	n/a
Peninsular pronghorn <i>Antilocapra a. peninsularis</i>	DERP	Conservation Support and Safety Net	50	n/a
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	Conservation Centers for Species Survival C2S2 Contact: Dan Beetem



Species	Program	Program Role	Target Population	Program Leader
Tibetan antelope <i>Pantholops hodgsonii</i>	ISF	<i>in situ</i> Focus	0	<i>Vacant</i>
Przewalski's gazelle <i>Procapra przewalskii</i>	ISF	<i>in situ</i> Focus	0	Steve Shurter White Oak Cons. Center
<b>Giraffe/Okapi Subgroup</b>				
Masai giraffe <i>Giraffa c. tippelskirchii</i>	PMP	Education and Display	150	Laurie Bingaman Lackey ISIS
Giraffe, retic/roth complex <i>Giraffa camelopardalis spp</i>	PMP	Education and Display	400 combined	Laurie Bingaman Lackey ISIS
Okapi <i>Okapia johnstoni</i>	SSP	Conservation Support and Safety Net	200	Ann Petric

## Forest/Woodland Antelope Subgroup Program Summary

Subgroup Coordinator: *Sharon Joseph, Houston Zoo, [sjoseph@houstonzoo.org](mailto:sjoseph@houstonzoo.org)*

Species listed by Ranking, highest to lowest	Score	Level	Target	Target determined by
Eastern bongo, <i>Tragelaphus eurycerus isaaci</i>	18.5	SSP	250	SPMAG analysis
Southern gerenuk, <i>Litocranius walleri walleri</i>	13.5	PMP	150	SPMAG analysis
Sable antelope, <i>Hippotragus spp.</i>	12	PMP	150	SPMAG analysis
Greater kudu, <i>Tragelaphus strepsiceros</i>	12	PMP	200	PMC analysis
Blackbuck, <i>Antelope cervicapra</i>	11.5	DERP	150	TAG Steering Committee
E. giant eland, <i>Taurotragus derbianus gigas</i>	11	DERP	75	TAG Steering Committee
Lowland nyala, <i>Tragelaphus angasii</i>	11	PMP	150	TAG Steering Committee (PMC analysis pending)
Southern lesser kudu, <i>Tragelaphus imberbis</i>	10.5	PMP	100	SPMAG analysis
Impala, <i>Aepyceros melampus spp.</i>	10.5	DERP	150	TAG Steering Committee
Common eland, <i>Taurotragus oryx</i> Cape eland, <i>Taurotragus oryx oryx</i>	10.5 10	Manage as one PMP	200 (combined)	PMC analysis
Sitatunga, <i>Tragelaphus spekii</i>	10	PMP	75	PMC analysis
Springbok, <i>Antidorcas marsupialis</i> South African springbok, <i>A. m. marsupialis</i>	10 9	P/O PMP	0 100	PMC analysis
Roan antelope, <i>Hippotragus equinus</i>	10	PMP	100	TAG Steering Committee (PMC analysis pending)
Nilgai, <i>Boselaphus tragocamelus</i>	10	DERP	100	TAG Steering Committee
Zambian sable antelope, <i>H. n. kirkii</i>	9	PMP	30	TAG Steering Committee
Western Bushbuck, <i>Tragelaphus scriptus scriptus</i>	5	P/O	0	n/a
Western giant eland, <i>Taurotragus d. derbianus</i>	-	ISF	n/a	n/a
Giant sable, <i>Hippotragus niger variani</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

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

**NA POPULATION:** 82.135.6 (123) in 53 institutions<sup>4</sup>  
**NA MANAGED POPULATION:** 44.88 (132) in 41 institutions

**PROGRAM STATUS:**

**INTERNAT'L STUDBOOK KEEPER:** Lydia Frasier-Bosley, supported by Oregon Zoo  
[lfbosley@hughes.net](mailto:lfbosley@hughes.net)

**SSP COORDINATOR:** Ron Surratt, Fort Worth Zoo  
[rsurratt@fortworthzoo.org](mailto:rsurratt@fortworthzoo.org)

**MANAGEMENT PLAN:** 2008 SSP<sup>5</sup>  
**ADVISOR(S):** Bob Wiese, San Diego Zoo  
[bwiese@sandiegozoo.org](mailto:bwiese@sandiegozoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Endangered/B1+2b

**OTHER REGIONAL PROGRAM STATUS, FROM 2007 INTERNATIONAL STUDBOOK:**

**MEXICO/SOUTH AMERICA:** 7.7.0 (13) in 3 institutions  
**EUROPE:** 78.143.0 (221) in 47 institutions  
**OTHER:** 48.57.0 (105) in 16 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 18.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 83% gene diversity for 100 years

**Population Target:** 250

**Bongo SSP Demography Summary Table**

Current size of managed population	51.88
# Specimens excluded from management	77
Mean generation time (years)	5.3
Potential population growth rate	1.131
# Births in past year	12.22.6
# Deaths in past year	12.17.1

<sup>4</sup> Bosley, L., 2007. International Studbook for Bongo *Tragelaphus eurycerus isaaci*, 2007. [www.aza.org](http://www.aza.org).

<sup>5</sup> Surratt, R. and R. Wiese, 2008. Breeding and Transfer Recommendations for AZA Eastern (Mountain) Bongo (*Tragelaphus eurycerus isaaci*) Species Survival Plan, 2008. [www.aza.org](http://www.aza.org).

**Bongo SSP Genetic Summary Table**

	Current	Potential
Founders	48	0 additional
Founder genome equivalents	9.27	16.45
Founder genome surviving	16.45	16.45
Gene diversity retained	0.946	0.97
Population mean kinship	0.054	0.03
Mean inbreeding	0.031	0.03
Ne/N	0.25	-----
% of pedigree known	83	-----

**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 3<sup>rd</sup> edition of the RCP, based on the conservation status of the species, in order to optimize long-term management of the *ex situ* 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 SSP 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. For more information on this project, please contact Ron Surratt, [rsurratt@fortworthzoo.org](mailto:rsurratt@fortworthzoo.org).

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

**NA MANAGED POPULATION:** 32.53 (85) in 15 institutions<sup>6</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Bob Barnes, Los Angeles Zoo  
[bob.barnes@lacity.org](mailto:bob.barnes@lacity.org)

**MANAGEMENT PLAN:** 2008 PMP<sup>7</sup>  
**ADVISOR(S):** Cathleen Cox, Los Angeles Zoo  
[cox bain@earthlink.net](mailto:cox bain@earthlink.net)

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present  
**OTHER:** 31.36.1 (68) in 4 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 13.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 83% genetic diversity for 10 years

**Population Target:** 150

**Gerenuk PMP Demography Summary Table**

Current size of managed population	82
# Specimens excluded from management	3
Mean generation time (years)	4.92
Potential population growth rate	1.038
# Births in past year	15
# Deaths in past year	17

<sup>6</sup> Barnes, R., 2008. AZA North America Regional Studbook for Gerenuk *Litocranius walleri walleri*, 2008. [www.aza.org](http://www.aza.org).

<sup>7</sup> Barnes, R., C. Cox and R. Noll, 2008. Breeding and Transfer Recommendations for AZA Gerenuk (*Litocranius walleri walleri*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).

**Gerenuk PMP Genetic Summary Table**

	Current	Potential
Founders	16	0 additional
Founder genome equivalents	3.64	5.95
Founder genome surviving	5.85	5.95
Gene diversity retained	0.8627	0.9160
Population mean kinship	0.1377	-----
Mean inbreeding	0.0941	-----
Ne/N	0.3193	-----
% of pedigree known	100	-----

**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 (WOCC) 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.



<b>SPECIES:</b>	Sable antelope <i>Hippotragus niger</i> (Harris, 1838) Zambian sable antelope <i>Hippotragus niger kirkii</i>
<b>PROGRAM:</b>	Population Management Plan
<b>PROGRAM ROLE AND PURPOSE:</b>	Education and Display
<b>NA POPULATION:</b>	44.87.1 (132) in 17 institutions, <i>H. niger</i> 4.7 (11) in 1 institution, <i>H. n. kirkii</i> <sup>8</sup>
<b>NA MANAGED POPULATION:</b>	37.82 (119) in 17 institutions, <i>H. niger</i> <sup>9</sup>
<b>PROGRAM STATUS:</b>	
<b>PROGRAM LEADER:</b>	Jill Piltz, Disney's Animal Kingdom <a href="mailto:jill.m.piltz@disney.com">jill.m.piltz@disney.com</a>
<b>MANAGEMENT PLAN:</b>	2007 PMP
<b>ADVISOR(S):</b>	Joe Christman, Disney's Animal Kingdom <a href="mailto:joseph.christman@disney.com">joseph.christman@disney.com</a>
<b>WILD POPULATION STATUS:</b>	
<b>CITES:</b>	Not listed
<b>IUCN:</b>	Lower Risk/Conservation Dependent
<b>OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:</b>	
<b>EUROPE:</b>	29.48 (77) in 15 institutions ( <i>H. niger</i> ) 30.44 (74) in 16 institutions ( <i>H. n. niger</i> )
<b>OTHER:</b>	18.24.1 (43) in 7 institutions ( <i>H. niger</i> )
<b>RESOURCES AVAILABLE:</b>	
<b>AZA ANTELOPE &amp; GIRAFFE TAG ANIMAL CARE MANUAL:</b>	In process
<b>SPECIES SELECTION PROCESS SCORE:</b>	<b>12</b> <i>Hippotragus niger</i> <b>9</b> <i>Hippotragus niger kirkii</i>

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## PROGRAM SUMMARY

**Program Goal:** n/a - already <90%

**Population Target:** 150 (*H. niger*) and 30 (*H. n. kirkii*). Due to the lack of information, the target for the *H. niger* population is extrapolated from similar species analysis and the population numbers needed to maintain them. The target also reflects the space available in AZA facilities.

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<sup>8</sup> Piltz, J., 2008. AZA North American Regional Studbook for the Sable Antelope *Hippotragus niger*, 2008. [www.aza.org](http://www.aza.org).

<sup>9</sup> Piltz, J. and J. Christman, 2008. Draft Breeding and Transfer Recommendations for AZA Sable Antelope (*Hippotragus niger*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).

**Sable Antelope (*H. niger kirkii* excluded) PMP Demography Summary Table**

Current size of managed population	119 (37.82)
# Specimens excluded from management	10
Mean generation time (years)	6.2
Potential population growth rate	1.03

**Sable Antelope (*H. niger kirkii* excluded) PMP Genetic Summary Table**

	Current	Potential
Founders	23	0 additional
Founder genome equivalents	n/a	n/a
Gene diversity retained	n/a	n/a
Population mean kinship	n/a	n/a
Mean inbreeding	n/a	n/a
Ne/N	?	-----
% of pedigree known	22	-----

**Comments:** It is thought that all the specimens in the North American 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.

Only 22% of this population's pedigree is known which prohibits the PMP from being able to make useful pairing recommendations based on genetic diversity or degree of relatedness. The TAG encourages all institutions managing sable antelope to record parentage of offspring on a go-forward basis if possible.

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

**NA POPULATION:** 83.135.4 (222) in 39 institutions <sup>10</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Andrea DeMuth, Brookgreen Gardens  
[ademuth@brookgreen.org](mailto:ademuth@brookgreen.org)

**MANAGEMENT PLAN:** 2009 PMP<sup>11</sup>  
**ADVISOR(S):** Ann Oiler, PMC  
[aoiler@lpzoo.org](mailto:aoiler@lpzoo.org)  
Kristen Schad, PMC  
[kschad@lpzoo.org](mailto:kschad@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 42.85.6 (133) in 32 institutions (*T. strepsiceros*)  
8.9 (17) in 9 institutions (*T. s. strepsiceros*)  
**OTHER:** 9.29 (38) in 6 institutions (*T. strepsiceros*)  
0.0.53 (53) in 1 institution (*T. s. strepsiceros*)

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 12

**PROGRAM SUMMARY**

**Program Goal:** Retain 83.68% gene diversity for 100 years

**Population Target:** 222

**Greater Kudu PMP Demography Summary Table**

Current size of managed population	83.135.4
# Specimens excluded from management	87
Mean generation time (years)	5.28
Potential population growth rate	1.01

<sup>10</sup> DeMuth, A., 2007. AZA North American Regional Studbook for Greater Kudu *Tragelaphus strepsiceros*, 2007. [www.aza.org](http://www.aza.org).

<sup>11</sup> DeMuth, A., A. Oiler and K. Schad, 2009. Draft Breeding and Transfer Recommendations for AZA Greater Kudu (*Tragelaphus strepsiceros*) Population Management Program, 2009. [www.aza.org](http://www.aza.org).

**Greater Kudu PMP Genetic Summary Table**

	Current	Potential
Founders	46	0 additional
Founder genome equivalents	7.94	14.62
Gene diversity retained	93.70	96.58
Population mean kinship	0.0630	-----
Mean inbreeding	0.0389	-----
% pedigree known before assumptions and exclusions	17.8	-----
% pedigree known after assumptions and exclusions	80.0	-----
Ne/N	0.3170	-----

**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.

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

**NA POPULATION:** 242.188.13 (443) in 18 institutions<sup>12</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Appendix III (Nepal)

**IUCN:** Vulnerable/A1c

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 188.352.102 (642) in 59 institutions

**OTHER:** 73.124.8 (205) in 13 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 11.5

**PROGRAM SUMMARY**

**Program Goal:** 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 available space.)

**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 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 AZA institutions; 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 population may be possible as the need is demonstrated.

<sup>12</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

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

**NA MANAGED POPULATION:** 22.26 (48) in 9 institutions<sup>13</sup>

**PROGRAM STATUS:**

**INTERNATIONAL STUDBOOK KEEPER:** Eric Flossic, Tulsa Zoo  
[ericflossic@yahoo.com](mailto:ericflossic@yahoo.com)

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM 2008 INTERNATIONAL STUDBOOK:**

**EUROPE:** Not present

**OTHER:** 0.5 (5) in 2 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 11

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**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.)

**Comments:** Recruitment of additional institutions is critical to the long-term management of this species in North America, but ownership issues and monetary commitment to become involved are limiting institutional participation. Husbandry research is needed for this species, particularly with regards to nutrition.

ISIS and the IUCN SSC Antelope Specialist Group use different taxonomic names for several antelope species, including the Eastern giant eland:

ISIS - *Taurotragus derbianus gigas*

IUCN - *Tragelaphus derbianus gigas*

<sup>13</sup> Flossic, E., 2008. International Studbook for the Eastern Giant Eland *Taurotragus derbianus gigas*, 2008.  
[www.aza.org](http://www.aza.org).

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

**NA MANAGED POPULATION:** 32.77.4 (113) in 20 institutions<sup>14</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Laurie McGivern, Houston Zoo  
[lmcgivern@houstonzoo.org](mailto:lmcgivern@houstonzoo.org)  
**MANAGEMENT PLAN:** First plan pending – to be scheduled  
**ADVISOR(S):** PMC

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 58.120.14 (182) in 21 institutions  
**OTHER:** 29.57.175 (261) in 10 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 11

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** Analysis pending

**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 analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

**Comments:** In recent years, 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.

<sup>14</sup> Richards, M., 2004. AZA North American Regional Studbook for the Lowland Nyala *Tragelaphus angasii*, 2004. [www.aza.org](http://www.aza.org).



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

**NA MANAGED POPULATION:** 33.43 (76) in 14 institutions<sup>15</sup>

**PROGRAM STATUS:**

**NA REGIONAL STUDBOOK KEEPER:** Melissa Miller, Saint Louis Zoo  
[lesserkudustudbook@stlzoo.org](mailto:lesserkudustudbook@stlzoo.org)

**POPULATION MANAGER:** Tim Wild, Kansas City Zoo  
[timwild@fotzkc.org](mailto:timwild@fotzkc.org)

**MANAGEMENT PLAN:** 2008 PMP<sup>16</sup>  
**ADVISOR(S):** Ed Spevak, Saint Louis Zoo  
[spevak@stlzoo.org](mailto:spevak@stlzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 31.44 (75) in 9 institutions

**OTHER:** not present

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 64% gene diversity for 100 years

**Population Target:** 150

**Lesser Kudu PMP Demography Summary Table**

Current size of managed population	76
# Specimens excluded from management	1
Mean generation time	6.4
Potential population growth rate	1.041

<sup>15</sup> Miller, M., 2008. AZA North American Regional Studbook for Lesser Kudu *Tragelaphus imberbis*, 2008. [www.aza.org](http://www.aza.org).

<sup>16</sup> Wild, T. and E. Spevak, 2008. Draft Breeding and Transfer Recommendations for AZA Lesser Kudu (*Tragelaphus imberbis*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).

**Lesser Kudu PMP Genetic Summary Table**

	Current	Potential
Founders	12	0 additional
Founder genome equivalents	2.65	4.34
Gene diversity retained	81.12	88.50
Population mean kinship	0.189	-----
Mean inbreeding	0.151	-----
Ne/N	0.24	-----
% of pedigree known	100	-----

**Comments:** This population is inbred but has grown rapidly over the last several years. Lesser kudu are relatively easy to manage and mix extremely well with other species. Additional institutions are sought for the long-term management of this species. Recruitment of additional founders is encouraged.

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

**NA POPULATION:** 85.151.14 (250) in 28 institutions, *A. melampus*<sup>17</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Lower Risk/Conservation Dependent (*A. melampus*);  
Vulnerable/D1 (*A. m. petersi*)

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 74.185.15 (274) in 21 institutions (*A. melampus*)

7.11 (18) in 2 institutions (*A. m. petersi*)

**OTHER:** 11.27.330 (368) in 14 institutions (*A. melampus*)

6.14 (20) in 2 institution (*A. m. petersi*)

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10.5

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 150

**Comments:** 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. Population analysis was attempted in January 2002. However, no masterplan produced due to outstanding issues with characterizing the population.

<sup>17</sup> Graham, D. 2007. AZA North American Regional Studbook for Impala *Aepyceros melampus*, 2007.  
[www.aza.org](http://www.aza.org).

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

**NA MANAGED POPULATION:** 104.201.11 (316) in 39 institutions<sup>18</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Stephanie Dolly  
[Ruggles214@mindspring.com](mailto:Ruggles214@mindspring.com)  
**MANAGEMENT PLAN:** 2009 PMP<sup>19</sup>  
**ADVISOR(S):** Cara Groome, PMC  
[CGroome@lpzoo.org](mailto:CGroome@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 96.241.16 (343) in 52 institutions (*T. oryx*)  
9.17 (26) in 4 institutions (*T. o. oryx*)  
**OTHER:** 45.75.6 (126) in 11 institutions (*T. oryx*)  
3.6 (9) in 1 institution (*T. o. oryx*)

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** **10.5** *Taurotragus oryx spp.*  
**10** *Taurotragus oryx oryx*

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**PROGRAM SUMMARY**

**Program Goal:** Genetic analysis and goals not possible at this time due to insufficient pedigree data.

**Population Target:** 200

**Common Eland PMP Demography Summary Table**

Current size of managed population	236 (77.156.3)
# Specimens excluded from management	0
Mean generation time	5.63
Potential population growth rate	1.0
# Births in past year	28
# Deaths in past year	16

<sup>18</sup> Dolly, S., 2009. AZA North American Regional Studbook for Common Eland *Taurotragus oryx*, 2009. [www.aza.org](http://www.aza.org).

<sup>19</sup> Dolly, S and C. Groome, 2009. Breeding and Transfer Recommendations for the AZA Common Eland (*Taurotragus oryx spp*) Population Management Program, 2009. [www.aza.org](http://www.aza.org)

**Comments:** Within this living population, there are two subspecies, “East” (*T. o. pattersonaimus*) and “Cape” (*T. o. oryx*), and many hybrids. However it has been decided by the Antelope and Giraffe Taxon Advisory Group after a recent population review that the population will be managed as a single common “generic” population and as one PMP. Subspecies data will be overlooked as animals of known subspecies comprise small, demographically unsustainable sub-populations and majority of animals have a high level of unknownness in pedigree and origin.

Genetic analysis cannot be completed for this population at this time due to insufficient pedigree data. Only 1.5% of this population's pedigree is known which prohibits the PMP from being able to make useful pairing recommendations based on genetic diversity or degree of relatedness. The TAG encourages all institutions managing common eland to record parentage of offspring on a go-forward basis if possible.

ISIS and the IUCN SSC Antelope Specialist Group use different taxonomic names for several antelope species, including common eland and Cape eland.

ISIS Common eland - *Taurotragus oryx*; Cape eland – *Taurotragus oryx*

IUCN: Common eland - *Tragelaphus oryx*; Cape eland – *Taurotragus oryx oryx*

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

**NA POPULATION:** 14.46.3 (63) in 15 institutions<sup>20</sup>  
**NA MANAGED POPULATION:** 9.27 (36) in 5 institutions

**PROGRAM STATUS:**

**PROGRAM LEADER:** Gil Myers, Smithsonian's National Zoo  
[myersg@si.edu](mailto:myersg@si.edu)

**MANAGEMENT PLAN:** 2006 PMP<sup>21</sup>  
**ADVISOR(S):** Sarah Long, PMC  
[slong@lpzoo.org](mailto:slong@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 14.22.5 (41) in 8 institutions (*T. spekii*)  
102.259.13 (374) in 43 institutions (*T. s. gratus*)  
**OTHER:** 11.15 (26) in 4 institutions (*T. spekii*)

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10

**PROGRAM SUMMARY**

**Program Goal:** Retain 49% gene diversity for 100 years

**Population Target:** 75

**Sitatunga PMP Demography Summary Table**

Current size of managed population	41
# Specimens excluded from management	5
Mean generation time (years)	6.1
Potential population growth rate	1.05

<sup>20</sup> Myers, G., 2008. AZA North American Regional Studbook for the Sitatunga *Tragelaphus spekii*, 2008.  
[www.aza.org](http://www.aza.org).

<sup>21</sup> Myers, G. and S. Long, 2006. Breeding and Transfer Recommendations for AZA Sitatunga (*Tragelaphus spekii*) Population Management Program, 2006. [www.aza.org](http://www.aza.org).

**Sitatunga PMP Genetic Summary Table**

	Current	Potential
Founders	9	0 additional
Founder genome equivalents	1.66	3.31
Gene diversity retained	69.8	84.88
Population mean kinship	0.302	-----
Mean inbreeding	0.294	-----
Ne/N	0.3384	-----
% of pedigree known (before assumptions)	0	-----
% of pedigree known (after assumptions)	87	-----

**Comments:** Although the managed population is very small, the actual number of sitatunga in the US is large. There are more sitatunga in the private sector than in the AZA population. Of special concern to the managed population is the high degree of unknownness in the pedigree. This unknownness is the result of both uncertainties deep in the historical pedigree and current offspring born to unidentified parents. Pedigree assumptions have been incorporated into an analytical studbook to estimate the amount of gene diversity in the population and to help avoid inbreeding between individuals that are likely to share a common ancestry.

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

**NA MANAGED POPULATION:** 47.36 (83) in 4 institutions<sup>22</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Jessica Scallan, Tulsa Zoo and Living Museum  
[Jessica.scallan@sbcglobal.net](mailto:Jessica.scallan@sbcglobal.net)

**MANAGEMENT PLAN:** 2005 PMP<sup>23</sup>  
**ADVISOR(S):** PMC

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 46.87.13 (146) in 15 institutions (*A. marsupialis*)

**OTHER:** 12.23.19 (54) in 4 institutions (*A. marsupialis*)

9.18 (27) in 2 institutions (*A. m. angolensis*)

6.15.448 (569) in 4 institutions (*A. m. marsupialis*)

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** **10** *Antidorcas marsupialis* spp.  
**9** *A. m. marsupialis*

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**PROGRAM SUMMARY**

**Program Goal:** Retain 50% gene diversity for 50 years

**Population Target:** 100

**Springbok PMP (*A. m. marsupialis* only) Demography Summary Table**

Current size of managed population	21.26
# Specimens excluded from management	0
Mean generation time (years)	3.5
Potential population growth rate	1.32

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<sup>22</sup> Scallan, J., 2009. AZA North American Regional Studbook for Springbok *Antidorcas marsupialis marsupialis*, 2009. [www.aza.org](http://www.aza.org).

<sup>23</sup> Christman, J., 2005. Breeding and Transfer Recommendations for AZA Springbok (*Antidorcas marsupialis marsupialis*) Population Management Program, 2005. [www.aza.org](http://www.aza.org).



**Springbok PMP (*A. m. marsupialis* only) Genetic Summary Table**

	Current	Potential
Founders		
Founder genome equivalents		
Founder genome surviving		
Gene diversity retained	0.808	0.959
Population mean kinship	0.192	-----
Mean inbreeding	0.094	-----
Ne/N	0.09	-----
% of pedigree known	82	-----

**Comments:** A combined studbook for all three forms of springbok is recommended, maintaining subspecific designations for those specimens for which they are known. The PMP will manage only the *A. m. marsupialis* subspecies. All other springbok in NA are of unknown and untraceable ancestry and the decision was made to discontinue management and to concentrate the program's efforts on the animals of known parentage.

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

**NA MANAGED POPULATION:** 42.43 (85) in 12 institutions<sup>24</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Andi Kornak, Binder Park Zoo  
[akornak@binderparkzoo.org](mailto:akornak@binderparkzoo.org)

**MANAGEMENT PLAN:** First plan pending - scheduled for June 2009  
**ADVISOR(S):** PMC

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 27.42 (69) in 13 institutions

**OTHER:** 3.10.4 (17) in 2 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** Analysis pending; PMC appointment scheduled for June 2009

**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 analysis occurs with updated data at the PMC in June 2009, the TAG will modify this population target figure, if necessary).

**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.

<sup>24</sup> Kornak, A., 2007. AZA North American Regional Studbook for the Roan Antelope *Hippotragus equines*, 2007. [www.aza.org](http://www.aza.org).

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

**NA POPULATION:** 36.41.1 (78) in 16 institutions<sup>25</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not Listed

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 77.181.15 (273) in 40 institutions

**OTHER:** 22.25.5 (52) in 9 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** 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.)

**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 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 zoos; 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 population may be possible as the need is demonstrated.

<sup>25</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Western bushbuck <i>Tragelaphus scriptus scriptus</i> (Pallas, 1766)
<b>PROGRAM:</b>	Phase Out
<b>PROGRAM ROLE AND PURPOSE:</b>	n/a

**NA POPULATION:** 3.8 (11) in 1 institutions<sup>26</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not Listed

**IUCN:** Not Listed

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present

**OTHER:** 4.10.31 (45) in 4 institutions (*T. scriptus*)

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** n/a

**AZA ANTELOPE CARE STANDARDS:** n/a

**SPECIES SELECTION PROCESS SCORE:** 5

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**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**Comments:** 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.

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<sup>26</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

## 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's demise. Very little actual protection is afforded the species and numbers continue to decline. A managed 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, [steves@wogilman.com](mailto:steves@wogilman.com)**

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**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. 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.

The Saint Louis Zoo's WildCare Institute Center for Conservation in the Horn of Africa was established to provide *in situ* and *ex situ* conservation support for wildlife of the Horn of Africa, including mountain nyala. By supporting community-based coalitions and actively establishing a variety of conservation, research and education programs, this Center is striking a lasting balance between the needs of community members and the imperiled existence of several rare species. Emerging conservation research and education programs for the mountain nyala are being given important ground-floor support through emerging conservation organizations in Ethiopia. Additional partners are needed to support these ongoing programs that will lead to the development of a formal national conservation strategy for this endangered species.

**For information on how to become involved, contact Martha Fischer, [fischer@stlzoo.org](mailto:fischer@stlzoo.org)**

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**Giant sable antelope**                      *Hippotragus niger variiani* (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 managed 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](mailto:sjoseph@houstonzoo.org)

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<b>Black-faced impala</b>	<i>Aepyceros melampus petersi</i> (Lichtenstein, 1812)
<b>Range:</b> Angola, Namibia	<b>Wild population estimate:</b> >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 *ex situ* program was attempted in North America but was not successful. Conservation support and future *ex situ* programs may be warranted to assist the species.

**For information on how to become involved, contact Sharon Joseph,**  
[shoseph@houstonzoo.org](mailto:shoseph@houstonzoo.org)

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<b>Dibatag</b>	<i>Ammodorcas clarkei</i> (Thomas, 1891)
<b>Range:</b> Ethiopia, Djibouti	<b>Wild population estimate:</b> 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 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 private herds however a managed program may be warranted to assist conservation goals.

**For information on how to become involved, contact Martha Fischer,** [fischer@stlzoo.org](mailto:fischer@stlzoo.org)

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<b>Saola</b>	<i>Pseudoryx nghetinhensis</i> (MacKinnon, 1993)
<b>Range:</b> Vietnam, Laos	<b>Wild population estimate:</b> <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. 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 Sharon Joseph,**  
[sjoseph@houstonzoo.org](mailto:sjoseph@houstonzoo.org)

## Small Antelope Subgroup Program Summary

Subgroup Coordinator: Jeff Holland, Los Angeles Zoo, [jeff.holland@lacity.org](mailto:jeff.holland@lacity.org)

Species listed by Ranking, highest to lowest	Score	Level	Target	Target determined by
Yellow-backed duiker, <i>Cephalophus silvicultor</i>	11	PMP	75	PMC analysis
Klipspringer, <i>Oreotragus oreotragus spp</i>	10	PMP	100	SPMAG analysis
Blue duiker, <i>Cephalophus monticola</i>	10	PMP	75	SPMAG analysis
Guenther's dik dik, <i>Madoqua guentheri</i>	10	PMP	75	PMC analysis
Kirk's dik dik, <i>Madoqua kirkii</i>	9	PMP	75	PMC analysis
Red-flanked duiker, <i>Cephalophus rufilatus</i>	9	PMP	75	SPMAG analysis
Steenbok, <i>Raphicerus campestris</i>	8.5	PMP	75	TAG Steering Committee (analysis by SPMAG or PMC pending)
Black duiker, <i>Cephalophus niger</i>	8	DERP	25	TAG Steering Committee
Maxwell's duiker, <i>Cephalophus maxwellii</i>	8	P/O	0	n/a
Bay duiker, <i>Cephalophus dorsalis</i>	8	P/O	0	n/a
Royal antelope, <i>Neotragus pygmaeus</i>	7	DERP	50	TAG Steering Committee
Suni, <i>Neotragus moschatus</i>	6.5	P/O	0	n/a
Crowned duiker, <i>Sylvicapra grimmia caffra</i>	6.5	P/O	0	n/a
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

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

**NA POPULATION:** 42.33.1 (76) in 28 institutions<sup>27</sup>  
**NA MANAGED POPULATION:** 37.31.2 (70) in 28 institutions<sup>28</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Linda Rohr Bachers, Milwaukee County Zoo  
[Linda.bachers@milwcnty.com](mailto:Linda.bachers@milwcnty.com)

**MANAGEMENT PLAN:** 2008 PMP  
**ADVISOR(S):** Colleen Lynch, PMC  
[clynch@lpzoo.org](mailto:clynch@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Appendix II  
**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 0.2 (2) in 2 institutions  
**OTHER:** 1.0 (1) in 1 institution

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** Zoological Society of San Diego  
Gloria Kendall  
**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 11

**PROGRAM SUMMARY**

**Program Goal:** Retain 72% gene diversity for 100 years  
**Population Target:** 75

**Yellow-Backed Duiker PMP Demography Summary Table**

Current size of managed population	70
# Specimens excluded from management	2
Mean generation time (years)	6.7
Potential population growth rate	1.04

<sup>27</sup> Bachers, L., 2009. International Studbook for Yellow-backed Duiker *Cephalophus silvicultor*, 2009.  
[www.aza.org](http://www.aza.org)

<sup>28</sup> Bachers, L. and C. Lynch, 2008. Breeding and Transfer Recommendations for the AZA Yellow-backed Duiker (*Cephalophus silvicultor*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).



**Yellow-Backed Duiker PMP Genetic Summary Table**

	Current	Potential
Founders	14	0 additional
Founder genome equivalents	4.37	8.71
Gene diversity retained	88.56	94.26
Population mean kinship	0.1144	-----
Mean inbreeding	0.694	-----
Ne/N	0.426	-----
% of pedigree known	100	-----

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

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

**NA MANAGED POPULATION:** 24.24 (48) in 17 institutions<sup>29</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Michael Lebanik, Disney's Animal Kingdom  
[michael.g.lebanik.jr@disney.com](mailto:michael.g.lebanik.jr@disney.com)

**MANAGEMENT PLAN:** 2009 PMP<sup>30</sup>  
**ADVISOR(S):** Joseph Christman, Disney's Animal Kingdom  
[Joseph.christman@disney.com](mailto: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 2008:**

**EUROPE:** 1.2 (3) in 1 institution (*O. oreotragus*)  
4.2 (6) in 3 institutions (*O. o. saltatrixoides*)  
**OTHER:** 0.1.9 (10) in 2 institution (*O. oreotragus*)  
0.0.1 (1) in 1 institution (*O. o. oreotragus*)

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10

**PROGRAM SUMMARY**

**Program Goal:** Retain 67% gene diversity for 100 years

**Population Target:** 100

**Klipspringer PMP Demography Summary Table**

Current size of managed population	24.24
# Specimens excluded from management	9
Mean generation time (years)	7.21
Potential population growth rate	1.048

<sup>29</sup> Lebanik, M., 2008. AZA North American Regional Studbook for the Klipspringer *Oreotragus oreotragus*, 2008. [www.aza.org](http://www.aza.org).

<sup>30</sup> Lebanik, M. and J. Christman, 2009. Draft Breeding and Transfer Recommendations for the AZA Klipspringer (*Oreotragus oreotragus*) Population Management Program, 2009. [www.aza.org](http://www.aza.org).

**Klipspringer PMP Genetic Summary Table**

	Current	Potential
Founders	8	0 additional
Founder genome equivalents	2.87	4.27
Gene diversity retained	82.6	88.3
Population mean kinship	0.174	0.117
Mean inbreeding	0.094	-----
Ne/N	0.37	-----
% of pedigree known (before assumptions)	100	-----
Lambda	1.048	

**Comments:** It is extremely important both genetically and demographically that this population grow as quickly as possible to the target population size. The social behavior, specifically the pair bonding, of this species creates challenges in maintaining them in large numbers. Careful cooperation among a large number of institutions and/or a commitment of multiple spaces for breeding pairs will be required for this program to be successful. The PMP is in need of additional breeding and holding institutions as partners in this conservation program.

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

**NA MANAGED POPULATION:** 28.24 (52) at 17 institutions<sup>31</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Sarah Ksiazek, Kansas City Zoo  
[Alphadawg7@gmail.com](mailto:Alphadawg7@gmail.com)

**MANAGEMENT PLAN:** 2006 PMP<sup>32</sup>  
**ADVISOR(S):** PMC

**WILD POPULATION STATUS:**

**CITES:** Appendix II  
**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 2.3 (5) in 2 institutions (*C. monticola*)  
0.2 (2) in 1 institutions (hybrids)  
11.12 (23) in 3 institutions (*C. m. schultzei*)  
**OTHER:** 7.12.1 (20) in 3 institution (*C. monticola*)  
23.25.2 (50) in 6 institutions (*C. m. bicolor*)

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** Found in the March 15, 2002 Bay, Black and Red-flanked Duiker studbook  
**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10

**PROGRAM SUMMARY**

**Program Goal:** Retain 84% gene diversity for 20 years

**Population Target:** 75

**Blue Duiker PMP Demography Summary Table**

Current size of managed population	20.19
# Specimens excluded from management	5
Mean generation time (years)	4.7
Potential population growth rate	1.016
# Births in past year	11
# Deaths in past year	13

<sup>31</sup> Roman, J., 2006. AZA North American Regional Studbook for the Blue Duiker *Cephalophus monticola*, 2006. [www.aza.org](http://www.aza.org).

<sup>32</sup> Roman, J. and L. Bingaman Lackey, 2006. Breeding and Transfer Recommendations for the AZA Blue Duiker (*Cephalophus monticola*) Population Management Program, 2006. [www.aza.org](http://www.aza.org).

**Blue Duiker PMP Genetic Summary Table**

	Current	Potential
Founders	27	0 additional
Founder genome equivalents	6.89	11.38
Founder genome surviving	11.04	11.38
Gene diversity retained	0.927	0.956
Population mean kinship	0.073	-----
Mean inbreeding	0.027	-----
Ne/N	0.4	-----
% of pedigree known	100	-----

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

ISIS and the IUCN SSC Antelope Specialist Group use different taxonomic names for several antelope species, including the blue duiker.

ISIS – *Cephalophus monticola*

IUCN – *Philantomba monticola*

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

**NA MANAGED POPULATION:** 17.11 (28) at 15 institutions<sup>33</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Paige McNickle, Phoenix Zoo  
[PMcnickle@thephxzoo.com](mailto:PMcnickle@thephxzoo.com)

**MANAGEMENT PLAN:** PMP 2008<sup>34</sup>  
**ADVISOR(S):** Colleen Lynch, PMC  
[clynch@lpzoo.org](mailto:clynch@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present  
**OTHER:** Not present

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10

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**PROGRAM SUMMARY**

**Program Goal:** Retain 45% gene diversity for 100 years

**Population Target:** 75

**Guenther's Dik-Dik PMP Demography Summary Table**

Current size of managed population	31
# Specimens excluded from management	5
Mean generation time (years)	4.5
Potential population growth rate	1.07

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<sup>33</sup> Wilson, D., 2008. AZA North American Regional Studbook for the Guenther's Dik-Dik *Madoqua guentheri* and the Kirk's Dik-Dik *Madoqua kirkii*, 2008. [www.aza.org](http://www.aza.org).

<sup>34</sup> Wilson, D. and C. Lynch, 2008. Breeding and Transfer Recommendations for the AZA Guenther's Dik-Dik (*Madoqua guentheri*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).

**Guenther's Dik-Dik PMP Genetic Summary Table**

	Current	Potential
Founders	7	0 additional
Founder genome equivalents	2.39	3.83
Gene diversity retained	79.05	86.94
Population mean kinship	0.2095	-----
Mean inbreeding	0.1757	-----
Ne/N	0.15	0.30
% of pedigree known (before exclusions)	80.5	-----
% of pedigree known (after exclusions)	100	-----

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

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

**NA MANAGED POPULATION:** 24.30 (54) at 18 institutions<sup>35</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Paige McNickle, Phoenix Zoo  
[PMcnickle@theplxzoo.com](mailto:PMcnickle@theplxzoo.com)

**MANAGEMENT PLAN:** PMP 2008<sup>36</sup>  
**ADVISOR(S):** Colleen Lynch, PMC  
[clynch@lpzoo.org](mailto:clynch@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

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

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 9

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**PROGRAM SUMMARY**

**Program Goal:** Retain 48% gene diversity for 100 years

**Population Target:** 75

**Kirk's Dik-Dik PMP Demography Summary Table**

Current size of managed population	46
# Specimens excluded from management	8
Mean generation time (years)	4.6
Potential population growth rate	1.01 - 1.08

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<sup>35</sup> Wilson, D., 2008. AZA North American Regional Studbook for the Guenther's Dik-Dik *Madoqua guentheri* and the Kirk's Dik-Dik *Madoqua kirkii*, 2008. [www.aza.org](http://www.aza.org).

<sup>36</sup> Wilson, D. and C. Lynch, 2007. Breeding and Transfer Recommendations for the AZA Kirk's Dik-Dik (*Madoqua kirkii*) Population Management Program, 2007. [www.aza.org](http://www.aza.org).



**Kirk's Dik-Dik PMP Genetic Summary Table**

	Current	Potential
Founders	14	0 additional
Founder genome equivalents	2.92	5.06
Gene diversity retained	81.69	90.12
Population mean kinship	0.1710	-----
Mean inbreeding	0.1490	-----
Ne/N	0.3483	-----
% of pedigree known (before assumptions & exclusions)	72.5	-----
% of pedigree known (after assumptions & exclusions)	90.5	-----

**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. Until the cytotypes are determined, these “unknown” animals are not recommended to breed.

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

**NA MANAGED POPULATION:** 21.17 (38) in 15 institutions<sup>37</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Chris Pfefferkorn, Oregon Zoo  
[Chris.pfefferkorn@oregonzoo.org](mailto:Chris.pfefferkorn@oregonzoo.org)

**MANAGEMENT PLAN:** 2007 PMP<sup>38</sup>  
**ADVISOR(S):** PMC

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Lower Risk/Conservation Dependant

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**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 & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 9

**PROGRAM SUMMARY**

**Program Goal:** Retain 82% gene diversity for 50 years

**Population Target:** 75

**Red-Flanked Duiker PMP Demography Summary Table**

Current size of managed population	27.22
# Specimens excluded from management	0
Mean generation time (years)	5.6
Potential population growth rate	1.02
# Births in past year	4
# Deaths in past year	5

<sup>37</sup> Pfefferkorn, C, 2009. AZA North American Regional Studbook for the Red Flanked Duiker *Cephalophus rufilatus*, 2009. [www.aza.org](http://www.aza.org).

<sup>38</sup> Pfefferkorn, C. and L. Bingaman Lackey, 2007. Breeding and Transfer Recommendations for the AZA Red-flanked Duiker (*Cephalophus rufilatus*) Population Management Program, 2007. [www.aza.org](http://www.aza.org).

**Red-Flanked Duiker PMP Genetic Summary Table**

	Current	Potential
Founders	11	1 additional
Founder genome equivalents	3.95	9.87
Founder genome surviving	8.45	9.87
Gene diversity retained	0.873	0.949
Population mean kinship	0.127	0.051
Mean inbreeding	0.115	0.051
Ne/N	0.38	-----
% of pedigree known	100	-----

**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.

<b>SPECIES:</b>	Steenbok <i>Raphicerus campestris</i> (H. Smith, 1827)
<b>PROGRAM:</b>	Population Management Program
<b>PROGRAM ROLE AND PURPOSE:</b>	Education and Display

**NA MANAGED POPULATION:** 15.13.1 (29) in 7 institutions<sup>39</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Bonnie Heather Holland  
[Heather.Holland@lacity.org](mailto:Heather.Holland@lacity.org)  
**MANAGEMENT PLAN:** New program - first plan pending  
**ADVISOR(S):** PMC

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present  
**OTHER:** 6.7 (13) in 5 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 8.5

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** New program; 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 analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

**Comments:** Steenbok 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.

<sup>39</sup> ISIS Abstract 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Black duiker <i>Cephalophus niger</i> (Gray, 1846)
<b>PROGRAM:</b>	Display/Education/Research Population
<b>PROGRAM ROLE AND PURPOSE:</b>	Education and Display
<b>NA POPULATION:</b>	10.9 (19) in 5 institutions <sup>40</sup>
<b>PROGRAM STATUS:</b>	
<b>PROGRAM LEADER:</b>	n/a
<b>MANAGEMENT PLAN:</b>	n/a
<b>ADVISOR(S):</b>	n/a
<b>WILD POPULATION STATUS:</b>	
<b>CITES:</b>	Not Listed
<b>IUCN:</b>	Lower Risk/Near Threatened
<b>OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:</b>	
<b>EUROPE:</b>	Not present
<b>OTHER:</b>	Not present
<b>RESOURCES AVAILABLE:</b>	
<b>HUSBANDRY MANUAL:</b>	Found in the March 15, 2002 Bay, Black and Red-flanked Duiker studbook
<b>AZA ANTELOPE &amp; GIRAFFE TAG ANIMAL CARE MANUAL:</b>	In process
<b>SPECIES SELECTION PROCESS SCORE:</b>	<b>8</b>

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## PROGRAM SUMMARY

**Program Goal and Characteristics:** n/a

**Population Target:** 25

**Comments:** Despite the ranking of 8, the North American black duiker population's low zoo 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.

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<sup>40</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Maxwell's duiker <i>Cephalophus maxwellii</i> (H. Smith, 1827)
<b>PROGRAM:</b>	Phase Out
<b>PROGRAM ROLE AND PURPOSE:</b>	n/a

**NA POPULATION:** 2.3 (5) in 1 institution<sup>41</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not Listed

**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 0.1 (1) in 1 institution

**OTHER:** 1.0 (1) in 1 institution

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 8

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**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 zoo management and husbandry issues, particularly in the field of nutrition. At one time it was thought that the Maxwell's duiker program might be valuable in contributing to these goals as a model for other duiker programs, however now the population is too small to be viable even as a DERP program. AZA institutions with Maxwell's duiker are recommended to pursue programs with similar duiker species of greater conservation value.

ISIS and the IUCN SSC Antelope Specialist Group use different taxonomic names for several antelope species, including the Maxwell's duiker.

ISIS – *Cephalophus maxwellii*  
IUCN – *Philantomba maxwellii*

<sup>41</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Bay duiker <i>Cephalophus dorsalis</i> (Gray, 1846)
<b>PROGRAM:</b>	Phase Out
<b>PROGRAM ROLE AND PURPOSE:</b>	n/a
<b>NA POPULATION:</b>	6.7 (13) in 3 institutions <sup>42</sup>
<b>PROGRAM STATUS:</b>	
<b>PROGRAM LEADER:</b>	n/a
<b>MANAGEMENT PLAN:</b>	n/a
<b>ADVISOR(S):</b>	n/a
<b>WILD POPULATION STATUS:</b>	
<b>CITES:</b>	Appendix II
<b>IUCN:</b>	Lower Risk/Near Threatened
<b>OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:</b>	
<b>EUROPE:</b>	Not present
<b>OTHER:</b>	Not present
<b>RESOURCES AVAILABLE:</b>	
<b>HUSBANDRY MANUAL:</b>	Found in the March 15, 2002 Bay, Black and Red-flanked Duiker studbook
<b>AZA ANTELOPE &amp; GIRAFFE TAG ANIMAL CARE MANUAL:</b>	In process
<b>SPECIES SELECTION PROCESS SCORE:</b>	8

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## PROGRAM SUMMARY

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**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 zoo numbers it is recommended to phase out this population to provide spaces for other duiker programs.

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<sup>42</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Royal antelope <i>Neotragus pygmaeus</i>
<b>PROGRAM:</b>	Display/Education/Research Population
<b>PROGRAM ROLE AND PURPOSE:</b>	Education and Display

**NA POPULATION:** 8.9.2 (19) in 2 institutions<sup>43</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not Listed

**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present

**OTHER:** Not present

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 7

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**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. If this program develops into a formally managed program in the future, further analysis in partnership with PMC or SPMAG will determine an appropriate target population).

**Comments:** This species is of low conservation concern. However, because of the institutional interest that exists, the TAG is recommending that this species be phased into collections. If husbandry is successful for the species and institutional interest continues, the TAG may reconsider this species for a more formal program in the future.

<sup>43</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>



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

**NA POPULATION:** 0.1 (1) in 1 institution<sup>44</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not Listed

**IUCN:** Lower Risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 4.4.2 (10) in 4 institutions

**OTHER:** 4.2 (6) in 1 institution

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** n/a

**SPECIES SELECTION PROCESS SCORE:** 6.5

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**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.

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including suni.

ISIS: *Neotragus moschatus*

IUCN: *Nesotragus moschatus*

<sup>44</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Crowned duiker <i>Sylvicapra grimmia caffra</i>
<b>PROGRAM:</b>	Phase Out
<b>PROGRAM ROLE AND PURPOSE:</b>	n/a
<b>NA POPULATION:</b>	3.1 (4) in 2 institutions <sup>45</sup>
<b>PROGRAM STATUS:</b>	
<b>PROGRAM LEADER:</b>	n/a
<b>MANAGEMENT PLAN:</b>	n/a
<b>ADVISOR(S):</b>	n/a
<b>WILD POPULATION STATUS:</b>	
<b>CITES:</b>	Not Listed
<b>IUCN:</b>	Lower Risk/Near Threatened
<b>OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:</b>	
<b>EUROPE:</b>	Not present
<b>OTHER:</b>	12.21.29 (62) in 8 institutions
<b>RESOURCES AVAILABLE:</b>	
<b>HUSBANDRY MANUAL:</b>	n/a
<b>SPECIES SELECTION PROCESS SCORE:</b>	<b>6.5</b>

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#### PROGRAM SUMMARY

**Program Goal and Characteristics:** n/a

**Population Target:** 0

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

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<sup>45</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

## 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 managed program is known to exist.

**For information on how to become involved, contact Jeff Holland, [jeff.holland@lacity.org](mailto:jeff.holland@lacity.org)**

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**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 managed 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 Jeff Holland, [jeff.holland@lacity.org](mailto:jeff.holland@lacity.org)**

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**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 managed program for the species in North America has not been successful.

**For information on how to become involved, contact Jeff Holland, [jeff.holland@lacity.org](mailto:jeff.holland@lacity.org)**

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**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 managed program for the species in North America was not successful.

**For information on how to become involved, contact Jeff Holland, [jeff.holland@lacity.org](mailto:jeff.holland@lacity.org)**

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**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 managed 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 Jeff Holland, [jeff.holland@lacity.org](mailto:jeff.holland@lacity.org)**

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**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 an *ex situ* group known at one facility in Qatar.

**For information on how to become involved, contact Martha Fischer, [fischer@stlzoo.org](mailto:fischer@stlzoo.org)**

## Hartebeest Subgroup Program Summary

Subgroup Coordinator: *Dan Beetem, The Wilds*, [dbeetem@thewilds.org](mailto:dbeetem@thewilds.org)

Species listed by Ranking, highest to lowest	Score	Level	Target	Target determined by
Bontebok, <i>Damaliscus pygargus dorcas</i>	12	PMP	152	SPMAG analysis
White-bearded wildebeest, <i>Connochaetes taurinus</i>	10.5	PMP	122	SPMAG or PMC analysis
Blesbok, <i>Damaliscus pygargus phillipsi</i>	8.5	P/O	0	n/a
Jackson's hartebeest, <i>Alcelaphus buselaphus jacksoni</i>	8	PMP	50	TAG Steering Committee (analysis by SPMAG or PMC pending)
Topi, <i>Damaliscus lunatus jimela</i>	7	DERP	35	TAG Steering Committee
Cape hartebeest, <i>Alcelaphus buselaphus caama</i>	7	P/O	0	n/a
Hunter's hartebeest (Hirola), <i>Beatragus hunteri</i>	-	ISF	n/a	n/a
Swayne's hartebeest, <i>Alcelaphus buselaphus swaynei</i>	-	ISF	n/a	n/a

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

**NA MANAGED POPULATION:** 25.50.1 (76) at 15 institutions<sup>46</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Liesl King, Disney's Animal Kingdom  
[liesl.king@disney.com](mailto:liesl.king@disney.com)

**MANAGEMENT PLAN:** 2008 PMP<sup>47</sup>  
**ADVISOR(S):** Joe Christman, Disney's Animal Kingdom  
[Joseph.christman@disney.com](mailto:Joseph.christman@disney.com)

**WILD POPULATION STATUS:**

**CITES:** Appendix II  
**IUCN:** Vulnerable  
**USFWS:** Endangered

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present  
**OTHER:** 3.3 (6) in 2 institutions

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** Antelope Husbandry Manual – Alcelaphinae, Ed. By  
Lance Aubery [laubery@sandiegozoo.org](mailto:laubery@sandiegozoo.org)  
**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 12

**PROGRAM SUMMARY**

**Program Goal:** Retain 75% gene diversity for 100 years

**Population target:** 152

**Bontebok PMP Demography Summary Table**

Current size of managed population	18.46.1
# Specimens excluded from management	11
Mean generation time (years)	6.7
Potential population growth rate	1.02

<sup>46</sup> King, L., 2008. AZA North American Regional Studbook for Bontebok *Damaliscus dorcas*, 2008. [www.aza.org](http://www.aza.org).

<sup>47</sup> King, L. and J. Christman, 2008. Draft Breeding and Transfer Recommendations for the AZA Bontebok (*Damaliscus dorcas*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).

**Bontebok PMP Genetic Summary Table**

	Current	Potential
Founders	12	0 additional
Founder genome equivalents	3.65	5.961
Founder genome surviving	5.96	5.96
Gene diversity retained	86.3	91.6
Population mean kinship	0.137	0.084
Mean inbreeding	0.093	0.084
Ne/N	0.41	-----
% of pedigree known	72	-----

**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 pygargus dorcus*, the TAG recommends that blesbok be phased out of North American zoo collections and be replaced with bontebok. As with other members of the hartebeest group, screening of all individuals for Malignant Catarrhal Fever is recommended.

<b>SPECIES:</b>	Common wildebeest <i>Connochaetes taurinus albojubatus</i> (Burchell, 1823)
<b>PROGRAM:</b>	Population Management Plan
<b>PROGRAM ROLE AND PURPOSE:</b>	Education and Display

**NA MANAGED POPULATION:** 52.93.35 (180) in 18 institutions<sup>48</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Kristen Wolfe, Disney's Animal Kingdom  
[Kristen.wolfe@disney.com](mailto:Kristen.wolfe@disney.com)

**MANAGEMENT PLAN:** 2002 PMP<sup>49</sup>

**ADVISOR(S):** Sarah Long, PMC  
[slong@lpzoo.org](mailto:slong@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 23.45.62 (130) in 19 institutions (*C. taurinus*)  
11.21.1 (33) in 5 institutions (*C. t. albojubatus*)  
63.108.11 (182) in 31 institutions (*C. t. taurinus*)

**OTHER:** 2.4.2 (6) in 3 institutions (*C. taurinus*)  
0.0.29 (29) in 1 institution (*C. t. albojubatus*)  
3.5.109 (117) in 6 institutions (*C. t. taurinus*)

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10.5

## PROGRAM SUMMARY

**Program Goal:** 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

**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*. As with other members of the hartebeest group, screening of all individuals for Malignant Catarrhal Fever is recommended.

<sup>48</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<sup>49</sup> Joseph, S. and S. Long, 2002. Breeding and Transfer Recommendations for the AZA Common Wildebeest *Connochaetes taurinus* 2002.



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

**NA POPULATION:** 12.16.2 (30) at 12 institutions<sup>50</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 47.98.7 (152) in 32 institutions

**OTHER:** 5.5.214 (215) in 4 institutions

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** n/a

**SPECIES SELECTION PROCESS SCORE:** 8.5

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**Comments:** The wild population of blesbok is currently stable. Due to the more critical conservation status of *Damaliscus pygargus dorcas*, the TAG is recommending that blesbok be phased out of North American zoo 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.

<sup>50</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

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

**NA MANAGED POPULATION:** 10.18 (28) at 3 institutions<sup>51</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Currently Vacant - program leader selection in progress  
**MANAGEMENT PLAN:** New program - First plan pending  
**ADVISOR(S):** PMC

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present  
**OTHER:** Not present

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** Antelope Husbandry Manual – Alcelaphinae, Ed. By  
Lance Aubery [laubery@sandiegozoo.org](mailto:laubery@sandiegozoo.org)  
**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 8

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** New program; 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 analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

**Comments:** The North American zoo 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 managed 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. 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.

<sup>51</sup> Kment, E., 2008. Personal Communication.

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

**NA POPULATION:** 8.6 (14) at 4 institutions<sup>52</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

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

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present

**OTHER:** Not present

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** Antelope Husbandry Manual – Alcelaphinae, Ed. By  
Lance Aubery [laubery@sandiegozoo.org](mailto:laubery@sandiegozoo.org)

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 7

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**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).

**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 *ex situ* program will become increasingly more important.

However, at this time, there is no formal management program recommended for this species, due to the non-viable status of the current population. Preliminary analysis of this population in 2003 indicated that genetically and demographically a long-term management program is not possible without additional animals/founders. Recruitment of additional institutions and importation of additional founders would be critical for a long-term management program for this species. For now, this population shall be maintained for husbandry/management research.

It is believed that all topi in North American collections are *Damaliscus lunatus jimela*.

<sup>52</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

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

**NA POPULATION:** 0.1 (1) in 1 institution<sup>53</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 2.5 (7) in 2 institution

**OTHER:** 1.2.23 (26) in 3 institutions

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** n/a

**SPECIES SELECTION PROCESS SCORE:** 7

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**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 population. The TAG recommendations for this species maybe reviewed should there be potential to import additional founders for the North American population.

<sup>53</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

## Hartebeest Subgroup *in situ* Focus Species

### **Hirola, Hunter's Hartebeest**

**Range:** Kenya, Somalia

*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 zoos 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 through the Northern Rangelands Trust. Further support for hirola conservation activities is needed

**For information on how to become involved, contact Martha Fischer, [fischer@stlzoo.org](mailto:fischer@stlzoo.org)**

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### **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](mailto:fischer@stlzoo.org)**

## Waterbuck Subgroup Program Summary

Subgroup Coordinator: **Randy Rieches, SDWAP, [rrieches@sandiegozoo.org](mailto:rrieches@sandiegozoo.org)**

Species listed by Ranking, highest to lowest	Score	Level	Target	Target determined by
Nile lechwe, <i>Kobus megaceros</i>	10.5	PMP	200	SPMAG & PMC analysis
Common waterbuck, <i>Kobus ellipsiprymnus</i>	9	PMP	150	PMC analysis
Defassa waterbuck, <i>Kobus ellipsiprymnus defassa</i>	8	P/O	0	n/a
Red lechwe, <i>Kobus leche</i>	8	DERP	100	TAG Steering Committee
Uganda kob, <i>Kobus kob thomasi</i>	7.5	DERP	75	TAG Steering Committee
Rhebok, <i>Pelea capreolus</i>	7	PMP	50	TAG Steering Committee (analysis by SPMAG or PMC pending)
Western mountain reedbuck, <i>Redunca fulvorufula adamauae</i>	-	ISF	n/a	n/a

<b>SPECIES:</b>	Nile lechwe <i>Kobus megaceros</i> (Fitzinger, 1855)
<b>PROGRAM:</b>	Population Management Plan
<b>PROGRAM ROLE AND PURPOSE:</b>	Conservation Link and Education
<b>NA MANAGED POPULATION:</b>	69.136.43 (248) at 15 institutions <sup>54</sup>
<b>MANAGED POPULATION:</b>	40.68 (108) at 13 institutions <sup>55</sup>
<b>PROGRAM STATUS:</b>	
<b>PROGRAM LEADER:</b>	Matt Hohne, Disney's Animal Kingdom <a href="mailto:Matthew.hohne@disney.com">Matthew.hohne@disney.com</a>
<b>MANAGEMENT PLAN:</b>	2008 PMP
<b>ADVISOR(S):</b>	Sarah Long, PMC <a href="mailto:slong@lpzoo.org">slong@lpzoo.org</a>
<b>WILD POPULATION STATUS:</b>	
<b>CITES:</b>	Appendix II
<b>IUCN:</b>	Lower Risk/Near Threatened
<b>OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:</b>	
<b>EUROPE:</b>	50.112.4 (166) in 13 institutions
<b>OTHER:</b>	Not present
<b>RESOURCES AVAILABLE:</b>	
<b>HUSBANDRY MANUAL:</b>	In Reduncinae Husbandry Manual, ZSSD, <a href="mailto:rieches@sandiegozoo.org">rieches@sandiegozoo.org</a>
<b>AZA ANTELOPE &amp; GIRAFFE TAG ANIMAL CARE MANUAL:</b>	In process
<b>SPECIES SELECTION PROCESS SCORE:</b>	<b>10.5</b>

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## PROGRAM SUMMARY

**Program Goal:** Retain 61.4% gene diversity for 100 years

**Population target:** 200

### Nile Lechwe PMP Demography Summary Table

Current size of managed population	40.68
# Specimens excluded from management	23
Mean generation time (years)	5.3
Potential population growth rate	1.087
# Births in past year	53
# Deaths in past year	8

<sup>54</sup> Hohne, M., 2008. AZA North American Regional Studbook for the Nile Lechwe *Kobus megaceros*, 2008. [www.aza.org](http://www.aza.org).

<sup>55</sup> Hohne, M. and S. Long, 2008. Breeding and Transfer Recommendations for the AZA Nile Lechwe (*Kobus megaceros*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).

**Nile Lechwe PMP Genetic Summary Table**

	Current	Potential
Founders	11	0 additional
Founder genome equivalents	3.24	5.56
Gene diversity retained	84.55	91.00
Population mean kinship	0.1545	-----
Mean inbreeding	0.2033	-----
Ne/N	0.16	0.25
% of pedigree known (before assumptions and exclusions)	22.3	-----
% of pedigree known (after assumptions and exclusions)	86.5	-----

**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 occurred in 2008 and will assist to identify priorities for the regional program.



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

**NA POPULATION:** 121.162.30 (313) at 31 institutions<sup>56</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Michelle Smurl, Brevard Zoo  
[msmurl@brevardzoo.org](mailto:msmurl@brevardzoo.org)

**MANAGEMENT PLAN:** 2007 PMP<sup>57</sup>  
**ADVISOR(S):** Sarah Long, PMC  
[slong@lpzoo.org](mailto:slong@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 3.12 (15) in 5 institutions  
**OTHER:** 5.17.20 (42) in 6 institutions

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** In Reduncinae Husbandry Manual, ZSSD,  
[rieches@sandiegozoo.org](mailto:rieches@sandiegozoo.org)

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 9

**PROGRAM SUMMARY**

**Program Goal:** Retain 60% gene diversity for 100 years

**Population target:** 150

**Common Waterbuck PMP Demography Summary Table**

Current size of managed population	238
# Specimens excluded from management	182
# Specimens following exclusions	56
Mean generation time (years)	5.5
Potential population growth rate	1.03

<sup>56</sup> Smurl, M., 2008. AZA North American Regional Studbook for Common Waterbuck *Kobus ellipsiprymnus* and Defassa Waterbuck *Kobus ellipsiprymnus defassa*, 2008. [www.aza.org](http://www.aza.org).

<sup>57</sup> Smurl, M. and S. Long, 2007. Breeding and Transfer Recommendations for the AZA Common Waterbuck (*Kobus ellipsiprymnus*) Population Management Plan, 2007. [www.aza.org](http://www.aza.org).

**Common Waterbuck PMP Genetic Summary Table**

	Current	Potential
Founders	17	0 additional
Founder genome equivalents	3.24	6.17
Founder genome surviving	6.17	6.17
Gene diversity retained	84.57	91.89
Population mean kinship	0.1543	-----
Mean inbreeding	0.1960	-----
Ne/N	0.2236	-----
% of pedigree known (before assumptions & exclusions)	2.9	-----
% of pedigree known (after assumptions)	41.6	-----
% of pedigree known (after assumptions & exclusions)	92.6	-----

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

<b>SPECIES:</b>	Defassa Waterbuck <i>Kobus ellipsiprymnus defassa</i>
<b>PROGRAM:</b>	Phase Out
<b>PROGRAM ROLE AND PURPOSE:</b>	n/a

**NA POPULATION:** 11.38 (49) at 7 institutions

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not Listed

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 36.76.9 (121) in 18 institutions

**OTHER:** 3.8 (11) in 3 institutions

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** In Reduncinae Husbandry Manual, ZSSD,  
[rrieches@sandiegozoo.org](mailto:rrieches@sandiegozoo.org)

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 8

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**Comments:** Institutions are encouraged to work with *K. e. ellipsiprymnus*.

<b>SPECIES:</b>	Red lechwe <i>Kobus leche</i> (Gray, 1850)
<b>PROGRAM:</b>	Display/Education/Research Population
<b>PROGRAM ROLE AND PURPOSE:</b>	Education and Display
<b>NA POPULATION:</b>	27.47.12 (86) in 6 institutions <sup>58</sup>
<b>PROGRAM STATUS:</b>	
<b>PROGRAM LEADER:</b>	n/a
<b>MANAGEMENT PLAN:</b>	n/a
<b>ADVISOR(S):</b>	n/a
<b>WILD POPULATION STATUS:</b>	
<b>CITES:</b>	Appendix II
<b>IUCN:</b>	Lower Risk/Conservation Dependent – <i>K. l. leche</i> ; Vulnerable/D2 – <i>K. l. kafuensis</i>
<b>OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:</b>	
<b>EUROPE:</b>	37.90.17 (144) in 19 institutions ( <i>K. leche</i> ) 66.152.2 (220) in 25 institutions ( <i>K. l. kafuensis</i> ) 25.41.8 (74) in 7 institutions ( <i>K. l. leche</i> )
<b>OTHER:</b>	14.16.3 (33) in 3 institutions ( <i>K. leche</i> ) 2.10.106 (118) in 5 institutions ( <i>K. l. kafuensis</i> ) 16.27.1 (44) in 3 institutions ( <i>K. l. leche</i> )
<b>RESOURCES AVAILABLE:</b>	
<b>HUSBANDRY MANUAL:</b>	n/a
<b>SPECIES SELECTION PROCESS SCORE:</b>	<b>8</b>

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## PROGRAM SUMMARY

**Program Goal and Characteristics:** n/a

**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).

**Comments:** 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 conservation reservoir for the species. Historically, no AZA program has been recommended for the red and Kafue lechwe due to the perceived low level of institutional interest for these populations in North America. The first three editions of the RCP recommended Manage For Replacement (1st and 2nd eds.) and No Program Recommended (3rd ed.). The Phase Out recommendation given in the 4th edition was intended to reduce space competition for related species programs of higher conservation concern. That said, this species continues to be held in AZA zoos despite the Phase Out recommendation of the TAG, suggesting that institutional interest may be stronger than originally believed. This RCP recommends this program as a DERP for now and the TAG Steering Committee will be undertaking an analysis of the current population to determine if this program management level recommendation warrants reconsideration.

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<sup>58</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Uganda kob <i>Kobus kob thomasi</i> (Erxleben, 1777)
<b>PROGRAM:</b>	Display/Education/Research Population
<b>PROGRAM ROLE AND PURPOSE:</b>	Education and Display
<b>NA POPULATION:</b>	24.17.15 (66) in 4 institutions <sup>59</sup>
<b>PROGRAM STATUS:</b>	
<b>PROGRAM LEADER:</b>	n/a
<b>MANAGEMENT PLAN:</b>	n/a
<b>ADVISOR(S):</b>	n/a
<b>WILD POPULATION STATUS:</b>	
<b>CITES:</b>	Not Listed
<b>IUCN:</b>	Lower Risk/Conservation Dependent
<b>OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:</b>	
<b>EUROPE:</b>	Not present
<b>OTHER:</b>	Not present
<b>RESOURCES AVAILABLE:</b>	
<b>HUSBANDRY MANUAL:</b>	n/a
<b>SPECIES SELECTION PROCESS SCORE:</b>	<b>7.5</b>

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## PROGRAM SUMMARY

**Program Goal and Characteristics:** n/a

**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 analysis occurs with updated data, the TAG will modify this population target figure, if necessary).

**Comments:** Historically, no program has been recommended for Uganda kob by the TAG. The wild population has remained stable at 1,000,000 and the species is not of current high conservation concern. The first three editions of the RCP recommended Manage for Replacement (1st and 2nd eds.) and No Program Recommended (3rd ed.). The Phase Out recommendation given in the 4th edition was intended to reduce space competition for related species programs of higher conservation concern. That said, this species continues to be held in AZA zoos despite the Phase Out recommendation of the TAG, suggesting that institutional interest may be stronger than originally believed. This RCP recommends this program as a DERP for now and the TAG Steering Committee will be undertaking an analysis of the current population to determine if this program management level recommendation warrants reconsideration.

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<sup>59</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

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

**NA MANAGED POPULATION:** 10.12 (22) at 3 institutions<sup>60</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Michael Langridge, San Diego Zoo  
[Sdwildlife1976@yahoo.com](mailto:Sdwildlife1976@yahoo.com)  
**MANAGEMENT PLAN:** New program – first plan pending  
**ADVISOR(S):** Jamie Ivy, San Diego Zoo  
[jivy@sandiegozoo.org](mailto:jivy@sandiegozoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Conservation Dependent  
**USFWS:** Endangered

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present  
**OTHER:** 0.0.18 (18) in 1 institution

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 7

**PROGRAM SUMMARY**

**Program Goal:** New program; 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 analysis occurs with updated data, the TAG will modify this population target figure if necessary).

**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 will become available for additional holding institutions.

<sup>60</sup> San Diego Zoo, 2008. Personal Communication.

## **Waterbuck Subgroup**

### ***in situ* Focus Species**

**Western mountain reedbuck**

***Redunca fulvorufula adamauae* (Afzelius 1815)**

**Range:** Nigeria, Cameroon

**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 *ex situ* program is known.

**For information on how to become involved, contact Randy Rieches, [rrieches@sandiegozoo.org](mailto:rrieches@sandiegozoo.org)**

**Aridland Antelope, Gazelle and Pronghorn Subgroup Program Summary**  
**Subgroup Coordinator: Martha Fischer, Saint Louis Zoo, [fischer@stlzoo.org](mailto:fischer@stlzoo.org)**

Species listed by Ranking, highest to lowest	Score	Level	Target	Target determined by
Addax, <i>Addax nasomaculatus</i>	19.5	SSP	250	SPMAG analysis
Scimitar-horned oryx, <i>Oryx dammah</i>	19	SSP	250	SPMAG analysis
Arabian oryx, <i>Oryx leucoryx</i>	18	SSP	200	SPMAG analysis
Addra gazelle, <i>Gazella dama ruficollis</i>	16	SSP	200	SPMAG analysis
Slender-horned gazelle, <i>Gazella leptoceros</i>	14.5	SSP	75	PMC analysis
Mhorr gazelle, <i>Gazella dama mhorr</i>	14	P/O	0	n/a
Peninsular pronghorn, <i>Antilocapra americana peninsularis</i>	13	DERP	50	TAG Steering Committee
Speke's gazelle, <i>Gazella spekei</i>	12.5	SSP	100	SPMAG analysis
Cuvier's gazelle, <i>Gazella cuvieri</i>	12.5	PMP	125	PMC analysis
Pronghorn, <i>Antilocapra americana</i> spp.	12.5	DERP	150	TAG Steering Committee
Dorcas gazelle, <i>Gazella dorcas</i> spp.	11	P/O	0	n/a
Nubian Soemmerring's gazelle, <i>Gazella soemmerringii</i>	10.5	PMP	75	PMC analysis
Thomson's gazelle, <i>Gazella thomsonii</i>	10	PMP	175	PMC analysis
Gemsbok, <i>Oryx gazella gazella</i>	9	PMP	75	SPMAG analysis
Saudi goitered gazelle, <i>Gazella subgutturosa marica</i>	9	P/O	0	n/a
Fringe-eared oryx, <i>Oryx gazella callotis</i>	8.5	PMP	85	SPMAG analysis
Grant's gazelle, <i>Gazella granti</i>	8.5	PMP	100	SPMAG analysis
Nubian red-fronted gazelle, <i>Gazella rufifrons laevipes</i>	8.5	P/O	0	n/a
Persian gazelle, <i>Gazella subgutturosa subgutturosa</i>	8	P/O	0	n/a
Beisa oryx, <i>Oryx gazella beisa</i>	8	P/O	0	n/a
Saiga, <i>Saiga tatarica</i> spp.	--	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
Sonoran pronghorn, <i>Antilocapra americana sonoriensis</i>	-	ISF	n/a	n/a



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

**NA POPULATION:** 105.162.6 (273) in 38 institutions<sup>61</sup>  
**NA MANAGED POPULATION:** 62.118.16 (196) in 19 institutions<sup>62</sup>

**PROGRAM STATUS:**

**INTERNAT'L STUDBOOK KEEPER:** Terrie Correll, Tulsa Zoo  
[tcorrell@cityoftulsa.org](mailto:tcorrell@cityoftulsa.org)  
**SSP COORDINATOR:** Bill Houston, Saint Louis Zoo  
[Houston@stlzoo.org](mailto:Houston@stlzoo.org)  
**SSP VICE-COORDINATOR:** Tim Their, Saint Louis Zoo  
[tthier@stlzoo.org](mailto:tthier@stlzoo.org)  
**MANAGEMENT PLAN:** 2009 SSP  
**ADVISOR(S):** Ed Spevak, Saint Louis Zoo  
[spevak@stlzoo.org](mailto:spevak@stlzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Appendix I  
**IUCN:** Critically Endangered/A1c

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 111.184.8 (303) in 34 institutions  
**OTHER:** 18.26 (44) in 8 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 19.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 71.4% gene diversity for 100 years

**Population Target:** 250

**Addax SSP Demography Summary Table**

Current size of managed population	62.118.16
# Specimens excluded from management	0
Mean generation time (years)	5.9
Potential population growth rate	1.134

<sup>61</sup> Correll, T., 2008. International Studbook for Addax *Addax nasomaculatus*, 2008.

<sup>62</sup> Houston, W. and E. Spevak, 2009. Draft Breeding and Transfer Recommendations for the AZA Addax (*Addax nasomaculatus*) Species Survival Plan, 2009. [www.aza.org](http://www.aza.org).

**Addax SSP Genetic Summary Table**

	Current	Potential
Founders	15	0 additional
Founder genome equivalents	3.03	7.52
Gene diversity retained	83.5	93.3
Population mean kinship	0.165	-----
Mean inbreeding	0.149	-----
Ne/N	0.22	-----
% of pedigree known	95	-----

**Comments:** Additional *ex situ* 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.

Recent work in Niger, Tunisia, Morocco and other addax range states in the Sahelo-Saharan region underscores the importance of maintaining our AZA addax population as a potential reservoir from which future reintroductions might one day spring. The addax SSP has worked with our European (EEP) counterparts to establish a global management dataset and to set priorities for responding to the growing number of inquiries about the availability of addax for reintroduction. Working with the Addax EEP as well as the Scimitar-horned Oryx SSP and EEP, the Addax SSP was able to send 13 addax to Tunisia (Djebel National Park) joining animals from the EEP to reestablish this species to Tunisia.

Support from the international zoo 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 AZA program and to support conservation initiatives for the species through the Sahara Conservation Fund.

Twenty-five AZA facilities have joined with international zoos and conservation organizations to support the activities of the Sahara Conservation Fund (SCF). SCF is a young, dynamic organization with a unique mission – the conservation of the wildlife of the Sahara and its bordering Sahelian grasslands. To implement its mission, SCF forges partnerships between people, governments, the world zoo and scientific communities, international conventions, NGOs and donor agencies. A powerful network with a common goal – the conservation of deserts and their unique natural and cultural heritage. People working together to share their commitment, resources, skills and enthusiasm. The TAG strongly urges AZA institutions with an interest in addax to consider supporting the good work of the Sahara Conservation Fund. For more information, please visit [www.saharaconservation.org](http://www.saharaconservation.org).

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

**NA POPULATION:** (419) in 41 institutions  
**NA MANAGED POPULATION:** 49,140.2 (191) in 24 institutions<sup>63</sup>

**PROGRAM STATUS:**

**SSP COORDINATOR:** Ed Spevak, Saint Louis Zoo  
[spevak@stlzoo.org](mailto:spevak@stlzoo.org)

**MANAGEMENT PLAN:** 2009 SSP  
**ADVISOR(S):** Ed Spevak, Saint Louis Zoo  
[spevak@stlzoo.org](mailto:spevak@stlzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Appendix I  
**IUCN:** Extinct in Wild

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 111,184.8 (303) in 34 institutions  
**OTHER:** 18.26 (44) in 8 institutions

**RESOURCES AVAILABLE:**

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

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 19

**PROGRAM SUMMARY**

**Program Goal:** Retain 82.67% gene diversity for 100 years

**Population Target:** 250

**Scimitar-horned Oryx SSP Demography Summary Table**

Current size of managed population	49,140.2 (191)
# Specimens excluded from management	0
Mean generation time (years)	5.8
Potential population growth rate	1.125

<sup>63</sup> Spevak, E., 2009. Draft Breeding and Transfer Recommendations for the AZA Scimitar-horned Oryx (*Oryx dammah*) Species Survival Plan, 2009. [www.aza.org](http://www.aza.org)

**Scimitar-horned Oryx SSP Genetic Summary Table**

	Current	Potential
Founders	32	0 additional
Founder genome equivalents	10.59	17.87
Gene diversity retained	95.28	97.2
Population mean kinship	0.0472	-----
Mean inbreeding	0.0533	-----
Ne/N	0.2004	-----
% of pedigree known	83	-----

**Comments:** Conservation projects to return the scimitar-horned oryx to a portion of its original range are ongoing in several range states. The scimitar-horned oryx SSP has worked with the EEP to establish a global management dataset and to set priorities for responding to the growing number of inquiries about the availability of scimitar-horned oryx for reintroduction. Working with the Scimitar-horned Oryx EEP as well as the Addax SSP and EEP, the Scimitar-horned Oryx SSP was able to send seven oryx to Tunisia (Dghoumes National Park) joining animals from the EEP to reestablish this species to Tunisia.

Twenty-five AZA facilities have joined with international zoos and conservation organizations to support the activities of the Sahara Conservation Fund (SCF). SCF is a young, dynamic organization with a unique mission – the conservation of the wildlife of the Sahara and its bordering Sahelian grasslands. To implement its mission, SCF forges partnerships between people, governments, the world zoo and scientific communities, international conventions, NGOs and donor agencies. A powerful network with a common goal – the conservation of deserts and their unique natural and cultural heritage. People working together to share their commitment, resources, skills and enthusiasm. The TAG strongly urges AZA institutions with an interest in scimitar-horned oryx to consider supporting the good work of the Sahara Conservation Fund. For more information, please visit [www.saharaconservation.org](http://www.saharaconservation.org).

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

**NA POPULATION:** 65.86.1 (152) in 20 institutions<sup>64</sup>  
**NA MANAGED POPULATION:** 41.62.1 (104) in 16 institutions<sup>65</sup>

**PROGRAM STATUS:**

**INTERNAT'L STUDBOOK KEEPER** Karen Sausman, The Living Desert  
[ksausman@livingdesert.org](mailto:ksausman@livingdesert.org)

**PROGRAM LEADER:** Terrie Correll, Tulsa Zoo  
[tcorrell@cityoftulsa.org](mailto:tcorrell@cityoftulsa.org)

**MANAGEMENT PLAN:** 2007 SSP  
**ADVISOR(S):** PMC

**WILD POPULATION STATUS:**

**CITES:** Appendix I  
**IUCN:** Endangered/D1  
**OTHER:** USFWS Endangered

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 232.303.175 (710) individuals in 30 institutions  
**OTHER:** 11.23 (34) individuals in 5 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 18

**PROGRAM SUMMARY**

**Program Goal:** Retain 82% gene diversity for 50 years

**Population target:** 200

**Arabian Oryx SSP Demography Summary Table**

Current size of managed population	104
# Specimens excluded from management	10
Mean generation time (years)	6.3
Potential population growth rate	1.066

<sup>64</sup> Sausman, K., 2008. International Studbook for the Arabian Oryx *Oryx leucoryx*, 2008.

<sup>65</sup> Brown, J. and E. Spevak, 2007. Breeding and Transfer Recommendations for the AZA Arabian Oryx (*Oryx leucoryx*) Species Survival Plan, 2007. [www.aza.org](http://www.aza.org).

**Arabian Oryx SSP Genetic Summary Table**

	Current	Potential
Founders	13	0 additional
Founder genome equivalents	6.26	9.62
Founder genome surviving	9.62	9.62
Gene diversity retained	0.92	0.948
Population mean kinship	0.08	0.052
Mean inbreeding	0.057	0.052
Ne/N	0.26	-----
% of pedigree known	100	-----

**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.

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

**NA POPULATION:** 58.87.6 (151) in 26 institutions<sup>66</sup>  
**NA MANAGED POPULATION:** 48.71.2. (121) in 19 institutions<sup>67</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Ann Petric, with support from Saint Louis Zoo  
[apetric@earthlink.net](mailto:apetric@earthlink.net)

**MANAGEMENT PLAN:** 2008 SSP  
**ADVISOR(S):** Ed Spevak, Saint Louis Zoo  
[spevak@stlzoo.org](mailto:spevak@stlzoo.org)

**WILD POPULATION STATUS:**

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

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 13.18 (31) in 4 institutions  
**OTHER:** 23.34.13 (70) in 5 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 16

**PROGRAM SUMMARY**

**Program Goal:** Retain 74.95% gene diversity for 100 years

**Population target:** 200

**Addra Gazelle SSP Demography Summary Table**

Current size of managed population	48.72.2
# Specimens excluded from management	50
Mean generation time (years)	4.7
Potential population growth rate	1.143
# Births in past year	25
# Deaths in past year	12

<sup>66</sup> Petric, A., 2008. AZA North American Regional Studbook for the Addra Gazelle *Gazella dama*, 2008. [www.aza.org](http://www.aza.org).

<sup>67</sup> Petric, A. and E. Spevak, 2008. Breeding and Transfer Recommendations for the AZA Addra Gazelle (*Gazelle dama*) Species Survival Plan, 2008. [www.aza.org](http://www.aza.org).

**Addra Gazelle SSP Genetic Summary Table**

	Current	Potential
Founders	13	0 additional
Founder genome equivalents	3.81	6.79
Founder genome surviving	6.79	6.79
Gene diversity retained	0.869	0.926
Population mean kinship	0.131	0.074
Mean inbreeding	0.119	0.074
Ne/N	0.37	-----
% of pedigree known	95	-----

**Comments:** The addra gazelle is of high conservation concern due to its nearly extinct status in the wild. The only significant population of addra gazelle outside its range is in zoos in North America, so the AZA program is truly a safety net to extinction. Institutions are highly encouraged to consider working with this species and to support conservation efforts that benefit this endangered gazelle.

Twenty-five AZA facilities have joined with international zoos and conservation organizations to support the activities of the Sahara Conservation Fund (SCF). SCF is a young, dynamic organization with a unique mission – the conservation of the wildlife of the Sahara and its bordering Sahelian grasslands. To implement its mission, SCF forges partnerships between people, governments, the world zoo and scientific communities, international conventions, NGOs and donor agencies. A powerful network with a common goal – the conservation of deserts and their unique natural and cultural heritage. People working together to share their commitment, resources, skills and enthusiasm. The TAG strongly urges AZA institutions with an interest in addra gazelles to consider supporting the good work of the Sahara Conservation Fund. For more information, please visit [www.saharaconservation.org](http://www.saharaconservation.org).

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including Addra gazelle.

ISIS: *Gazella dama ruficollis*

IUCN: *Nanger dama ruficollis*



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

**NA POPULATION:** 25.35 (60) in 11 institutions<sup>68</sup>  
**NA MANAGED POPULATION:** 23.30 (53) in 10 institutions<sup>69</sup>

**PROGRAM STATUS:**

**INTERNAT'L STUDBOOK KEEPER:** Terrie Correll, Tulsa Zoo  
[tcorrell@cityoftulsa.org](mailto:tcorrell@cityoftulsa.org)

**SSP COORDINATOR:** Terrie Correll, Tulsa Zoo  
[tcorrell@cityoftulsa.org](mailto:tcorrell@cityoftulsa.org)

**MANAGEMENT PLAN:** 2008 SSP  
**ADVISOR(S):** Sarah Long, PMC  
[slong@lpzoo.org](mailto:slong@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Appendix III  
**IUCN:** Endangered/C1 + 2a  
**Other:** USFWS Endangered

**OTHER REGIONAL PROGRAM STATUS, FROM INTERNATIONAL STUDBOOK 2008:**

**EUROPE:** 4.12 (16) in 2 institutions  
**OTHER:** Not present

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 14.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 36% gene diversity for 100 years

**Population target:** 75

**Slender-horned Gazelle SSP Demography Summary Table**

Current size of managed population	23.30
# Specimens excluded from management	4
Mean generation time (years)	4
Potential population growth rate	1.04

<sup>68</sup> Correll, T., 2008. International Studbook for the Slender-horned Gazelle *Gazella leptoceros*, 2008.

<sup>69</sup> Correll, T. and S. Long, 2008. Breeding and Transfer Recommendations for the AZA Slender-horned Gazelle (*Gazella leptoceros*) Species Survival Plan, 2008. [www.aza.org](http://www.aza.org).

**Slender-horned Gazelle SSP Genetic Summary Table**

	Current	Potential
Founders	3	0 additional
Founder genome equivalents	1.16	1.93
Gene diversity retained	56.78	73.72
Population mean kinship	0.4322	-----
Mean inbreeding	0.4270	-----
Ne/N	0.2395	-----
% of pedigree known (before assumptions)	19.5	-----
% of pedigree known (after assumptions)	100	-----

**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.

Twenty-five AZA facilities have joined with international zoos and conservation organizations to support the activities of the Sahara Conservation Fund (SCF). SCF is a young, dynamic organization with a unique mission – the conservation of the wildlife of the Sahara and its bordering Sahelian grasslands. To implement its mission, SCF forges partnerships between people, governments, the world zoo and scientific communities, international conventions, NGOs and donor agencies. A powerful network with a common goal – the conservation of deserts and their unique natural and cultural heritage. People working together to share their commitment, resources, skills and enthusiasm. The TAG strongly urges AZA institutions with an interest in slender-horned gazelles to consider supporting the good work of the Sahara Conservation Fund. For more information, please visit [www.saharaconservation.org](http://www.saharaconservation.org).

<b>SPECIES:</b>	Mhorr gazelle <i>Gazella dama mhorrr</i> (Pallas, 1766)
<b>PROGRAM:</b>	Phase Out
<b>PROGRAM ROLE AND PURPOSE:</b>	n/a

**NA POPULATION:** 11.40 (51) in 8 institutions<sup>70</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Appendix I

**IUCN:** Endangered/A1c, C1 (both forms)

**OTHER:** USFWS Endangered

**OTHER REGIONAL PROGRAM STATUS, FROM INTERNATIONAL STUDBOOK 2003 AND ISIS 2008:**

**EUROPE:** 76.101 (177) in 9 institutions

**OTHER:** 2.0.41 (43) in 2 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 14

**PROGRAM SUMMARY**

**Program goal:** n/a

**Population Target:** 0

**Comments:** The mhorr gazelle is present in good numbers in European zoos and the EEP program for mhorr gazelle is strong. Although the mhorr gazelle is of high conservation concern due to its nearly extinct status in the wild, the NA TAG has decided to phase out this subspecies in AZA institutions to devote more space to the addra gazelle program. (The only significant population of addra gazelle outside its range is in zoos in North America.)

Twenty-five AZA facilities have joined with international zoos and conservation organizations to support the activities of the Sahara Conservation Fund (SCF). SCF is a young, dynamic organization with a unique mission – the conservation of the wildlife of the Sahara and its bordering Sahelian grasslands. To implement its mission, SCF forges partnerships between people, governments, the world zoo and scientific communities, international conventions, NGOs and donor agencies. A powerful network with a common goal – the conservation of deserts and their unique natural and cultural heritage. People working together to share their commitment, resources, skills and enthusiasm. The TAG strongly urges AZA institutions with an interest in Mhorr gazelles to consider supporting the good work of the Sahara Conservation Fund. For more information, please visit [www.saharaconservation.org](http://www.saharaconservation.org).

<sup>70</sup> Sorensen, T., 2007. AZA North American Regional Studbook for the Mhorr Gazelle *Gazella dama mhorrr*, 2007. [www.aza.org](http://www.aza.org).

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including Mhorh gazelle.

ISIS: *Gazella dama mhorh*

IUCN: *Nanger dama mhorh*

<b>SPECIES:</b>	Peninsular pronghorn <i>Antilocapra americana peninsularis</i>
<b>PROGRAM:</b>	Display/Education/Research Population
<b>PROGRAM ROLE AND PURPOSE:</b>	Conservation Support and Safety Net

**NA MANAGED POPULATION:** 4.2 (6) in 1 institution<sup>71</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Appendix I

**IUCN:** Least Concern

**USFWS:** Endangered

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present

**OTHER:** Not present

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 13

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**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. If this program develops into a formally managed program in the future, further analysis in partnership with PMC or SPMAG will determine an appropriate target population).

**Comments:** As a unique ungulate and an important component of North American landscapes, the pronghorn remains a popular species in AZA facilities. The current population is not yet viable. However, because of the institutional interest that exists and because of the plans for future importations, the TAG is recommending that this species be phased into collections as a DERP. If husbandry is successful for the species and institutional interest continues as projected, the TAG will likely reconsider this program for more formal management through a PMP or SSP in the future.

An *ex situ* breeding program for *A. a. peninsularis* is present in the Vizcaino Reserve that is supported by several AZA institutions and a Mexican NGO. One importation of animals has already occurred, and further importations are planned for the near future and several institutions stand ready to receive animals and participate in this managed program. Field conservation 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 125).

<sup>71</sup> Holland, J., 2008. Personal Communication.

<b>SPECIES:</b>	Speke's gazelle <i>Gazella spekei</i> (Blyth, 1863)
<b>PROGRAM:</b>	Species Survival Plan
<b>PROGRAM ROLE AND PURPOSE:</b>	Conservation Support and Safety Net

**NA MANAGED POPULATION:** 25.38 (63) at 11 institutions<sup>72</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Martha Fischer, Saint Louis Zoo  
[fischer@stlzoo.org](mailto:fischer@stlzoo.org)

**MANAGEMENT PLAN:** 2008 PMP<sup>73</sup>  
**ADVISOR(S):** Ed Spevak, Saint Louis Zoo  
[spevak@stlzoo.org](mailto:spevak@stlzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Endangered/A2cd

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present  
**OTHER:** 33.64.52 (149) in 4 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 12.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 65% gene diversity for 30 years

**Population target:** 100

**Speke's Gazelle SSP Demography Summary Table**

Current size of managed population	26.32
# Specimens excluded from management	0
Mean generation time (years)	4.4
Potential population growth rate	1.054
# Births in past year	17
# Deaths in past year	18

<sup>72</sup> Fischer, M., 2008. AZA North American Regional Studbook for the Speke's Gazelle *Gazella spekei*, 2008. [www.aza.org](http://www.aza.org).

<sup>73</sup> Fischer, M. 2008. Breeding and Transfer Recommendations for the AZA Speke's Gazelle (*Gazelle spekei*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).

**Speke's Gazelle SSP Genetic Summary Table**

	Current	Potential
Founders	6	0 additional
Founder genome equivalents	2.08	3.68
Fonder genome surviving	3.68	3.68
Gene diversity retained	0.76	0.864
Population mean kinship	0.24	0.136
Mean inbreeding	0.176	0.136
Ne/N	0.24	-----
% of pedigree known	100	-----

**Comments:** This species recent uplisting from Vulnerable to Endangered, plus the growth of the NA population warrant the TAG's recommendation to transition this program from a PMP to an SSP.

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. The Saint Louis Zoo's WildCare Institute Center for Conservation in the Horn of Africa was established to provide *in situ* and *ex situ* conservation support and foster long-term conservation partnerships that will benefit the wildlife of the Horn of Africa, including the endangered Speke's gazelle. Conservation activities in Somalia and along the border of Ethiopia where Speke's gazelles are found are challenging due to political unrest.

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

**NA MANAGED POPULATION:** 18.48 (66) at 8 institutions<sup>74</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Wendy Enright, The Living Desert  
[wenright@livingdesert.org](mailto:wenright@livingdesert.org)

**MANAGEMENT PLAN:** 2008 PMP<sup>75</sup>  
**ADVISOR(S):** Sarah Long, PMC  
[slong@lpzoo.org](mailto:slong@lpzoo.org)  
Kristine Schad, PMC  
[kschad@lpzoo.org](mailto:kschad@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Appendix III  
**IUCN:** Endangered/C2a  
**OTHER:** USFWS Endangered

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008 AND STUDBOOK INFORMATION:**

**EUROPE:** Not present  
**ALMERIA:** 47.48 (95) in 3 institutions<sup>76</sup>

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 12.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 20% gene diversity for 100 years

**Population target:** 125

**Cuvier's Gazelle PMP Demography Summary Table**

Current size of managed population	6.18
# Specimens excluded from management	4
Mean generation time (years)	4.7
Potential population growth rate	1.02

<sup>74</sup> Enright, W., 2008. AZA North American Regional Studbook for the Cuvier's Gazelle *Gazella cuvieri*, 2008. [www.aza.org](http://www.aza.org).

<sup>75</sup> Enright, W., S. Long, K. Schad, 2008. Breeding and Transfer Recommendations for the AZA Cuvier's Gazelle (*Gazella cuvieri*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).

<sup>76</sup> Enright, W., 2008. Personal Communication.



**Cuvier's Gazelle PMP Genetic Summary Table**

	Current	Potential
Founders	3	0 additional
Founder genome equivalents	1.07	1.67
Gene diversity retained	53.15	70.11
Population mean kinship	0.4685	-----
Mean inbreeding	0.4268	-----
Ne/N	0.1167	0.25
% of pedigree known (before assumptions)	12.9	-----
% of pedigree known (after assumptions)	100	-----

**Comments:** The Cuvier's gazelle program is a priority for the TAG and conservation efforts for the species in range states is ongoing.

Twenty-five AZA facilities have joined with international zoos and conservation organizations to support the activities of the Sahara Conservation Fund (SCF). SCF is a young, dynamic organization with a unique mission – the conservation of the wildlife of the Sahara and its bordering Sahelian grasslands. To implement its mission, SCF forges partnerships between people, governments, the world zoo and scientific communities, international conventions, NGOs and donor agencies. A powerful network with a common goal – the conservation of deserts and their unique natural and cultural heritage. People working together to share their commitment, resources, skills and enthusiasm. The TAG strongly urges AZA institutions with an interest in Cuvier's gazelles to consider supporting the good work of the Sahara Conservation Fund. For more information, please visit [www.saharaconservation.org](http://www.saharaconservation.org).

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

**NA MANAGED POPULATION:** 49.73.9 (131) in 29 institutions<sup>77</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not listed

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

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present

**OTHER:** Not present

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 12.5

**PROGRAM SUMMARY**

**Program Goal:** n/a

**Population Target:** 150

**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 125).

<sup>77</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Dorcas gazelle <i>Gazella dorcas</i> spp. (Linnaeus, 1758)
<b>PROGRAM:</b>	Phase Out
<b>PROGRAM ROLE AND PURPOSE:</b>	n/a
<b>NA MANAGED POPULATION:</b>	4.1 (5) in 3 institutions <sup>78</sup>
<b>PROGRAM STATUS:</b>	
<b>CONTACT PERSON:</b>	Andrea DeMuth, Brookgreen Gardens <a href="mailto:ademuth@brookgreen.org">ademuth@brookgreen.org</a>
<b>MANAGEMENT PLAN:</b>	n/a
<b>ADVISOR(S):</b>	n/a
<b>WILD POPULATION STATUS:</b>	
<b>CITES:</b>	Appendix III
<b>IUCN:</b>	Vulnerable/A1c
<b>OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:</b>	
<b>EUROPE:</b>	24.33.15 (72) in 4 institutions ( <i>G. dorcas</i> ) 22.38.1 (61) in 7 institutions ( <i>G. d. neglecta</i> ) 15.28 (43) in 3 institutions ( <i>G. d. isabella</i> )
<b>OTHER:</b>	7.0.32 (39) in 1 institution ( <i>G. dorcas</i> )
<b>RESOURCES AVAILABLE:</b>	
<b>HUSBANDRY MANUAL:</b>	n/a
<b>SPECIES SELECTION PROCESS SCORE:</b>	<b>11</b>

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## PROGRAM SUMMARY

**Program Goal and Characteristics:** n/a  
**Population Target:** 0

**Comments:** The decline of wild dorcas gazelle populations appears to be less precipitous than other allied species. Institutions are recommended to consider gazelle programs of higher conservation priority.

Twenty-five AZA facilities have joined with international zoos and conservation organizations to support the activities of the Sahara Conservation Fund (SCF). SCF is a young, dynamic organization with a unique mission – the conservation of the wildlife of the Sahara and its bordering Sahelian grasslands. To implement its mission, SCF forges partnerships between people, governments, the world zoo and scientific communities, international conventions, NGOs and donor agencies. A powerful network with a common goal – the conservation of deserts and their unique natural and cultural heritage. People working together to share their commitment, resources, skills and enthusiasm. The TAG strongly urges AZA institutions with an interest in Dorcas gazelles to consider supporting the good work of the Sahara Conservation Fund. For more information, please visit [www.saharaconservation.org](http://www.saharaconservation.org).

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<sup>78</sup> DeMuth, A., personal communication, 2008. North American Registry for the Dorcas Gazelle *Gazella dorcas*, 2008.

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

**NA POPULATION:** 24.42 (66) in 8 institutions<sup>79</sup>

**NA MANAGED POPULATION:** 14.28 (42) in 5 institutions<sup>80</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Stacey Feige Konwiser, The Living Desert  
[sfeige@livingdesert.org](mailto:sfeige@livingdesert.org)

**MANAGEMENT PLAN:** 2008 PMP  
**ADVISOR(S):** Kristine Schad, PMC  
[kschad@lpzoo.org](mailto:kschad@lpzoo.org)  
Sarah Long, PMC  
[slong@lpzoo.org](mailto:slong@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Vulnerable/C1

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** Not present  
**OTHER:** 24.37 (61) in one institutions (*G. s. berberana*)

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 47% gene diversity for 100 years

**Population target:** 75

**Soemmerring's Gazelle PMP Demography Summary Table**

Current size of managed population	14.28
# Specimens excluded from management	1
Mean generation time (years)	6.1
Potential population growth rate	1.06

<sup>79</sup> Konwiser, S., 2009. AZA North American Regional Studbook for the Soemmerring's Gazelle *Gazella soemmerringii*, 2009. [www.aza.org](http://www.aza.org).

<sup>80</sup> Konwiser, S., K. Schad and S. Long, 2008. Breeding and Transfer Recommendations for the AZA Soemmerring's Gazelle (*Gazella soemmerringii soemmerringii*) Population Management Program, 2008. [www.aza.org](http://www.aza.org).

**Soemmerring's Gazelle PMP Genetic Summary Table**

	Current	Potential
Founders	12	0 additional
Founder genome equivalents	2.44	4.11
Gene diversity retained	79.53	-----
Population mean kinship	0.2047	-----
Mean inbreeding	0.1499	-----
Ne/N	0.2862	-----
% of pedigree known (before assumptions)	0	-----
% of pedigree known (after assumptions)	100	-----

**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.

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including Soemmerring's gazelle.

ISIS: *Gazella soemmerringii soemmerringii*

IUCN: *Nanger soemmerringii*

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

**NA MANAGED POPULATION:** 38.111.6 (155) at 26 institutions<sup>81</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Lanny Brown, Phoenix Zoo  
[lbrown@thephxzoo.com](mailto:lbrown@thephxzoo.com)

**MANAGEMENT PLAN:** 2005 PMP<sup>82</sup>  
**ADVISOR(S):** PMC

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 30.47.43 (120) in 8 institutions  
**OTHER:** 4.8 (12) in 5 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 10

**PROGRAM SUMMARY**

**Program Goal:** Retain 90% gene diversity for 100 years

**Population target:** 175

**Thomson's Gazelle PMP Demography Summary Table**

Current size of managed population	33.110.6
# Specimens excluded from management	20
Mean generation time (years)	4.1
Potential population growth rate	1.1
# Births in past year	1
# Deaths in past year	2

<sup>81</sup> Andrews, J., 2005. AZA North American Regional Studbook for the Thomson's Gazelle *Gazella thomsonii*, 2005. [www.aza.org](http://www.aza.org).

<sup>82</sup> Andrews, J. and E. Handrus, 2005. Breeding and Transfer Recommendations for the AZA Thomson's Gazelle (*Gazella thomsonii*) Population Management Program, 2005. [www.aza.org](http://www.aza.org).

**Thomson's Gazelle PMP Genetic Summary Table**

	Current	Potential
Founders	38	0 additional
Founder genome equivalents	3.66	12.52
Founder genome surviving	12.52	12.52
Gene diversity retained	0.863	0.96
Population mean kinship	0.137	0.04
Mean inbreeding	0.172	0.04
Ne/N	0.21	-----
% of pedigree known	82	-----

**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.

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including Thomson's gazelle.

ISIS: *Gazella thomsonii*

IUCN: *Eudorcas thomsonii*

<b>SPECIES:</b>	Gemsbok <i>Oryx gazella gazella</i>
<b>PROGRAM:</b>	Population Management Plan
<b>PROGRAM ROLE AND PURPOSE:</b>	Education and Display

**NA MANAGED POPULATION:** 59.64.1 (124) in 12 institutions<sup>83</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Justin Chuven, SDWAP  
[jchuven@sandiegozoo.org](mailto:jchuven@sandiegozoo.org)

**MANAGEMENT PLAN:** 2005 PMP<sup>84</sup>  
**ADVISOR(S):** Jamie Ivy, San Diego Zoo  
[jivy@sandiegozoo.org](mailto:jivy@sandiegozoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 38.96.1 (135) in 18 institutions  
**OTHER:** 6.7 (13) in 3 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 9

**PROGRAM SUMMARY**

**Program Goal:** Retain 80% gene diversity for 50 years

**Population target:** 75

**Gemsbok PMP Demography Summary Table**

Current size of managed population	16.52
# Specimens excluded from management	14
Mean generation time (years)	5.1
Potential population growth rate	1.198
# Births in past year	15
# Deaths in past year	10

<sup>83</sup> Chuven, J., 2008. AZA North American Regional Studbook for the Gemsbok *Oryx gazella gazelle*, 2008.  
[www.aza.org](http://www.aza.org).

<sup>84</sup> Schanberger, A. and E. Handrus, 2005. Breeding and Transfer Recommendations for the AZA Gemsbok (*Oryx gazella gazella*) Population Management Program, 2005.



**Gemsbok PMP Genetic Summary Table**

	Current	Potential
Founders	36	0 additional
Founder genome equivalents	5.01	9.57
Founder genome surviving	9.57	9.57
Gene diversity retained	0.9	0.948
Population mean kinship	0.1	0.052
Mean inbreeding	0.124	0.052
Ne/N	0.18	-----
% of pedigree known	77	-----

**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.

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including gemsbok.

ISIS: *Oryx gazella gazella*

IUCN: *Oryx gazella*

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

**NA MANAGED POPULATION:** 14.19 (33) in 4 institutions<sup>85</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not Listed

**IUCN:** Vulnerable/C2a

**OTHER:** USFWS Endangered

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 29.70.3 (102) in 6 institutions (*G. subgutturosa*)  
10.32.2 (44) in 5 institutions (*G. s. subgutturosa*)

**OTHER:** 293.370.15 (682) in 7 institutions (*G. s. marica*)

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 9

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**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.

<sup>85</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Fringe-eared oryx <i>Oryx gazella callotis</i>
<b>PROGRAM:</b>	Population Management Program
<b>PROGRAM ROLE AND PURPOSE:</b>	Education and Display

**NA MANAGED POPULATION:** 22.48.1 (71) in 6 institutions<sup>86</sup>

**PROGRAM LEADER:** Justin Chuven, SDWAP  
[jchuven@sandiegozoo.org](mailto:jchuven@sandiegozoo.org)

**MANAGEMENT PLAN:** 2005 PMP<sup>87</sup>  
**ADVISOR(S):** Jamie Ivy, San Diego Zoo  
[jivy@sandiegozoo.org](mailto:jivy@sandiegozoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 6.25.34 (65) in 2 institutions  
**OTHER:** Not present

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 8.5

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**PROGRAM SUMMARY**

**Program Goal:** Retain 80% gene diversity for 50 years

**Population target:** 85

**Fringe Eared Oryx PMP Demography Summary Table**

Current size of managed population	14.37.1
# Specimens excluded from management	5
Mean generation time (years)	5.7
Potential population growth rate	1.162
# Births in past year	15
# Deaths in past year	10

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<sup>86</sup> Chuven, J., 2008. AZA North American Regional Studbook for the Fringe-eared Oryx *Oryx gazella callotis*, 2008. [www.aza.org](http://www.aza.org).

<sup>87</sup> Schanberger, A. and E. Handrus, 2005. Breeding and Transfer Recommendations for the AZA Fringe-eared Oryx (*Oryx gazella callotis*) Population Management Program, 2005.

**Fringe-eared Oryx PMP Genetic Summary Table**

	Current	Potential
Founders	6	0 additional
Founder genome equivalents	1.7	3.14
Founder genome surviving	3.14	3.14
Gene diversity retained	0.706	0.841
Population mean kinship	0.294	0.159
Mean inbreeding	0.249	0.159
Ne/N	0.2	-----
% of pedigree known	94	-----

**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.

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including the fringe-eared oryx.

ISIS: *Oryx gazella callotis*

IUCN: *Oryx beisa callotis*

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

**NA MANAGED POPULATION:** 25.33 (58) in 12 institutions<sup>88</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** Christy Poelker, Saint Louis Zoo  
[Grantgazellestudbook@stlzoo.org](mailto:Grantgazellestudbook@stlzoo.org)

**MANAGEMENT PLAN:** PMP, 2009<sup>89</sup>  
**ADVISOR(S):** Ed Spevak, Saint Louis Zoo  
[spevak@stlzoo.org](mailto:spevak@stlzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not Listed  
**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 8.8 (16) in 1 institution  
**OTHER:** Not present

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 8.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 33% gene diversity for 100 years

**Population target:** 100

**Grant's Gazelle PMP Demography Summary Table**

Current size of managed population	56 (21.35)
# Specimens excluded from management	0
Mean generation time (years)	3.8
Potential population growth rate	1.188

<sup>88</sup> Poelker, C., 2008. AZA North American Regional Studbook for the Grant's Gazelle *Gazella granti*, 2008.  
[www.aza.org](http://www.aza.org).

<sup>89</sup> Poelker, C. and E. Spevak, 2009. Breeding and Transfer Recommendations for the AZA Grant's Gazelle (*Nanger granti*) Population Management Program. [www.aza.org](http://www.aza.org).

**Grant's Gazelle PMP Genetic Summary Table**

	Current	Potential
Founders	12	0
Founder genome equivalents	1.56	2.07
Gene diversity retained	68	75.8
Population mean kinship	0.3195	-----
Mean inbreeding	0.285	-----
Ne/N	.2	-----
% of pedigree known	19	-----

**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.

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including Grant's gazelle.

ISIS: *Gazella granti*  
IUCN: *Nanger granti*

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

**NA MANAGED POPULATION:** 5.12 (17) in 1 institution<sup>90</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Vulnerable/A1c

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 26.54.1 (81) in 3 institutions

**OTHER:** Not present

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** n/a

**SPECIES SELECTION PROCESS SCORE:** 8.5

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**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**Comments:** Due to the current low numbers and reduced viability of the population, no AZA 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.

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including the Nubian red-fronted gazelle.

ISIS: *Gazella rufifrons laevipes*

IUCN: *Eudorcas rufifrons laevipes*

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<sup>90</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>

<b>SPECIES:</b>	Persian gazelle <i>Gazella subgutturosa subgutturosa</i>
<b>PROGRAM:</b>	Phase Out
<b>PROGRAM ROLE AND PURPOSE:</b>	n/a

**NA MANAGED POPULATION:** 112.72.8 (192) in 3 institutions<sup>91</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Vulnerable/A1c

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 29.70.3 (102) in 6 institutions (*G. subgutturosa*)

10.32.2 (44) in 5 institutions (*G. s. subgutturosa*)

**OTHER:** 293.370.15 (682) in 7 institutions (*G. s. marica*)

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** n/a

**SPECIES SELECTION PROCESS SCORE:** 8

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**Comments:** Due to the current reduced viability of the population, no AZA program is currently recommended for this species.

<sup>91</sup> ISIS Abstract, 2008. <http://app.isis.org/abstracts/abs.asp>



<b>SPECIES:</b>	Beisa oryx <i>Oryx gazella beisa</i>
<b>PROGRAM:</b>	Phase Out
<b>PROGRAM ROLE AND PURPOSE:</b>	n/a

**NA POPULATION:** 6.14.1 (21) in 4 institutions<sup>92</sup>

**PROGRAM STATUS:**

**PROGRAM LEADER:** n/a

**MANAGEMENT PLAN:** n/a

**ADVISOR(S):** n/a

**WILD POPULATION STATUS:**

**CITES:** Not Listed

**IUCN:** Lower Risk/Conservation Dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 18.40.114 (172) in 6 institutions

**OTHER:** 1.0 (1) in 1 institutions

**RESOURCES AVAILABLE:**

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 8

**PROGRAM SUMMARY**

**Program Goal and Characteristics:** n/a

**Population Target:** 0

**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.

ISIS and the IUCN SSC Antelope Specialist Group are using different taxonomic names for several antelope species, including beisa oryx.

ISIS: *Oryx gazella beisa*

IUCN: *Oryx beisa beisa*

<sup>92</sup> Chuven, J., 2008. AZA North American Regional Studbook for the Gemsbok *Oryx gazella gazelle*, 2008. [www.aza.org](http://www.aza.org).

## **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. *Ex situ* 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 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 [Conservation Centers for Species Survival](#). C2S2 contact Dan Beetem, [dbeetem@thewilds.org](mailto:dbeetem@thewilds.org).**

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**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 *ex situ* 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, [steves@wogilman.com](mailto:steves@wogilman.com)**

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**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 Martha Fischer, [fischer@stlzoo.org](mailto:fischer@stlzoo.org)**

**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 Vizcaino Biosphere Reserve on the Baja Peninsula. A 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 propagation portion managed by USFWS and AGF.

**For information on how to become involved, contact Jeff Holland, [jeff.holland@lacity.org](mailto:jeff.holland@lacity.org)**

**Giraffe/Okapi Subgroup Program Summary**  
**Subgroup Coordinator: *Vacant***

Species	Score	Level	Target	Target determined by
Okapi, <i>Okapia johnstoni</i>	18.5	SSP	200	PMC analysis
Reticulated giraffe, <i>Giraffa camelopardalis reticulate</i>	13.5	PMP	400 With Roths	SPMAG or PMC analysis
Rothschild's giraffe, <i>Giraffa camelopardalis baringo</i>	14	---	400 with Retics	SPMAG or PMC analysis
Masai giraffe, <i>Giraffa camelopardalis tippelskirchii</i>	15	PMP	150	SPMAG or PMC analysis

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

**SSP MANAGED POPULATION:** 34.43 (77) in 22 NA institutions and 3.4 (7) in 2 Japanese institutions<sup>93</sup>

**PROGRAM STATUS:**

**SSP COORDINATOR:** Ann Petric, with support from Saint Louis Zoo  
[apetric@earthlink.net](mailto:apetric@earthlink.net)

**SSP VICE-COORDINATOR:** Matt Hohne, Disney's Animal Kingdom  
[Matthew.Hohne@disney.com](mailto:Matthew.Hohne@disney.com)

**MANAGEMENT PLAN:** 2008 SSP<sup>94</sup>  
**ADVISOR(S):** Sarah Long, PMC  
[slong@lpzoo.org](mailto:slong@lpzoo.org)

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower risk/Near Threatened

**OTHER REGIONAL PROGRAM STATUS, FROM INTERNATIONAL STUDBOOK 2008:**

**EUROPE:** 30.26 (56) in 17 institutions  
**OTHER:** 14.9 (23) in 4 institutions

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** Available on AZA website at [www.aza.org](http://www.aza.org)  
**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 18.5

**PROGRAM SUMMARY**

**Program Goal:** Retain 87% gene diversity for 100 years

**Population target:** 200

**Okapi SSP Demography Summary Table**

Current size of managed population	34.43
# Specimens excluded from management	3
Mean generation time (years)	10.1
Potential population growth rate	1.057

<sup>93</sup> Leus, K., 2008. International Studbook for the Okapi *Okapia johnstoni*, 2008.

<sup>94</sup> Petric, A. and S. Long, 2008. Breeding and Transfer Recommendations for the Okapi (*Okapia johnstoni*) Species Survival Plan, 2008. [www.aza.org](http://www.aza.org).

**Okapi SSP Genetic Summary Table**

	Current	Potential
Founders	25	0 additional
Founder genome equivalents	7.40	10.17
Founder genome surviving	10.17	10.17
Gene diversity retained	93.25	95.07
Population mean kinship	0.067	-----
Mean inbreeding	0.0092	-----
Ne/N	0.3929	-----
% of pedigree known	100	-----

**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.

The Okapi Conservation Project was initiated in 1987 to secure a protected area for okapi in the wild. For over two decades, this program has been dedicated to protecting and preserving the okapi, the flagship species of the Ituri forest in the Democratic Republic of the Congo, while also improving the lives of the people who live in the area. In 1992, the Okapi Wildlife Reserve was given official protected status creating a reserve in a portion of the Ituri rainforest, one of the most biologically diverse places on earth. This project provides support for training and equipping wildlife guards, community assistance (clean water, medical services, school supplies, etc) to the people living next to the reserve, conservation education for people and care for a managed breeding and research group of okapi in the reserve. Partners include Gilman International Conservation, White Oak Conservation Center, 44 international participants in the AZA and EAZA Okapi SSP and EEP programs, governmental and non-governmental conservation organizations in DRC and other donors. The TAG strongly urges AZA institutions with an interest in okapi to consider supporting the long-term good work of the Okapi Conservation Project. For more information, please visit [www.giconline.org](http://www.giconline.org).

Nineteen AZA institutions are involved in a collaborative project entitled *An Assessment of Gender-Driven Management Needs in Okapi: using EthoTrak to correlate ethological and physiological parameters as indicators of well-being*. The objective of this study is to begin to illuminate issues of well-being in captive okapi and investigate indications of differences between males and females. Preliminary evidence suggests that males and females show different levels and forms of stereotypy and stress, two common metrics of welfare. The researchers suspect that, as preliminary research on other species suggests one gender might be more or less prone to manifest overt indications that its environment or management are suboptimal. The primary goals of this study are to determine what management and facilities factors impact stress and stereotyped behavior in okapi and whether males and females are impacted differently. Findings may suggest that males and females should be managed differently to accommodate their activity patterns and better insure their health and well-being.

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

**NA POPULATION:** 211.304 (515) in 124 institutions<sup>95</sup>  
**NA MANAGED POPULATION:** 149.244 (393) in 83 institutions

**PROGRAM STATUS:**

**PROGRAM LEADER:** Laurie Bingaman Lackey, ISIS with support from  
Disney's Animal Kingdom  
[giraffe3@bellsouth.net](mailto:giraffe3@bellsouth.net)

**MANAGEMENT PLAN:** 2007 PMP<sup>96</sup>  
**ADVISOR(S):** Laurie Bingaman Lackey, ISIS  
[giraffe3@bellsouth.net](mailto:giraffe3@bellsouth.net)

**WILD POPULATION STATUS:**

**CITES:** Not listed  
**IUCN:** Lower risk/Conservation dependent

**OTHER REGIONAL PROGRAM STATUS, FROM ISIS 2008:**

**EUROPE:** 114.187 (301) in 66 institutions (*G. c. baringo*)  
55.61 (116) in 31 institutions (*G. c. reticulata*)  
**OTHER:** 13.9 (22) in 10 institutions (*G. c. baringo*)  
50.80 (130) in 41 institutions (*G. c. reticulata*)

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** Available on AZA website at [www.aza.org](http://www.aza.org)  
**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** *Giraffa camelopardalis reticulata* – **13.5**  
*Giraffa camelopardalis baringo* - **14**

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**PROGRAM SUMMARY**

**Program Goal:** Retain 94.5% gene diversity for 100 years

**Population target:** 400, including all Rothschild's, Reticulated, Hybrids and Unknown Provenance giraffes.

**Roth/Retic Giraffe PMP Demography Summary Table**

Current size of managed population	146.238
# Specimens excluded from management	0
Mean generation time (years)	10.4
Potential population growth rate	1.062
# Births in past year	85
# Deaths in past year	62

<sup>95</sup> Bingaman Lackey, L., 2008. International Studbook for the Giraffe *Giraffa camelopardalis*, 2008. [www.aza.org](http://www.aza.org).

<sup>96</sup> Bingaman Lackey, L., 2007. Breeding and Transfer Recommendations for the Rothschild's/Reticulated Complex Giraffe (*Giraffa camelopardalis*) Population Management Program, 2007. [www.aza.org](http://www.aza.org).

**Roth/Retic Giraffe PMP Genetic Summary Table**

	Current	Potential
Founders	88	0 additional
Founder genome equivalents	21.95	45.31
Founder genome surviving	45.05	45.31
Gene diversity retained	0.977	0.989
Population mean kinship	0.023	0.011
Mean inbreeding	0.03	0.011
Ne/N	0.33	-----
% of pedigree known	99	-----

**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.



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

**NA POPULATION:** 29.52 (81) in 22 institutions<sup>97</sup>

**NA MANAGED POPULATION:** 26.48 (74) in 20 institutions

**PROGRAM STATUS:**

**PROGRAM LEADER:** Laurie Bingaman Lackey, ISIS with support from Disney's Animal Kingdom

[giraffe3@bellsouth.net](mailto:giraffe3@bellsouth.net)

**MANAGEMENT PLAN:** 2007 PMP<sup>98</sup>

**ADVISOR(S):** Laurie Bingaman Lackey, ISIS

[giraffe3@bellsouth.net](mailto:giraffe3@bellsouth.net)

**WILD POPULATION STATUS:**

**CITES:** Not listed

**IUCN:** Lower risk/Conservation dependent

**OTHER REGIONAL PROGRAM STATUS, FROM INTERNAT'L STUDBOOK 2008:**

**EUROPE:** 1.4 (5) in 2 institutions

**OTHER:** 12.19 (31) in 10 institutions

**RESOURCES AVAILABLE:**

**HUSBANDRY MANUAL:** Available on AZA website at [www.aza.org](http://www.aza.org)

**AZA ANTELOPE & GIRAFFE TAG ANIMAL CARE MANUAL:** In process

**SPECIES SELECTION PROCESS SCORE:** 15

**PROGRAM SUMMARY**

**Program Goal:** Retain 85% gene diversity for 100 years

**Population target:** 150

**Masai Giraffe PMP Demography Summary Table**

Current size of managed population	28.46
# Specimens excluded from management	0
Mean generation time (years)	12
Potential population growth rate	1.03
# Births in past year	9
# Deaths in past year	4

<sup>97</sup> Bingaman Lackey, L., 2008. International Studbook for the Giraffe *Giraffa camelopardalis*, 2008. [www.aza.org](http://www.aza.org).

<sup>98</sup> Bingaman Lackey, L., 2007. Breeding and Transfer Recommendations for the Masai Giraffe (*Giraffa camelopardalis tippelskirchii*) Population Management Program, 2007. [www.aza.org](http://www.aza.org).

**Masai Giraffe PMP Genetic Summary Table**

	Current	Potential
Founders	20	0 additional
Founder genome equivalents	7.02	10.82
Founder genome surviving	10.82	10.82
Gene diversity retained	0.929	0.954
Population mean kinship	0.071	0.046
Mean inbreeding	0.011	0.046
Ne/N	0.39	-----
% of pedigree known	100	-----

**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 and Giraffe TAG Leadership, Advisors and Program Leaders, 2009.

Program or Position	Name	Email and phone
<b>TAG Leadership</b>		
Chair, Aridland Antelope, Gazelles and Pronghorn Subgroup	Martha Fischer Saint Louis Zoo	<a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Vice Chair, Forest/Woodland Antelope Subgroup	Sharon Joseph Houston Zoo	<a href="mailto:sjoseph@houstonzoo.org">sjoseph@houstonzoo.org</a> 713-533-6740
Vice Chair, Small Antelope Subgroup	Jeff Holland Los Angeles Zoo	<a href="mailto:jeff.holland@lacity.org">jeff.holland@lacity.org</a> 323-644-4220
Vice Chair, Hartebeest Subgroup	Dan Beetem The Wilds	<a href="mailto:dbeetem@thewilds.org">dbeetem@thewilds.org</a> 740-638-5030 ext 2110
Vice Chair, Waterbuck Subgroup	Randy Rieches SDWAP	<a href="mailto:rieches@sandiegozoo.org">rieches@sandiegozoo.org</a> 760-738-5015
Vice Chair, Giraffe Subgroup	Vacant	Vacant
Secretary	Lisa Smith Zoo Atlanta	<a href="mailto:lsmith@zoatlanta.org">lsmith@zoatlanta.org</a> 404-624-5824
Treasurer	Vickie Kunter Denver Zoo	<a href="mailto:vkunter@denverzoo.org">vkunter@denverzoo.org</a> 303-376-4929
Steering Committee	Adam Eyres Fossil Rim Wildlife Center	<a href="mailto:adame@fossilrim.org">adame@fossilrim.org</a> 254-898-4230
Steering Committee	Tracy Brower Cheyenne Mountain Zoo	<a href="mailto:tbrower@cmzoo.org">tbrower@cmzoo.org</a> 719-633-9925
Steering Committee	Fran Lyon White Oak Conservation Center	<a href="mailto:franl@wogilman.com">franl@wogilman.com</a> 904-225-3383
Steering Committee	Carmi Penny San Diego Zoo	<a href="mailto:cpenny@sandiegozoo.org">cpenny@sandiegozoo.org</a> 619-557-3982
Steering Committee	Amy Phelps Oakland Zoo	<a href="mailto:aphelps@oaklandzoo.org">aphelps@oaklandzoo.org</a> 510-632-9525
Steering Committee	Conrad Schmitt Miami Metrozoo	<a href="mailto:cschmitt@miamidade.gov">cschmitt@miamidade.gov</a> 305-251-0400 ext 84932
Steering Committee	Alan Sironen Cleveland Metroparks Zoo	<a href="mailto:als@clevelandmetroparks.com">als@clevelandmetroparks.com</a> 216-635-3373
Steering Committee	Lisa Smith Zoo Atlanta	<a href="mailto:lsmith@zoatlanta.org">lsmith@zoatlanta.org</a> 404-624-5824
Steering Committee	Terry Webb North Carolina Zoo	<a href="mailto:terry.webb@nczoo.org">terry.webb@nczoo.org</a> 336-879-7603
<b>Advisors</b>		
Education Co-Advisor	Michelle Smurl Brevard Zoo	<a href="mailto:msmurl@brevardzoo.org">msmurl@brevardzoo.org</a> 321-254-9453 ext 17
Education Co-Advisor	Chris Delorey Brevard Zoo	<a href="mailto:cdelorey@brevardzoo.org">cdelorey@brevardzoo.org</a> 321-254-9453 ext 14
Education Co-Advisor	Leanne White Greeneville Zoo	<a href="mailto:lwhite@greenville.gov">lwhite@greenville.gov</a> 864-467-4850
Research Advisor	Steve Monfort NZP-CRC	<a href="mailto:monforts@si.edu">monforts@si.edu</a> 540-635-6589
Reproduction Advisor	Linda Penfold White Oak Conservation Center	<a href="mailto:lindap@wogilman.com">lindap@wogilman.com</a> 904-225-3382
Veterinary Co-Advisor	Hubert Paluch Cape May Zoo	<a href="mailto:zvetpaluch@co.cape-may.nj.us">zvetpaluch@co.cape-may.nj.us</a> 609-465-5271
Veterinary Co-Advisor	Barb Wolfe The Wilds	<a href="mailto:bwolfe@thewilds.org">bwolfe@thewilds.org</a> 740-638-5030 ext 2109
Nutrition Co-Advisor	Tim Hackmann University of Missouri - Columbia	<a href="mailto:tjhd36@mizzou.edu">tjhd36@mizzou.edu</a> 573-822-6640
Nutrition Co-Advisor	Erin Kendrick Saint Louis Zoo	<a href="mailto:Kendrick@stlzoo.org">Kendrick@stlzoo.org</a> 314-646-4708

Program or Position	Name	Email and phone
<b>Program Leaders</b>		
<b>Forest/Woodland Subgroup - Sharon Joseph, Subgroup Vice-Chair</b>		
Eastern giant eland International Studbook Keeper	Eric Flossic Tulsa Zoo	<a href="mailto:ericflossic@yahoo.com">ericflossic@yahoo.com</a> 918-669-6245
Western giant eland ISF Coordinator	Steve Shurter White Oak Conservation Center	<a href="mailto:steves@wogilman.com">steves@wogilman.com</a> 904-225-3396
Common eland NA Regional Studbook Keeper & PMP Coordinator	Stephanie Dolly Zoo New England	<a href="mailto:Ruggles214@mindspring.com">Ruggles214@mindspring.com</a> 830-438-5769
Lowland nyala NA Regional Studbook Keeper & PMP Coordinator	Laurie McGivern Houston Zoo	<a href="mailto:lmcgivern@houstonzoo.org">lmcgivern@houstonzoo.org</a> 713-533-6682
Mountain nyala ISF Coordinator	Martha Fischer Saint Louis Zoo	<a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Eastern bongo International Studbook Keeper	Lydia Frazier Bosley with support from Oregon Zoo	<a href="mailto:lfbosley@hughes.net">lfbosley@hughes.net</a> 541-444-1265
Eastern bongo SSP Coordinator	Ron Surratt Forth Worth Zoo	<a href="mailto:rsurratt@fortworthzoo.org">rsurratt@fortworthzoo.org</a> 817-759-7160
Southern lesser kudu NA Regional Studbook Keeper	Melissa Miller Saint Louis Zoo	<a href="mailto:Lesserkudustudbook@stlzoo.org">Lesserkudustudbook@stlzoo.org</a> 314-646-4648
Southern lesser kudu PMP Coordinator	Tim Wild Kansas City Zoo	<a href="mailto:timwild@fotzkc.org">timwild@fotzkc.org</a> 816-513-4615
Greater kudu NA Regional Studbook Keeper & PMP Coordinator	Andrea DeMuth Brookgreen Gardens	<a href="mailto:ademuth@brookgreen.org">ademuth@brookgreen.org</a> 843-235-6054
Sitatunga NA Regional Studbook Keeper & PMP Coordinator	Gil Myers Smithsonian's National Zoo	<a href="mailto:myersg@si.edu">myersg@si.edu</a> 202-633-3216
Roan antelope NA Regional Studbook Keeper & PMP Coordinator	Andi Kornack Binder Park Zoo	<a href="mailto:akornak@binderparkzoo.org">akornak@binderparkzoo.org</a> 269-979-1351 ext 170
Sable antelope NA Regional Studbook Keeper & PMP Coordinator	Jill Piltz Disney's Animal Kingdom	<a href="mailto:Jill.m.piltz@disney.com">Jill.m.piltz@disney.com</a> 407-928-2850
Giant sable antelope ISF Coordinator	Sharon Joseph Houston Zoo	<a href="mailto:sjoseph@houstonzoo.org">sjoseph@houstonzoo.org</a> 713-533-6740
Black-faced impala ISF Coordinator	Sharon Joseph Houston Zoo	<a href="mailto:sjoseph@houstonzoo.org">sjoseph@houstonzoo.org</a> 713-533-6740
South African springbok NA Regional Studbook Keeper & PMP Coordinator	Jessica Scallan Tulsa Zoo	<a href="mailto:Jessica.scallan@sbcglobal.net">Jessica.scallan@sbcglobal.net</a> 918-669-6202
Southern gerenuk NA Regional Studbook Keeper & PMP Coordinator	Robert Barnes Los Angeles Zoo	<a href="mailto:Bob.barnes@lacity.org">Bob.barnes@lacity.org</a> 323-644-4295
Dibatag ISF Coordinator	Martha Fischer Saint Louis Zoo	<a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Saola ISF Coordinator	Sharon Joseph Houston Zoo	<a href="mailto:sjoseph@houstonzoo.org">sjoseph@houstonzoo.org</a> 713-533-6740
<b>Small Antelope Subgroup - Jeff Holland, Subgroup Vice-Chair</b>		
Jentink's duiker ISF Coordinator	Jeff Holland Los Angeles Zoo	<a href="mailto:Jeff.holland@lacity.org">Jeff.holland@lacity.org</a> 323-644-4220
Blue duiker NA Regional Studbook Keeper & PMP Coordinator	Sarah Ksiazek Kansas City Zoo	<a href="mailto:Alphadawg7@gmail.com">Alphadawg7@gmail.com</a> 816-513-5700
Ader's duiker ISF Coordinator	Jeff Holland Los Angeles Zoo	<a href="mailto:Jeff.holland@lacity.org">Jeff.holland@lacity.org</a> 323-644-4220
Red-flanked duiker NA Regional Studbook Keeper & PMP Coordinator	Chris Pfefferkorn Oregon Zoo	<a href="mailto:chris.pfefferkorn@oregonzoo.org">chris.pfefferkorn@oregonzoo.org</a> 503-220-2444
Yellow-backed duiker NA Regional Studbook Keeper & PMP Coordinator	Linda Rohr Bachers Milwaukee Zoo	<a href="mailto:Linda.bachers@milwcnty.com">Linda.bachers@milwcnty.com</a> 414-256-5448
Abbott's duiker ISF Coordinator	Jeff Holland Los Angeles Zoo	<a href="mailto:Jeff.holland@lacity.org">Jeff.holland@lacity.org</a> 323-644-4220
Zebra duiker ISF Coordinator	Jeff Holland Los Angeles Zoo	<a href="mailto:Jeff.holland@lacity.org">Jeff.holland@lacity.org</a> 323-644-4220
Kenyan Guenther's dik dik NA Regional Studbook Keeper & PMP Coordinator	Paige McNickle Phoenix Zoo	<a href="mailto:PMcnickle@thephxzoo.com">PMcnickle@thephxzoo.com</a> 602-273-1351
Kirk's dik dik NA Regional Studbook Keeper & PMP Coordinator	Paige McNickle Phoenix Zoo	<a href="mailto:PMcnickle@thephxzoo.com">PMcnickle@thephxzoo.com</a> 602-273-1351

Program or Position	Name	Email and phone
Silver dik dik ISF Coordinator	Jeff Holland Los Angeles Zoo	<a href="mailto:Jeff.holland@lacity.org">Jeff.holland@lacity.org</a> 323-644-4220
Beira ISF Coordinator	Martha Fischer Saint Louis Zoo	<a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Steenbok NA Regional Studbook Keeper & PMP Coordinator	Bonnie Heather Holland Los Angeles Zoo	<a href="mailto:Heather.Holland@lacity.org">Heather.Holland@lacity.org</a> 323-644-6034
Klipspringer NA Regional Studbook Keeper & PMP Coordinator	Michael Lebanik Disney's Animal Kingdom	<a href="mailto:Michael.g.lebanik,jr@disney.com">Michael.g.lebanik,jr@disney.com</a> 407-938-2342
<b>Hartebeest Subgroup - Dan Beetem, Subgroup Vice-Chair</b>		
Jackson's hartebeest NA Regional Studbook Keeper & PMP Coordinator	Currently Vacant - program leader selection in progress	Vacant
Swayne's hartebeest ISF Coordinator	Martha Fischer Saint Louis Zoo	<a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
White-bearded wildebeest NA Regional Studbook Keeper & PMP Coordinator	Kristen Wolfe Disney's Animal Kingdom	<a href="mailto:Kristen.wolfe@disney.com">Kristen.wolfe@disney.com</a> 407-938-2950
Bontebok NA Regional Studbook Keeper & PMP Coordinator	Liesl King Disney's Animal Kingdom	<a href="mailto:Liesl.king@disney.com">Liesl.king@disney.com</a> 407-938-7106
Hunter's hartebeest, Hirola ISF Coordinator	Martha Fischer Saint Louis Zoo	<a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
<b>Waterbuck Subgroup - Randy Rieches, Subgroup Vice-Chair</b>		
Common waterbuck NA Regional Studbook Keeper & PMP Coordinator	Michelle Smurl Brevard Zoo	<a href="mailto:msmurl@brevardzoo.org">msmurl@brevardzoo.org</a> 321-254-9453 ext 217
Nile lechwe NA Regional Studbook Keeper & PMP Coordinator	Matt Hohne Disney's Animal Kingdom	<a href="mailto:Matthew.hohne@disney.com">Matthew.hohne@disney.com</a> 407-938-2672
Rhebok NA Regional Studbook Keeper & PMP Coordinator	Michael Langridge San Diego Zoo	<a href="mailto:Sdwildlife1976@yahoo.com">Sdwildlife1976@yahoo.com</a> 619-672-1574
Western mountain reedbuck ISF Coordinator	Randy Rieches SDWAP	<a href="mailto:rieches@sandiegozoo.org">rieches@sandiegozoo.org</a> 760-738-5015
<b>Aridland Antelope, Gazelle and Pronghorn Subgroup - Martha Fischer, Subgroup Chair</b>		
Addax International Studbook Keeper	Terrie Correll Tulsa Zoo	<a href="mailto:tcorrell@cityoftulsa.org">tcorrell@cityoftulsa.org</a> 918-669-6223
Addax SSP Coordinator	Bill Houston Saint Louis Zoo	<a href="mailto:Houston@stlzoo.org">Houston@stlzoo.org</a> 314-646-4826
Scimitar-horned oryx SSP Coordinator	Ed Spevak Saint Louis Zoo	<a href="mailto:spevak@stlzoo.org">spevak@stlzoo.org</a> 314-646-4706
Gemsbok NA Regional Studbook Keeper & PMP Coordinator	Justin Chuyen SDWAP	<a href="mailto:jchuyen@sandiegozoo.org">jchuyen@sandiegozoo.org</a> 760-747-8702 ext 5249
Fringe-eared oryx NA Regional Studbook Keeper & PMP Coordinator	Justin Chuyen SDWAP	<a href="mailto:jchuyen@sandiegozoo.org">jchuyen@sandiegozoo.org</a> 760-747-8702 ext 5249
Arabian oryx International Studbook Keeper	Karen Sausman The Living Desert	<a href="mailto:ksausman@livingdesert.org">ksausman@livingdesert.org</a> 760-346-5694 ext 2100
Arabian oryx SSP Coordinator	Terrie Correll Tulsa Zoo	<a href="mailto:tcorrell@cityoftulsa.org">tcorrell@cityoftulsa.org</a> 918-669-6223
Cuvier's gazelle NA Regional Studbook Keeper & PMP Coordinator	Wendy Enright The Living Desert	<a href="mailto:wenright@livingdesert.org">wenright@livingdesert.org</a> 760-346-5694
Addra gazelle NA Regional Studbook Keeper & SSP Coordinator	Ann Petric with support from the Saint Louis Zoo	<a href="mailto:apetric@earthlink.net">apetric@earthlink.net</a> 708-442-6531
Grant's gazelle NA Regional Studbook Keeper & PMP Coordinator	Christy Poelker Saint Louis Zoo	<a href="mailto:grantgazellestudbook@stlzoo.org">grantgazellestudbook@stlzoo.org</a> 314-646-4651
Thomson's gazelle NA Regional Studbook Keeper & PMP Coordinator	Lanny Brown Phoenix Zoo	<a href="mailto:lbrown@thepfxzoo.com">lbrown@thepfxzoo.com</a> 602-273-1341
Slender-horned gazelle International Studbook Keeper & SSP Coordinator	Terrie Correll Tulsa Zoo	<a href="mailto:tcorrell@cityoftulsa.org">tcorrell@cityoftulsa.org</a> 918-669-6223
Nubian Soemmerring's gazelle NA Regional Studbook Keeper & PMP Coordinator	Stacey Feige Konwiser The Living Desert	<a href="mailto:sfeige@livingdesert.org">sfeige@livingdesert.org</a> 760-346-5694
Speke's gazelle NA Regional Studbook Keeper & SSP Coordinator	Martha Fischer Saint Louis Zoo	<a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Peninsular pronghorn ISF Coordinator	Jeff Holland Los Angeles Zoo	<a href="mailto:Jeff.holland@lacity.org">Jeff.holland@lacity.org</a> 323-644-4220

Program or Position	Name	Email and phone
Sonoran pronghorn ISF Coordinator	Jeff Holland Los Angeles Zoo	<a href="mailto:Jeff.holland@lacity.org">Jeff.holland@lacity.org</a> 323-644-4220
Saiga, Russian and Mongolian ISF Coordinator	Conservation Centers for Species Survival (Contact: Dan Beetem, The Wilds)	<a href="mailto:dbeetem@thewilds.org">dbeetem@thewilds.org</a> 740-638-5030 ext 2110
Tibetan antelope ISF Coordinator	Martha Fischer Saint Louis Zoo	<a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Przewalski's gazelle ISF Coordinator	Steve Shurter White Oak Conservation Center	<a href="mailto:steves@wogilman.com">steves@wogilman.com</a> 904-225-3396
<b>Giraffe Subgroup - Subgroup Vice-Chair, Vacant</b>		
Masai giraffe International Studbook Keeper & PMP Coordinator	Laurie Bingaman Lackey ISIS, with support from Disney's Animal Kingdom	<a href="mailto:Giraffe3@bellsouth.net">Giraffe3@bellsouth.net</a> 828-693-4336
Giraffe, retic/roth complex International Studbook Keeper & PMP Coordinator	Laurie Bingaman Lackey ISIS, with support from Disney's Animal Kingdom	<a href="mailto:Giraffe3@bellsouth.net">Giraffe3@bellsouth.net</a> 828-693-4336
Okapi SSP Coordinator	Ann Petric with support from Saint Louis Zoo	<a href="mailto:apetric@earthlink.net">apetric@earthlink.net</a> 708-442-6531

**Appendix 2. AZA Antelope & Giraffe TAG Space Survey Results.**

**Compiled by S. Castillo, Disney's Animal Kingdom and N. Oliveira, Saint Louis Zoo, 2008**

<b>Antelope species currently managed in AZA institutions</b>	<b>Current # of spaces per species M/F/U</b>	<b>Current maximum # of spaces available per species M/F/U</b>	<b>Desired # of animals in 5 years per species M/F/U</b>
<b>Forest/Woodland Subgroup</b>			
<b>Eastern Giant Eland</b>	15.25.1	17.28.16	14.26.0
<b>Common Eland</b>	16.59.0	20.82.30	18.76.7
<b>Cape Eland</b>	0.0.0	2.6.6	2.6.0
<b>East African Eland</b>	10.11.0	6.15.0	6.10.0
<b>Lowland Nyala</b>	19.30.0	20.65.11	17.58.5
<b>Eastern Bongo</b>	37.87.0	50.136.43	43.124.33
<b>Southern Lesser Kudu</b>	25.31.1	24.51.27	25.54.19
<b>Western Bushbuck</b>	3.9.0	4.18.6	3.12.0
<b>Greater Kudu</b>	46.88.4	36.128.67	35.117.44
<b>South African Greater Kudu</b>	1.6.0	8.24.8	7.23.0
<b>Sitatunga</b>	7.34.0	12.60.14	11.59.0
<b>Roan Antelope</b>	14.17.0	23.34.8	19.31.0
<b>Angolan Roan Antelope</b>	8.11.0	6.15.5	6.14.0
<b>Sable Antelope</b>	35.55.1	25.98.48	17.79.17
<b>Southern Sable Antelope</b>	3.5.0	5.10.0	5.10.0
<b>Zambian Sable Antelope</b>	4.6.0	5.10.0	5.10.0
<b>Impala</b>	36.55.0	51.131.27	24.122.2
<b>Kenyan Impala</b>	5.18.0	9.33.4	11.39.4
<b>Black-faced Impala</b>	0.0.0	2.13.7	2.13.0
<b>Springbok</b>	2.9.0	5.19.2	4.17.0
<b>South African Springbok</b>	28.26.0	8.30.0	8.30.0
<b>Angolan Springbok</b>	0.0.0	0.0.0	0.0.0
<b>Blackbuck</b>	82.173.0	61.137.150	36.86.150
<b>Southern Gerenuk</b>	28.50.3	36.75.29	33.61.22
<b>Nilgai</b>	17.32.0	10.22.51	20.43.0

Antelope species currently managed in AZA institutions	Current # of spaces per species M/F/U	Current maximum # of spaces available per species M/F/U	Desired # of animals in 5 years per species M/F/U
<b>Small Antelope Subgroup</b>			
<b>Common Crowned Duiker</b>	3.1.0	3.2.0	4.5.0
<b>Bay Duiker</b>	6.6.0	6.6.3	7.9.0
<b>Jentink's Duiker</b>	1.0.0	3.4.4	3.4.0
<b>Maxwell's Duiker</b>	2.2.0	5.9.4	5.9.0
<b>Blue Duiker</b>	16.14.0	19.24.8	13.16.2
<b>Black Duiker</b>	8.5.0	10.12.11	8.10.3
<b>Red-flanked Duiker</b>	18.15.1	20.25.23	19.23.8
<b>Yellow-backed Duiker</b>	32.24.1	35.42.35	32.39.19
<b>Zebra-banded Duiker</b>	0.0.0	0.0.0	0.0.0
<b>Guenther's Dik-Dik</b>	7.7.0	10.15.17	9.13.7
<b>Kirk's Dik-Dik</b>	23.26.0	21.38.13	15.37.2
<b>Suni</b>	0.0.0	1.2.2	1.2.0
<b>Akeley's Suni</b>	0.0.0	0.0.0	0.0.0
<b>Zulu Suni</b>	0.0.0	3.8.12	3.8.4
<b>Klipspringer</b>	13.19.0	18.21.15	18.20.6
<b>Zimbabwean Klipspringer</b>	6.5.0	4.5.2	2.2.2
<b>Cape Klipspringer</b>	0.0.0	2.2.2	2.2.0
<b>Cotton's Oribi</b>	0.0.0	1.2.2	1.2.0
<b>Steenbok</b>	3.3.0	6.6.5	5.5.1
<b>Royal Antelope</b>	4.6.0	5.7.2	3.5.4
<b>Hartebeest Subgroup</b>			
<b>Jackson's Hartebeest</b>	0.0.0	5.14.12	5.14.0
<b>Cape Hartebeest</b>	0.0.0	4.10.10	4.10.0
<b>Black Wildebeest</b>	0.0.0	5.15.15	5.15.0
<b>Wildebeest</b>	3.8.0	5.8.0	5.8.0
<b>Blue Wildebeest</b>	0.0.0	0.0.0	0.0.0
<b>E. White Bearded Wildebeest</b>	31.77.18	24.57.45	30.93.20
<b>Bontebok</b>	18.34.0	23.58.16	22.47.5



Antelope species currently managed in AZA institutions	Current # of spaces per species M/F/U	Current maximum # of spaces available per species M/F/U	Desired # of animals in 5 years per species M/F/U
Blesbok	9.18.0	17.35.8	12.20.0
Hunter's Hartebeest	0.0.0	0.0.0	0.0.0
Topi	1.1.0	4.11.10	3.10.0
<b>Waterbuck Subgroup</b>			
Defassa Waterbuck	2.18.0	4.30.0	4.25.0
Common Waterbuck	61.121.1	59.90.131	68.107.27
Kob	5.12.0	8.21.6	8.21.6
Red Lechwe	4.8.0	5.12.0	5.12.0
Kafue Flats Lechwe	0.0.0	0.0.0	0.0.0
Nile Lechwe	35.62.0	44.95.23	40.94.8
<b>Aridland Antelope, Gazelles and Pronghorn Subgroup</b>			
Addax	79.108.0	31.130.95	31.127.85
Scimitar-horned Oryx	50.104.0	37.135.32	33.130.29
Gemsbok	17.33.0	20.57.53	19.57.38
Beisa Oryx	0.0.0	2.2.1	2.2.0
Fringe-eared Oryx	9.24.0	13.40.22	11.37.10
Arabian Oryx	28.45.3	22.64.41	17.55.19
Cuvier's Gazelle	3.13.0	4.14.2	2.8.2
Addra Gazelle	29.45.1	40.94.46	37.92.21
Mhorr Gazelle	3.22.0	4.23.3	3.18.3
Dorcas Gazelle	1.0.0	1.0.0	0.0.0
Grant's Gazelle	16.31.0	18.75.24	17.67.2
Slender-horned Gazelle	20.25.0	22.48.24	17.47.12
Nubian Red-fronted Gazelle	6.12.0	5.15.0	5.15.0
Nubian Soemmerring's Gazelle	12.16.0	15.23.3	11.22.3
Speke's Gazelle	26.28.1	41.60.36	19.52.16
Saudi Goitered Gazelle	1.0.0	1.2.2	1.2.2
Persian Goitered Gazelle	6.15.15	5.15.0	5.15.0
Thomson's Gazelle	31.86.1	52.176.17	67.174.3

Antelope species currently managed in AZA institutions	Current # of spaces per species M/F/U	Current maximum # of spaces available per species M/F/U	Desired # of animals in 5 years per species M/F/U
Saiga	0.0.0	2.5.0	2.4.0
Pronghorn	27.31.0	28.71.39	27.73.18
<b>Giraffe Subgroup</b>			
Rothschild's Giraffe	13.33.0	17.40.22	16.39.15
Reticulated Giraffe	97.147.0	87.238.90	83.239.56
Masai Giraffe	18.40.0	24.71.38	22.63.21
Giraffe (unknown)	4.11.0	7.16.16	6.16.11
Giraffe (hybrid)	26.33.0	16.39.33	15.34.25
Okapi	31.39.0	39.62.33	37.56.18
<b>Total Antelope Spaces</b>	<b>1116.1967.52 (3135)</b>	<b>1187.2975.1435 (5597)</b>	<b>1060.2804.690 (4554)</b>
<b>Total Giraffe/Okapi Spaces</b>	<b>189.303.0 (492)</b>	<b>190.466.232 (888)</b>	<b>179.447.146 (772)</b>
<b>Total</b>	<b>1305.2270.52 (3627)</b>	<b>1377.3441.1667 (6485)</b>	<b>1239.3251.836 (5326)</b>

### **Appendix 3. AZA Antelope & Giraffe TAG Species Selection Criteria, 2008.**

1. Will the zoo population serve as a reservoir for genetic or demographic diversity for wild populations?  
2 = need for zoo population as a genetic reservoir great  
1 = need for zoo population as a genetic reservoir unknown or not significant at this time  
0 = generic population, not suitable for reintroduction
  
2. If a zoo 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 zoo population doesn't presently exist, is there potential for the development of a viable zoo population?  
2 = animals are readily available from other zoo programs or from wild or rescued populations and institutions are interested in acquiring them  
1 = animals are readily available from other zoo 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 zoo program
  
4. Is there husbandry expertise for the species?  
2 = easily bred and maintained in zoos  
1 = moderate success in breeding and management  
0 = difficult to breed and/or maintain in zoos
  
5. Is there educational value to keeping the species in zoos?  
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 zoos 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 zoo 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 zoo 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 4: AZA Antelope & Giraffe TAG Species Evaluation Summary by 14 Steering Committee Members, 2008.**

Species-subspecies	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	Total	Mean
<b>Forest/Woodland Subgroup</b>																
E. giant eland	12	11	12	8	8	11	8	9	9.5	14	12	14	10	12	150.5	11
Cape eland	12	12	12	11	7		11	9	8.5	14	9	12	3	12	132.5	10
Common eland	12	12	11	10	10	8	10	9	9	14	9	13	11	12	150.0	10.5
Lowland nyala	13	13	11	9	10	10	10	10	10	10	12	8	13	13	152.0	11
E. bongo	19	19	19	18	18	19	19	17	18	20	19	20	17	19	261.0	18.5
S. lesser kudu	10	10	13	7	12	9	13	9	12	9	11	15	7	10	147.0	10.5
Greater kudu	14	12	11	11	10	14	9	11	12	11	13	15	13	14	170.0	12
Sitatunga	14	9	12	4	9	9	9	8	9	11	9	10	10	14	137.0	10
W. bushbuck	5	6	2	7	4.5	8	3	8	7	6	5.5	6	2	2	72	5
Roan antelope	14	5	8	5	9	7	8	8	13	9	8	16	13	14	137.0	10
Sable antelope	14	11	14	12	12	11	8	11	13	9	10	17	13	14	169.0	12
Zambian sable antelope	10	6	7	8	3		9	8	11	9	8	17	6	10	112.0	9
Impala	10	11	9	9	12	10	12	9	9	11	12	10	13	10	147.0	10.5
Springbok	11	7	8	13	10	9	11	8	9	11	9	12	10	11	139.0	10
S. African springbok	11	7	8	8	4		12	7	8	11	11	11	10	11	119.0	9
Blackbuck	10	10	10	10	18	8	14	12	12	13	9	15	13	10	164.0	11.5
S. gerenuk	15	12	15	9	16	15	13	13	13	13	11	14	12	15	186.0	13.5
Nilgai	10	9	10	6	11	10	9	11	12	13	11	10	8	10	140.0	10
<b>Small Antelope Subgroup</b>																
Crowned duiker	11	5	2	3	5	8	9	3	6	3	7	9	7	11	89.0	6.5
Bay duiker	11	5	6	2	7	7	10	5	10	8	10	9	10	11	111.0	8
Maxwell's duiker	11	6	8	3	4	6	10	5	10	8	8	9	12	11	111.0	8
Blue duiker	11	6	13	4	10	11	10	8	12	10	12	10	10	11	138.0	10
Black duiker	11	7	6	2	7	6	10	6	10	7	7	10	9	11	109.0	8

Species-subspecies	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	Total	Mean
Red-flanked duiker	11	8	6	2	12	10	10	7	12	10	9	10	11	11	129.0	9
Yellow-backed duiker	11	10	15	6	12	14	10	9	13	12	10	10	13	11	156.0	11
Kenyan Guenther's dik dik	10	6	10	7	8	8	11	8	11.5	9	11	12	14	10	135.5	10
Kirk's dik dik	10	5	8	6	8	8	6	8	9.5	9	11	12	15	10	125.5	9
Suni	10	2	6	4	3	4	7	5	6	7	10	8	11	10	93.0	6.5
Royal antelope	10	2	4	3	7	5	8	6	8.5	7			13	10	83.5	7
Steenbok	10	4	11	4	9	5	9	5	8.5	11	9	12	11	10	118.5	8.5
Klipspringer	10	8	14	6	10	10	9	8	10	11	10	10	16	10	142.0	10
Cotton's oribi	10	4	7	3	5	5	10	4	8	1	9	10	12	10	98.0	7
<b>Hartebeest Subgroup</b>																
Jackson's hartebeest	9	3	10	2	7	8	8	9	7.5	10	6	11	11	9	110.5	8
Cape hartebeest	11	3	6	2	5	5	8	7	6.5	6	4	10	11	11	95.5	7
Black wildebeest	16	5	5	5	6	9	12	8	7.5	10	6	10	9	16	124.5	9
E. white-bearded wildebeest	13	10	10	4	11	13	10	9	9.5	12	12	10	11	13	147.5	10.5
Bontebok	17	8	10	9	11	11	11	11	12	13	14	12	14	17	170.0	12
Blesbok	10	8	11	4	8	7	11	10	8	5	5	10	14	10	121.0	8.5
Topi	7	3	11	3	8	5	9	6	7	8	6	9	9	7	98.0	7
<b>Waterbuck Subgroup</b>																
Common waterbuck	8	9	9	6	8	9	6	9	10.5	11	7	10	14	8	124.5	9
Defassa waterbuck	8	8	9	5	5	5	6	7	8.5	8	7	13	12	8	109.5	8

Species-subspecies	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	Total	Mean
Kob	8	4	13	4	4		9	8	6	6	7	10	10	8	97.0	7.5
Red lechwe	10	6	10	4	8	4	10	7	6	6	7	10	13	10	111.0	8
Kafue lechwe	9	3	6	4	4	6	10	8	6	6	6	9	14	9	100.0	7
Nile lechwe	12	9	11	6	15	11	11	10	9	12	6	11	13	12	148.0	10.5
Rhebok	8	4	6	8	5	8	6	6	8	10	10	8	4	8	99.0	7
<b>Aridland Antelope, Gazelles and Pronghorn Subgroup</b>																
Addax	20	18	19	20	21	18	19	17	19	19	20	22	20	20	272.0	19.5
Scimitar-horned oryx	20	18	19	20	20	18	20	16	19	19	21	20	20	20	270.0	19
Arabian oryx	20	16	15	19	14	15	20	13	19	17	21	22	19	20	250.0	18
Fringe-eared oryx	8	8	9	6	11	6	11	8	7	6	7	14	13	8	122.0	8.5
Gemsbok	10	5	7	5	10	9	10	8	8	9	8	12	13	10	124.0	9
Beisa oryx	6	7	7	5	8	7	13	6	12.5	5	7	10	12	6	111.5	8
Cuvier's gazelle	10	15	11	10	12	13	14	8	12.5	14	11	16	16	10	172.5	12.5
Addra gazelle	17	16	15	14	16	18	14	12	17	16	14	20	18	17	224.0	16
Mhorr gazelle	17	10	13	14	16	10	12	10	15	15	14	18	15	17	196.0	14
Nubian Soemmerring's gazelle	15	10	7	7	12	9	12	7	13	10	9	10	13	15	149.0	10.5
Nubian red-fronted gazelle	8	6	6	8	12	5	13	5	11	5	9	9	13	8	118.0	8.5
Speke's gazelle	15	11	7	11	13	13	14	7	15.5	13	10	12	16	17	174.5	12.5
Saudi goitered gazelle	13	9	7	6	7	6	13	6	12.5	7	7	10	7	13	123.5	9
Persian gazelle	6	7	7	5	8	7	13	6	12.5	5	7	10	12	6	111.5	8
Thomson's gazelle	7	10	15	6	9	9	11	9	8	13	13	13	9	7	139.0	10
Dorcas gazelle	12	9	10	12	13	6	15	6	10.5	5	14	14	14	12	152.5	11
Slender-	16	9	17	13	15	13	15	11	14.5	15	16	19	14	16	203.5	14.5



Species-subspecies	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	Total	Mean
horned gazelle																
Grant's gazelle	6	8	11	4	10	7	8	7	8.5	8	10	10	12	6	115.5	8.5
Pronghorn	12	9	15	17	12	9	12	11	9.5	14	12	18	13	12	175.5	12.5
Peninsular pronghorn	13	10		8	17	14	13	13	12	14	12	15	13	13	167.0	13
<b>Giraffe Subgroup</b>																
Rothschild's giraffe	15	13	13	11	14	11	13	13	14	14	16	18	13	15	193.0	14
Reticulated giraffe	15	13	14	11	14	10	12	13	14	14	16	18	13	15	192.0	13.5
Masai giraffe	15	16	18	14	14	11	14	14	15	14	16	20	14	15	210.0	15
Giraffe	10	11	13	11	9	9	11	13	14		16	14		10	141.0	12
Okapi	18	18	21	17	19	17	19	17	19	18	19	20	19	18	259.0	18.5
<b>Additional species of concern</b>																
Mountain nyala	11	6		8	9		11	9	12	5	10	13	13	14	121.0	10
W. giant eland	13	6		8	9		10	8	12	3	10	17	10	13	119.0	10
Giant sable antelope	13	5		10	5		13	9	12	2	10	15	12	13	119.0	10
Four-horned antelope	11	5		11	8		10	8	9	5	10	10	9	11	107.0	9
Dibatag	10	5		9	11		10	6	9	5	11	7	10	10	103.0	8.5
Black-faced impala	12	4		3	8		10	7	7	3	12	10	11	12	99.0	8.5
Ader's duiker	8	4		3	7		10	4	9	4	10	7	7	8	81.0	7
Ruwenzori red duiker	8	3		3	5		8	3	5	4	7	6	7	8	67.0	5.5
Abbot's duiker	8	3		4	5		10	4	9	4	7	7	7	8	76.0	6.5
Silver dik dik	8	3		4	4		8	5	5	2	8	6	6	8	67.0	5.5
Swayne's hartebeest	8	4		3	4		10	7	7	2	7	10	11	11	84.0	7

<b>Species-subspecies</b>	<b>#1</b>	<b>#2</b>	<b>#3</b>	<b>#4</b>	<b>#5</b>	<b>#6</b>	<b>#7</b>	<b>#8</b>	<b>#9</b>	<b>#10</b>	<b>#11</b>	<b>#12</b>	<b>#13</b>	<b>#14</b>	<b>Total</b>	<b>Mean</b>
<b>Hirola</b>	<b>11</b>	<b>4</b>		<b>4</b>	<b>11</b>		<b>10</b>	<b>8</b>	<b>9</b>	<b>5</b>	<b>8</b>	<b>10</b>	<b>10</b>	<b>14</b>	<b>104.0</b>	<b>8.5</b>
<b>Mountain Reedbuck</b>	<b>8</b>	<b>3</b>		<b>3</b>	<b>4</b>		<b>7</b>	<b>3</b>	<b>4.5</b>	<b>2</b>	<b>11</b>	<b>6</b>	<b>11</b>	<b>8</b>	<b>70.5</b>	<b>6</b>
<b>Acacia gazelle</b>	<b>9</b>	<b>3</b>		<b>9</b>			<b>11</b>	<b>4</b>	<b>8</b>	<b>5</b>	<b>8</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>82.0</b>	<b>7.5</b>
<b>Muscat gazelle</b>	<b>9</b>	<b>3</b>		<b>9</b>			<b>11</b>	<b>4</b>	<b>8</b>	<b>4</b>	<b>8</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>81.0</b>	<b>7.5</b>
<b>Saudi gazelle</b>	<b>10</b>	<b>4</b>		<b>9</b>			<b>12</b>	<b>4</b>		<b>3</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>10</b>	<b>75.0</b>	<b>7.5</b>
<b>Pelzeln's gazelle</b>	<b>9</b>	<b>3</b>		<b>9</b>			<b>11</b>	<b>4</b>		<b>2</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>70.0</b>	<b>7</b>
<b>Beira</b>	<b>10</b>	<b>6</b>		<b>10</b>			<b>10</b>	<b>3</b>	<b>11</b>	<b>6</b>	<b>12</b>	<b>8</b>	<b>12</b>	<b>10</b>	<b>98.0</b>	<b>9</b>
<b>Mongolian saiga</b>	<b>16</b>	<b>6</b>		<b>14</b>			<b>10</b>	<b>9</b>	<b>12.5</b>	<b>6</b>	<b>12</b>	<b>12</b>	<b>15</b>	<b>16</b>	<b>128.5</b>	<b>11.5</b>
<b>Russian saiga</b>	<b>16</b>	<b>7</b>		<b>14</b>			<b>10</b>	<b>9</b>	<b>12.5</b>	<b>6</b>	<b>12</b>	<b>12</b>	<b>15</b>	<b>16</b>	<b>129.5</b>	<b>12</b>
<b>Chiru</b>	<b>9</b>	<b>7</b>		<b>13</b>			<b>11</b>	<b>9</b>	<b>11.5</b>	<b>4</b>	<b>13</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>104.5</b>	<b>9.5</b>
<b>Przewalski's gazelle</b>	<b>10</b>	<b>4</b>		<b>11</b>			<b>11</b>	<b>5</b>	<b>8.5</b>	<b>6</b>	<b>10</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>92.5</b>	<b>8.5</b>
<b>Saola</b>	<b>11</b>	<b>7</b>		<b>15</b>			<b>13</b>	<b>7</b>	<b>10</b>	<b>5</b>	<b>11</b>	<b>10</b>	<b>5</b>	<b>11</b>	<b>105.0</b>	<b>9.5</b>
<b>Sonoran pronghorn</b>		<b>9</b>			<b>16</b>		<b>11</b>	<b>13</b>	<b>12.5</b>	<b>3</b>			<b>11</b>	<b>9</b>	<b>84.5</b>	<b>10.5</b>
<b>Zebra duiker</b>	<b>13</b>	<b>7</b>	<b>8</b>	<b>2</b>	<b>9</b>	<b>9</b>	<b>11</b>	<b>5</b>	<b>11.5</b>	<b>2</b>	<b>8</b>	<b>11</b>	<b>13</b>	<b>13</b>	<b>122.5</b>	<b>9</b>
<b>Jentink's duiker</b>	<b>11</b>	<b>7</b>	<b>5</b>	<b>2</b>	<b>7</b>	<b>8</b>	<b>11</b>	<b>7</b>	<b>14</b>	<b>3</b>	<b>7</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>115.0</b>	<b>8</b>

**Appendix 5. AZA Antelope and Giraffe TAG Program Management Assessment Table, 2009.**

	1	2	3	4	5	6	7	8	9	10	11	12	13	Program Designation
<b>Forest/Woodland Subgroup</b>														
Eastern giant eland	L	L	V	D/S	L	H	M	LC	H	H	N	Y	N	DERP
Common eland	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	PMP
Cape eland	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	PMP
Lowland nyala	L	M	V	D/S	M	M	M	LC	H	M	Y	N	N	PMP
Eastern bongo	M	M	V	D/S	H	H	M	E/T	H	M	Y	Y	N	SSP
Southern lesser kudu	M	L	V	D/S	H	H	M	LC	H	M	Y	N	N	PMP
Harnessed bushbuck	L	M	E	S	L	L	L	LC	M	M	N	N	N	P/O (small unviable population)
Greater kudu	M	M	V	D/S	H	H	M	LC	M	M	Y	N	N	PMP
Sitatunga	L	M	V	D/S	M	M	M	LC	M	M	Y	N	N	PMP
Roan antelope	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	PMP
Sable antelope	L	M	V	D/S	M	M	M	LC	H	M	Y	N	N	PMP
Zambian sable antelope	L	M	V	D/S	M	M	M	LC	H	M	Y	N	N	PMP
Impala	M	M	V	S	M	M	M	LC	M	M	N	N	N	DERP (high number of UNKs)
South African springbok	L	L	V	D/S	M	M	M	LC	M	M	N	N	N	PMP
Blackbuck	M	H	V	S	L	L	M	E/T	M	M	N	N	N	DERP (high number of UNKs)
Southern gerenuk	M	L	V	D/S	H	H	M	LC	H	M	N	N	N	PMP
Nilgai	M	H	V	S	L	L	M	E/T	M	M	N	N	N	DERP (high number of UNKs)
<b>Small Antelope Subgroup</b>														
Bay duiker	L	L	E	D/S	L	L	M	LC	H	M	N	N	N	P/O (small unviable population)
Maxwell's duiker	L	L	E	D/S	L	L	M	LC	H	M	N	N	N	P/O (small unviable population)
Blue duiker	M	L	V	D/S	M	M	M	LC	H	M	Y	N	N	PMP
Black duiker	L	L	V	D/S	L	L	M	LC	H	M	N	N	N	DERP (small population)
Red-flanked duiker	M	L	V	D/S	M	M	M	LC	H	M	N	N	N	PMP
Yellow-backed duiker	M	L	V	D/S	M	M	M	LC	H	M	N	N	N	PMP
Kenyan Guenther's dik dik	L	L	V	D/S	M	M	M	LC	H	M	N	N	N	PMP
Kirk's dik dik	L	L	V	D/S	M	M	M	LC	H	M	Y	N	N	PMP
Suni	L	L	E	S	L	L	M	LC	H	M	N	N	N	P/O (small unviable population)
Royal antelope	M	L	V	D/S	M	M	M	LC	H	M	N	N	N	DERP (emerging program)
Steenbok	L	L	V	D/S	L	M	M	LC	H	M	N	N	N	PMP
Crowned duiker	L	L	E	S	L	L	M	LC	H	M	N	N	N	P/O (small unviable population)
Klipspringer	M	L	V	D/S	M	M	M	LC	H	M	Y	N	N	PMP

	1	2	3	4	5	6	7	8	9	10	11	12	13	Program Designation
<b>Hartebeest Subgroup</b>														
Jackson's hartebeest	L	L	V	D/S	L	M	M	LC	H	M	N	N	N	PMP
Cape hartebeest	L	L	E	S	L	L	M	LC	H	M	N	N	N	P/O (small unviable population)
White-bearded wildebeest	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	PMP
Bontebok	M	M	V	D/S	M	M	M	V	M	M	N	N	N	PMP
Blesbok	M	M	V	D/S	M	M	M	V	M	M	N	N	N	P/O (strong program in other regions)
Topi	L	L	E	S	L	L	M	LC	H	M	N	N	N	DERP (small unviable population)
<b>Waterbuck Subgroup</b>														
Common waterbuck	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	PMP
Defassa waterbuck	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	P/O (strong program in other regions)
Uganda kob	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	DERP (program status under reconsideration pending analysis by TAG)
Red lechwe	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	DERP (program status under reconsideration pending analysis by TAG)
Nile lechwe	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	PMP
Rhebok	L	L	V	D/S	M	M	M	LC	H	M	N	N	N	PMP (emerging program)
<b>Aridland Antelope, Gazelles and Pronghorn Subgroup</b>														
Addax	M	L	E/T	D/S	H	H	M	E/T	M	M	Y	Y	N	SSP
Scimitar-horned oryx	M	L	E/T	D/S	H	H	M	E/T	M	M	Y	Y	N	SSP
Gemsbok	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	PMP
Beisa oryx	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	P/O (strong program in other regions)
Fringe-eared oryx	M	M	V	D/S	M	M	M	LC	M	M	Y	N	N	PMP
Arabian oryx	M	L	E/T	D/S	H	H	M	E/T	M	M	Y	Y	N	SSP
Cuvier's gazelle	M	L	E/T	D/S	L	M	M	E/T	M	M	Y	Y	N	PMP
Addra gazelle	L	L	E/T	D/S	H	H	M	E/T	H	M	N	Y	N	SSP
Mhorr gazelle	L	L	E/T	D/S	M	M	M	E/T	H	M	N	Y	N	P/O (strong program in other regions; small unviable population)
Dorcas gazelle	L	L	E/T	S	L	M	M	E/T	H	M	N	Y	N	P/O (strong program in other regions; small unviable population)
Grant's gazelle	M	M	V	D/S	M	M	M	LC	M	M	N	Y	N	PMP
Thomson's gazelle	M	M	V	D/S	H	M	M	LC	M	M	Y	N	N	PMP
Slender-horned gazelle	L	L	E/T	D/S	M	H	M	E/T	M	M	N	Y	N	SSP
Nubian red-fronted gazelle	L	L	V	D/S	L	M	L	V	H	M	N	Y	N	P/O (small unviable population)
Nubian Soemmerring's	L	L	V	D/S	L	M	L	V	H	M	N	Y	N	PMP

	1	2	3	4	5	6	7	8	9	10	11	12	13	Program Designation
gazelle														
Speke's gazelle	L	L	E/T	D/S	M	H	M	E/T	H	M	N	Y	N	SSP
Saudi goitered gazelle	L	L	V	D/S	L	M	L	V	H	M	N	Y	N	P/O (small unviable population)
Persian gazelle	L	L	V	D/S	L	M	L	V	H	M	N	Y	N	P/O (program in other regions)
Pronghorn	L	L	V	S	M	H	M	LC	M	M	N	Y	Y	DERP
Peninsular pronghorn	L	L	E/T	D/S	M	H	M	LC	H	M	N	Y	Y	DERP (emerging program)
<b>Giraffe Subgroup</b>														
Masai giraffe	L	L	V	D/S	H	H	M	LC	H	M	N	N	N	PMP
Giraffe, retic/roth complex	M	L	V	D/S	H	H	M	LC	M	M	Y	N	N	PMP
Okapi	M	L	V	D/S	H	H	M	LC	H	H	Y	Y	N	SSP

#### Management Assessment Criteria for Recommended Programs

1. Availability within AZA (L=Low; M = Moderate; E = Extremes)
2. Availability outside AZA (L=Low; M = Moderate; E = Extremes)
3. Extinction risk without management (in zoos and aquariums) (E/T = Endangered/Threatened; V = Vulnerable; E = Extremes)
4. Extinction risk with management (in zoos and aquariums) (D = Decreases; D/S = Decreases/Stable; S = Stable)
5. Demand within AZA (H = High; M = Moderate; L = Low)
6. Institutional commitment (H = High; M = Moderate; L = Low)
7. Ease of breeding (H = High; M = Moderate; L = Low; E = Extremes)
8. Extinction risk (wild) IUCN designation (E/T = Endangered/Threatened; V = Vulnerable; LC = Least Concern)
9. Acquisition cost (outside AZA) (H = High; M = Moderate; L = Low)
10. Program operating costs (H = High; M = Moderate; L = Low)
11. International program (Y = Yes; N = No)
12. Link to conservation of wild populations (D = Direct; I = Indirect; N = None)
13. N. American governmental conservation program (Y = Yes; N = No)

## **Appendix 6. AZA Antelope and Giraffe TAG Action Plan, 2009-2013**

The Action Plan for the Antelope and Giraffe TAG has evolved to include the prioritization of antelope management, health, education, conservation, and research efforts. These action areas are intended to focus institutional efforts and support in linking *ex situ* and *in situ* antelope, giraffe, and okapi conservation and management programs.

The goals of the Action Plan include:

- antelope and giraffe *ex situ* conservation program development.
- strategies to promote global antelope and giraffe conservation and species diversity.
- education programs that create awareness, understanding, and appreciation of antelopes and giraffes.
- multi-disciplinary research designed to improve the health, welfare, and management, of managed and free living antelope and giraffe populations.
- bovidae health and veterinary issues that impact conservation programs or wild populations.
- partnerships to achieve mutual and bio-diverse conservation goals.

### **Summary of Priorities for 2009-2013**

- promote conservation program development and assist program leaders as possible to achieve TAG and antelope and giraffe conservation program goals. (Program Management)
- promote and support *in situ* conservation initiatives for antelope and habitats related to priority AZA programs. (Conservation)
- update Antelope and Giraffe TAG website and materials (Education)
- develop importation protocols and methods to import frozen gametes of non-domestic ruminants. (Research-Assisted Reproduction)
- ongoing infectious disease monitoring and vigilance for bovid diseases in AZA institutions, which may seriously impact conservation program health and management. (Animal Health)

Specific action steps have been identified in each of the goal areas as defined below:

#### **Conservation Program Management Action Steps**

Continue to implement and refine managed programs for recommended species, including the recruitment of studbook keepers and PMP coordinators, the refinement of studbook databases and population management strategies, the development of husbandry guidelines and manuals, and reviewing and updating the Regional Collection Plan.

Encourage antelope conservation program leaders to participate in AZA/PMC Small Population Management courses to ensure the highest possible level of understanding and applied management for antelope programs.

- provide venue at TAG working meetings to help program leaders to address specific antelope population management issues.
- Steering Committee to take an active role in conservation program development and capacity building through training and working with program leaders.

Update mixed-species database published in 2000. (Schanberger, 1999).

Encourage the research and application of effective program management tools (contraception, assisted reproduction, euthanasia) for use in antelope programs.

Develop and strengthen links and collaborative antelope conservation programs with other regions.

- continue to pursue global masterplanning and metapopulation management with our EEP counterparts, especially with regard to selection of animals for reintroduction, evaluation/prioritization of requests for AZA animals for that purpose, and pooling support for in situ conservation priorities for said species.

Develop partnerships in the establishment of additional and sustainable USDA embarkation quarantine(s) to provide avenues and support for the continued importation of non-native ruminants to augment and sustain *ex situ* antelope programs.

Further develop cooperative antelope management programs between AZA institutions and non-member participating organizations.

- hold international antelope and giraffe TAG meetings with our counterparts in Europe on a regular basis (proposed at 3 year intervals).

Continue to develop animal care manuals for Antelope and Giraffe TAG species

Develop guidelines regarding institutional support of/for sustainable antelope programs including annual management costs, importation/augmentation, research, and conservation.

- develop priorities lists and figures to assess and promote priority program needs
- circulate antelope programs needs to AZA institutions (mailings, Directors list serve)

### **Conservation Action Steps**

Support and participate with antelope population and habitat conservation in range states, including:

#### Sahel/Sahara Focus

Continue to support and participate with antelope and habitat conservation efforts in the Sahel and Sahara as outlined by the Convention of Migratory Species 1998 meeting in Djerba, and as implemented through the efforts of the Sahara-Sahelo Interest Group and the Sahara Conservation Foundation. Projects to potentially include: habitat survey and assessment, education and awareness, training and capacity building, regional conservation program development, species reintroduction, and habitat and species protection efforts. This relates particularly to the TAG antelope programs for addax, scimitar-horned oryx, addra gazelle, Mhorr gazelle, slender-horned gazelle, dorcas gazelle, and Cuvier's gazelle.

- pursue development of protected area in the Termit region of Niger, in partnership with SCF, CMS/FFEM, local NGOs and the Nigerian government.
- continue relationship with managers of Tunisian parks where addax and scimitar-horned oryx were repatriated in 2007.
- establish relationship with managers of addax population in Sous Massa, Morocco to explore utilization of their herd for reintroduction efforts in the Sahelo-Saharan region
- partner with relevant program coordinators (addax, scimitar-horned oryx, fennec fox, cheetah, slender-horned gazelle, Addra and Mhorr gazelle, Cuvier's gazelle, dorcas

gazelle, Soemmerring's gazelle, African wild ass, etc) on projects that are mutually beneficial to a broad spectrum of Sahelo-Saharan species

- partner with existing programs in Morocco and Senegal for the reintroduction of the scimitar-horned oryx.

*Partners: Saharan Conservation Foundation, Antelope Specialist Group, EAZA Antelope TAG, Convention on Migratory Species, Senegal Government, Nigerian Government, Tunisian Government, Government of Morocco, FFEM, Cheetah Conservation Fund, Fondation IGF, Selah (Bamberger) Ranch, Greater Northern Bald Ibis Advisory Group, Addax SSP, Scimitar-horned Oryx SSP, Addra Gazelle SSP*

#### Okapi Conservation Project

Promote and support the ongoing efforts to conserve the okapi and manage the Okapi Wildlife Reserve in the Ituri Forest of the Democratic Republic of Congo. Projects include: public awareness and school education programs, wildlife protection and capacity building, sustainable agroforestry and gardening techniques, and breeding and research.

- provide support to the Okapi Conservation Project managed by Gilman Conservation International.

*Partners: Institute in Congo for Conservation of Nature, Okapi SSP, Okapi EEP, Gilman International Conservation, Wildlife Conservation Society.*

#### Bushmeat Focus

In conjunction with the Bush Meat Crises Task Force (BCTF), continue to participate in research projects and awareness campaigns to identify and manage antelope bush meat and antelope product utilization and exploitation in range states. This is of particular interest in west and central Africa in conjunction with BCTF conservation work there.

- investigate potential partnership to support Sapo National Park in Liberia and its conservation projects focusing on ungulates and antelope (bongo, zebra duiker, Jentink's duiker, pygmy hippo).
- work with ongoing projects in Liberia concerning bushmeat surveys and bushmeat utilization, including support of student researchers and data gathering.
- investigate formal TAG involvement in the Bushmeat Crises Task Force
- support saiga horn trade research and control measures in China.

*Partners: Bushmeat Crises Task Force, Forest Partners, Sapo National Park, WCS*

#### Ungulates of the Horn of Africa / East Africa

Develop, partner, and participate, with various conservation programs and projects related to the severely threatened (and often endemic) ungulate populations in the region. Focal species would include: mountain nyala, Swayne's hartebeest, hirola, Speke's gazelle, dibatag, Soemmerring's gazelle, beira, Eastern mountain bongo, and giraffe. Related species and projects such as, Grevy's zebra, Walia ibex, and African wild ass should be incorporated through inter-TAG programs.

- support bongo repatriation program and conservation efforts in Kenya.
- support conservation projects and research for the mountain nyala in Bale National Park, Ethiopia.
- support conservation efforts for Swayne's hartebeest in Ethiopia through ASG.



- support conservation efforts for hirola in Kenya through Kenya Wildlife Service and Northern Rangelands Trust.

*Partners: Bongo SSP, Mt. Kenya Safari Club, Rare Species Conservatory, Kenya Wildlife Service, Ethiopian Wildlife Conservation Department, Grevy's Zebra Trust, Northern Rangelands Trust, Lewa Wildlife Conservancy, International Elephant Foundation, Society for the Conservation of Species and Populations, Ethiopian Wolf Conservation Program, WildCRU/Cambridge University, Grevy's Zebra SSP, WildCare Institute Center for Conservation in the Horn of Africa.*

#### Asian Steppe Antelope

Develop, partner, and participate with various conservation programs and projects related to the severely threatened and declining antelope populations in Mongolia, China, and Tibet. These efforts include ISF antelope species such as the, Russian saiga, Mongolian saiga, Tibetan antelope, Mongolian gazelle, and Przewalski's gazelle.

- assist and support related conservation actions, including components, based on the 2004 Action Plan for the species for Qinghai Province, China, in conjunction with Qinghai Forestry Department, FFI, and ASG. .
- assist Mongolia to develop conservation programs for the saiga (*S. t. mongolica*)
- assist China to further develop their saiga program for China in Gansu Province, assist with saiga horn trade surveys, and market evaluation and control.
- assist and support work by the Russian Academy of Science and Kalmykia Biosphere Reserve for the conservation of the Russian saiga (*S. t. tatarica*). Projects include protection, awareness, biology studies, reintroduction, and production components, both in Kazakhstan and Kalmykia.
- assist China/Tibet and partners to study and conserve the Tibetan antelope and the Tibetan plateau ecosystem.

*Partners: Russian Academy of Science, Kalmykia Biosphere Reserve, Flora and Fauna International, ASG, Wildlife Conservation Society, China Forestry Bureau, Society for the Conservation of Species and Populations, Conservation Centers for Species Survival.*

#### Pronghorn

Participate with the development of conservation programs in Mexico and the US for the endangered Peninsular and Sonoran pronghorn populations.

- seek support for Peninsular Pronghorn Project
- develop managed conservation program for Sonoran pronghorn in conjunction with Mexico

*Partners: Vizcaino Biosphere Reserve, USFWS, Arizona Game and Fish*

#### Small Antelope

Participate with the Mini Antelope Sub Group of the Antelope Specialist Group in promoting and supporting related conservation projects, research, and awareness. ISF species include: Ader's duiker, zebra duiker, Jentink's duiker, Abbotts duiker, beira.

- assist in the development of a conservation program for the Ader's duiker on Zanzibar including, public awareness, protection, capacity building, and breeding projects.

- develop conservation efforts for duiker populations in critical west African range states (Sapo National Park, Liberia, etc.)

Partners: Paignton Zoo, EAZA Antelope TAG, Antelope Specialist Group, Forest Partners

### **Research Action Steps**

Continue to partner with USDA to develop protocols for the import/export of non-domestic ruminant genomes in promoting international genome transfer as a tool for managed antelope programs.

- through ongoing research program with gerenuk, develop importation protocols and methodology with USDA to import semen.

Provide a regular meeting forum for antelope research focus to disseminate research results and stimulate discussion and further projects.

### Endocrine / Contraception

Conduct basic and applied research to develop and refine routine, safe, and effective methods of contraception for antelopes.

Investigate potential for aggression management (mixed species, bachelor groups, intra-specific) utilizing reversible chemical or hormonal methods.

Characterize reproductive norms for both male and female antelopes of all species.

### Assisted Reproduction

Conduct basic research in genome banking needed to optimize biomaterial viability after cryopreservation, and develop information systems to manage and integrate genome resource banking in population management programs.

Apply the use of assisted reproduction and non-invasive hormone monitoring in population management programs to assist antelope program leaders in solving related population problems and meeting program goals.

### Behavior

Support behavioral research that will lead to non-invasive physiological measures and better understanding of antelope species biology.

### Nutrition

Investigate antelope and giraffe nutrition issues. This is of particular importance in browsing species and duikers.

- conduct follow up research to verify or support recommendations for giraffe nutrition and feeding management.

Investigate micro and macro nutrient requirements for antelopes and giraffe and their role in health, reproduction, nutrition, and immune response.

### Genetics/Systematics

Recruit scientists to address issues related to antelope taxonomy, systematics, and population genetics.

- sable and roan antelope (*Hippotragus*), population systematics
- bontebok and blesbok (*Damaliscus*), relationship, wild populations and N. America populations
- hartebeest (*Alcelaphus*), systematics – E. Africa and Jackson's – hybrid questions
- giant eland (*Taurotragus*), systematics
- dama gazelle (*G. dama*), complex and systematics

Promote current and applied research regarding group/herd demographic and genetic small population management.

- apply group management model to addax herd at the Peace River Refuge and compare results over time with traditional SSP management model.

Wild population and habitat assessment and protection

- survey the trans-boundary region between Mali and Mauritania, one of the last suspected strongholds of the addax.

### Education Action Steps

Develop/Refine the TAG website and antelope and giraffe information presentation.

- implement as education priority and rework and update current website
- develop website as a universal antelope information resource
- place TAG program priorities on TAG website
  - create fact sheets for website on species of high conservation priority that do not have *ex situ* programs (Mountain nyala, saiga, Tibetan antelope, Przewalski's gazelle)
  - create pages on the website describing ongoing Antelope field projects

Develop education tools to promote awareness of antelope issues and generate interest in antelope conservation programs. These tools may address awareness campaigns for zoo visitors and the general public; antelope field conservation projects; and/or AZA institutional personnel (directors, curators, managers, educators, keepers, etc.).

- refine, support, and implement use of ungulate/antelope suitcase in regional or international antelope awareness programs.

Promote ties with the Antelope Specialist Group and TAG institutional support of the Gnusletter and ASG documents and publications.

Work with AZA ungulate TAGs to promote antelope and ungulate conservation and programs on a broader basis.

### **Animal Health Action Steps**

Maintain vigilance regarding infectious disease issues concerning antelopes in the US, including regional focus. Compile screening protocols including current diagnostic tests, pertinent recommended laboratories, and regulatory agencies (MCF, Blue Tongue, EHD, FMD, Anthrax, BSE, TB, Brucella).

Encourage the AZA institutional use of TAG endorsed antelope health screening protocols for antelopes.

Continue to work with AZA Animal Health Committee and the AAZV Infectious Disease Committee regarding USDA regulations affecting antelope/bovidae management.

Encourage AZA institutional participation with recommendations regarding Johnes disease (*Mycobacterium paratuberculosis*) surveillance and control as recommended by the AAZV Johnes Advisory Group.

Establish recommended vaccination protocols for antelopes/giraffes including regional and age based information.

Compile current data on parasite control and management in antelopes and giraffes. Include diagnostic procedures, anthelmintic dosing regimens, and environmental management.

**Appendix 7. Antelope and Giraffe TAG Program Recommendations Updates from the 2005 RCP (changes in bold).**

Program	2005 Recommendation	2009 Recommendation	Program Leader Change	New Program Leader and/or Program Leader Contact Information Change
<b>Forest Woodland Subgroup</b>				
Eastern giant eland	PMP	PMP	Yes	New International Studbook Keeper Eric Flossic, Tulsa Zoo <a href="mailto:ericflossic@yahoo.com">ericflossic@yahoo.com</a> 918-669-6245
Western Giant Eland	ISF	ISF	No	ISF Coordinator Steve Shurter, White Oak Conservation Center <a href="mailto:steves@wogilman.com">steves@wogilman.com</a> 904-225-3396
Common eland	PMP	PMP	No	NA Regional Studbook Keeper & PMP Coordinator Stephanie Dolly, Zoo New England <a href="mailto:Ruggles214@mindspring.com">Ruggles214@mindspring.com</a> 830-438-5769
Cape eland	PMP	Combine with Common eland PMP	No	NA Regional Studbook Keeper & PMP Coordinator Stephanie Dolly, Zoo New England <a href="mailto:Ruggles214@mindspring.com">Ruggles214@mindspring.com</a> 830-438-5769
Lowland nyala	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Laurie McGivern, Houston Zoo <a href="mailto:lmcgivern@houstonzoo.org">lmcgivern@houstonzoo.org</a> 713-533-6682
Mountain nyala	ISF	ISF	No	Program Leader Contact Information Change ISF Coordinator Martha Fischer, Saint Louis Zoo <a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Eastern bongo	SSP	SSP	No	Studbook Keeper Contact Information Change International Studbook Keeper Lydia Bosley, supported by Oregon Zoo <a href="mailto:lfboslev@hughes.net">lfboslev@hughes.net</a> 541-444-1265  SSP Coordinator Ron Surratt, Fort Worth Zoo <a href="mailto:rsurratt@fortworthzoo.org">rsurratt@fortworthzoo.org</a> 817-759-7160
Southern lesser kudu	PMP	PMP	Yes	NA Regional Studbook Keeper Melissa Miller, Saint Louis Zoo <a href="mailto:lesserkudustudbook@stlzoo.org">lesserkudustudbook@stlzoo.org</a> 314-646-4648  New PMP Coordinator Tim Wild, Kansas City Zoo <a href="mailto:timwild@fotzkc.org">timwild@fotzkc.org</a> 816-513-4615
Harnessed bushbuck	P/O	P/O	No	No Program Leader required
Greater kudu	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Andrea DeMuth, Brookgreen Gardens <a href="mailto:ademuth@brookgreen.org">ademuth@brookgreen.org</a> 843-235-6054
Sitatunga	PMP	PMP	No	Program Leader Contact Information Change Gil Myers, Smithsonian's National Zoo <a href="mailto:mversg@si.edu">mversg@si.edu</a> 202-633-3216

Program	2005 Recommendation	2009 Recommendation	Program Leader Change	New Program Leader and/or Program Leader Contact Information Change
Roan antelope	PMP	PMP	No	NA Regional Studbook Keeper & PMP Coordinator Andi Kornak, Binder Park Zoo <a href="mailto:akornak@binderparkzoo.org">akornak@binderparkzoo.org</a> 269-979-1351 ext 170
Sable antelope	PMP	PMP	No	NA Regional Studbook Keeper & PMP Coordinator Jill Piltz, Disney's Animal Kingdom <a href="mailto:Jill.m.piltz@disney.com">Jill.m.piltz@disney.com</a> 407-928-2850
Zambian sable antelope	PMP	PMP	No	NA Regional Studbook Keeper & PMP Coordinator Jill Piltz, Disney's Animal Kingdom <a href="mailto:Jill.m.piltz@disney.com">Jill.m.piltz@disney.com</a> 407-928-2850
Giant sable antelope	ISF	ISF	No	ISF Coordinator Sharon Joseph, Houston Zoo <a href="mailto:sjoseph@houstonzoo.org">sjoseph@houstonzoo.org</a> 713-533-6740
Impala	DERP	DERP	No	No Program Leader required
Black-faced impala	ISF	ISF	No	ISF Coordinator Sharon Joseph, Houston Zoo <a href="mailto:sjoseph@houstonzoo.org">sjoseph@houstonzoo.org</a> 713-533-6740
Springbok	P/O	P/O	No	No Program Leader required
South African springbok	PMP	PMP	Yes	<b>New NA Regional Studbook Keeper &amp; PMP Coordinator</b> Jessica Scallan, Tulsa Zoo <a href="mailto:Jessica.scallan@sbcglobal.net">Jessica.scallan@sbcglobal.net</a> 918-669-6202
Blackbuck	DERP	DERP	No	No Program Leader required
Southern gerenuk	PMP	PMP	No	NA Regional Studbook Keeper & PMP Coordinator Bob Barnes, Los Angeles Zoo <a href="mailto:Bob.barnes@lacity.org">Bob.barnes@lacity.org</a> 323-644-4295
Dibatag	ISF	ISF	No	<b>Program Leader Contact Information Change</b> ISF Coordinator Martha Fischer, Saint Louis Zoo <a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Nilgai	DERP	DERP	No	No Program Leader required
Saola	ISF	ISF	Yes	<b>New ISF Coordinator</b> Sharon Joseph, Houston Zoo <a href="mailto:sjoseph@houstonzoo.org">sjoseph@houstonzoo.org</a> 713-533-6740
<b>Small Antelope Subgroup</b>				
Bay duiker	P/O	P/O	No	No Program Leader required
Jentink's duiker	ISF	ISF	Yes	<b>New ISF Coordinator</b> Jeff Holland, Los Angeles Zoo <a href="mailto:jeff.holland@lacity.org">jeff.holland@lacity.org</a> 323-644-4220

Program	2005 Recommendation	2009 Recommendation	Program Leader Change	New Program Leader and/or Program Leader Contact Information Change
Maxwell's duiker	DERP	P/O	No	No Program Leader required
Blue duiker	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Sarah Ksiazek, Kansas City Zoo <a href="mailto:Alphadawg7@gmail.com">Alphadawg7@gmail.com</a> 816-513-5700
Ader's duiker	ISF	ISF	Yes	New ISF Coordinator Jeff Holland, Los Angeles Zoo <a href="mailto:jeff.holland@lacity.org">jeff.holland@lacity.org</a> 323-644-4220
Black duiker	DERP	DERP	No	No Program Leader Required
Red-flanked duiker	PMP	PMP	No	No Program Leader Required
Yellow-backed duiker	PMP	PMP	No	Program Leader Contact Information Change NA Regional Studbook Keeper & PMP Coordinator Linda Rohr Bachers, Milwaukee Zoo <a href="mailto:Linda.bachers@milwcnty.com">Linda.bachers@milwcnty.com</a> 414-256-5448
Abbott's duiker	ISF	ISF	Yes	New ISF Coordinator Jeff Holland, Los Angeles Zoo <a href="mailto:jeff.holland@lacity.org">jeff.holland@lacity.org</a> 323-644-4220
Zebra duiker	ISF	ISF	Yes	New ISF Coordinator Jeff Holland, Los Angeles Zoo <a href="mailto:jeff.holland@lacity.org">jeff.holland@lacity.org</a> 323-644-4220
Kenyan Guenther's dik dik	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Paige McNickle, Phoenix Zoo <a href="mailto:PMcnickle@thephxzoo.com">PMcnickle@thephxzoo.com</a> 602-273-1351
Kirk's dik dik	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Paige McNickle, Phoenix Zoo <a href="mailto:PMcnickle@thephxzoo.com">PMcnickle@thephxzoo.com</a> 602-273-1351
Silver dik dik	ISF	ISF	Yes	New ISF Coordinator Jeff Holland, Los Angeles Zoo <a href="mailto:jeff.holland@lacity.org">jeff.holland@lacity.org</a> 323-644-4220
Suni	P/O	P/O	No	No Program Leader Required
Royal antelope	P/O	DERP	No	No Program Leader Required
Beira	ISF	ISF	No	Program Leader Contact Information Change ISF Coordinator Martha Fischer, Saint Louis Zoo <a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Steenbok	DERP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Bonnie Heather Holland, Los Angeles Zoo <a href="mailto:Heather.Holland@lacity.org">Heather.Holland@lacity.org</a> 323-644-6034
Crowned duiker	P/O	P/O	No	No Program Leader Required

Program	2005 Recommendation	2009 Recommendation	Program Leader Change	New Program Leader and/or Program Leader Contact Information Change
Klipspringer	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Michael Lebanik, Disney's Animal Kingdom <a href="mailto:Michael.g.lebanik.jr@disney.com">Michael.g.lebanik.jr@disney.com</a> 407-938-2342
<b>Hartebeest Subgroup</b>				
Jackson's hartebeest	PMP	PMP	Yes	Currently Vacant - program leader selection in progress
Cape hartebeest	P/O	P/O	No	No Program Leader Required
Swayne's hartebeest	ISF	ISF	No	Program Leader Contact Information Change ISF Coordinator Martha Fischer, Saint Louis Zoo <a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
White-bearded wildebeest	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Kristen Wolfe, Disney's Animal Kingdom <a href="mailto:Kristen.wolfe@disney.com">Kristen.wolfe@disney.com</a> 407-938-2950
Bontebok	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Liesl King, Disney's Animal Kingdom <a href="mailto:Liesl.king@disney.com">Liesl.king@disney.com</a> 407-938-7106
Blesbok	P/O	P/O	No	No Program Leader Required
Hunter's hartebeest, Hirola	ISF	ISF	Yes	New ISF Coordinator Martha Fischer, Saint Louis Zoo <a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Topi	DERP	DERP	No	No Program Leader Required
<b>Waterbuck Subgroup</b>				
Common waterbuck	PMP	PMP	No	NA Regional Studbook Keeper & PMP Manager Michelle Smurl, Brevard Zoo <a href="mailto:msmurl@brevardzoo.org">msmurl@brevardzoo.org</a> 321-254-9453 ext 217
Defassa waterbuck	P/O	P/O	No	No Program Leader Required
Uganda kob	P/O	DERP	No	No Program Leader Required
Red lechwe	P/O	DERP	No	No Program Leader Required
Nile lechwe	PMP	PMP	No	NA Regional Studbook Keeper & PMP Manager Matt Hohne, Disney's Animal Kingdom <a href="mailto:Matthew.hohne@disney.com">Matthew.hohne@disney.com</a> 407-938-2672



Program	2005 Recommendation	2009 Recommendation	Program Leader Change	New Program Leader and/or Program Leader Contact Information Change
Rhebok	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Michael Langridge, San Diego Zoo <a href="mailto:Sdwildlife1976@yahoo.com">Sdwildlife1976@yahoo.com</a> 619-672-1574
Western mountain reedbuck	ISF	ISF	No	ISF Coordinator Randy Rieches, San Diego Wild Animal Park <a href="mailto:rrieches@sandiegozoo.org">rrieches@sandiegozoo.org</a> 760-738-5015
<b>Aridland Antelope, Gazelle and Pronghorn Subgroup</b>				
Addax	SSP	SSP	No	Program Leader Contact Information Change International Studbook Keeper Terrie Correll, Tulsa Zoo <a href="mailto:tcorrell@cityoftulsa.org">tcorrell@cityoftulsa.org</a> 918-669-6223  SSP Coordinator Bill Houston, Saint Louis Zoo <a href="mailto:Houston@stlzoo.org">Houston@stlzoo.org</a> 314-646-4826
Scimitar-horned oryx	SSP	SSP	No	Program Leader Contact Information Change SSP Coordinator Ed Spevak, Saint Louis Zoo <a href="mailto:spevak@stlzoo.org">spevak@stlzoo.org</a> 314-646-4706
Gemsbok	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Justin Chuven, SDWAP <a href="mailto:jchuven@sandiegozoo.org">jchuven@sandiegozoo.org</a> 760-747-8702 ext 5249
Beisa oryx	P/O	P/O	No	No Program Leader required
Fringe-eared oryx	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Justin Chuven, SDWAP <a href="mailto:jchuven@sandiegozoo.org">jchuven@sandiegozoo.org</a> 760-747-8702 ext 5249
Arabian oryx	SSP	SSP	Yes	New International Studbook Keeper Karen Sausman, The Living Desert <a href="mailto:ksausman@livingdesert.org">ksausman@livingdesert.org</a> 760-346-5694 ext 2100  New SSP Coordinator Terrie Correll, Tulsa Zoo <a href="mailto:tcorrell@cityoftulsa.org">tcorrell@cityoftulsa.org</a> 918-669-6223
Cuvier's gazelle	PMP	PMP	No	NA Regional Studbook Keeper & PMP Coordinator Wendy Enright, The Living Desert <a href="mailto:wenright@livingdesert.org">wenright@livingdesert.org</a> 760-346-5694
Addra gazelle	SSP	SSP	Yes	New NA Regional Studbook Keeper & SSP Coordinator Ann Petric, with support from Saint Louis Zoo <a href="mailto:Apetric@earthlink.net">Apetric@earthlink.net</a> 708-442-6531
Mhorr gazelle	SSP	P/O	No	No Program Leader required
Dorcas gazelle	P/O	P/O	No	No Program Leader required

Program	2005 Recommendation	2009 Recommendation	Program Leader Change	New Program Leader and/or Program Leader Contact Information Change
Grant's gazelle	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Christy Poelker, Saint Louis Zoo <a href="mailto:grantgazellestudbook@stlzoo.org">grantgazellestudbook@stlzoo.org</a> 314-646-4651
Thomson's gazelle	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Lanny Brown, Phoenix Zoo <a href="mailto:lbrown@theplxzoo.com">lbrown@theplxzoo.com</a> 602-273-1341
Slender-horned gazelle	PMP	SSP	Yes	New International Studbook Keeper & SSP Coordinator Terrie Correll, Tulsa Zoo <a href="mailto:tcorrell@cityoftulsa.org">tcorrell@cityoftulsa.org</a> 918-669-6223
Nubian red-fronted gazelle	P/O	P/O	No	No Program Leader required
Nubian Soemmerring's gazelle	PMP	PMP	Yes	New NA Regional Studbook Keeper & PMP Coordinator Stacey Feige Konwiser, The Living Desert <a href="mailto:sfeige@livingdesert.org">sfeige@livingdesert.org</a> 760-346-5694
Speke's gazelle	PMP	SSP	No	Program Leader Contact Information Change NA Regional Studbook Keeper & SSP Coordinator Martha Fischer, Saint Louis Zoo <a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Saudi goitered gazelle	P/O	P/O	No	No Program Leader required
Persian gazelle	P/O	P/O	No	No Program Leader required
Pronghorn	DERP	DERP	No	No Program Leader required
Peninsular pronghorn	ISF	DERP	No	No Program Leader required
Sonoran pronghorn	ISF	ISF	No	ISF Coordinator Jeff Holland, Los Angeles Zoo <a href="mailto:jeff.holland@lacity.org">jeff.holland@lacity.org</a> 323-644-4220
Saiga, Russian and Mongolian	ISF	ISF	Yes	New ISF Coordinator Conservation Centers for Species Survival C2S2 contact: Dan Beetem, <a href="mailto:dbeetem@thewilds.org">dbeetem@thewilds.org</a>
Tibetan antelope	ISF	ISF	Yes	New ISF Coordinator Martha Fischer, Saint Louis Zoo <a href="mailto:fischer@stlzoo.org">fischer@stlzoo.org</a> 314-646-4610
Przewalski's gazelle	ISF	ISF	Yes	Vacant
<b>Giraffe Subgroup</b>				
Masai giraffe	PMP	PMP	No	International Studbook Keeper & PMP Coordinator Laurie Bingaman Lackey, with support from Disney's Animal Kingdom <a href="mailto:Giraffe3@bellsouth.net">Giraffe3@bellsouth.net</a> 828-693-4336

<b>Program</b>	<b>2005 Recommendation</b>	<b>2009 Recommendation</b>	<b>Program Leader Change</b>	<b>New Program Leader and/or Program Leader Contact Information Change</b>
Giraffe, retic/roth complex	PMP	PMP	No	International Studbook Keeper & PMP Coordinator Laurie Bingaman Lackey, with support from Disney's Animal Kingdom <a href="mailto:Giraffe3@bellsouth.net">Giraffe3@bellsouth.net</a> 828-693-4336
Okapi	SSP	SSP	No	<b>Program Leader Contact Information Change</b> Ann Petric, with support from Saint Louis Zoo <a href="mailto:apetric@earthlink.net">apetric@earthlink.net</a> 708-442-6531

### Appendix 8. AZA Antelope and Giraffe TAG Program Status Table.

Program	Date Program Initiated	Current Program Leader	Date Leadership Assumed	Date of Last Studbook Update	Date of Last PMP Publication	Date of Last SSP Publication
<b>Forest/Woodland Subgroup - Sharon Joseph, Subgroup Vice-Chair</b>						
Common eland	2000	NA Regional Studbook Keeper & PMP Coordinator Stephanie Dolly with support from Zoo New England	2000	March 2009	April 2009	n/a
Lowland nyala	1993	NA Regional Studbook Keeper & PMP Coordinator Laurie McGivern, Houston Zoo	October 2008	2004 (Previous studbook keeper)	First PMP to be scheduled w/PMC	n/a
Eastern bongo	1983	International Studbook Keeper Lydia Frazier Bosley with support from Oregon Zoo	1998	March 2009	n/a	n/a
Eastern bongo	1999	SSP Coordinator Ron Surratt, Forth Worth Zoo	1999	n/a	n/a	December 2008
Southern lesser kudu	1989	NA Regional Studbook Keeper Melissa Miller, Saint Louis Zoo	1997	June 2007	n/a	n/a
Southern lesser kudu	1989	PMP Coordinator Tim Wild, Kansas City Zoo	October 2007	n/a	March 2009	n/a
Greater kudu	1997	NA Regional Studbook Keeper & PMP Coordinator Andrea DeMuth, Brookgreen Gardens	February 2007	March 2008	May 2009 (draft)	n/a
Sitatunga	2000	NA Regional Studbook Keeper & PMP Coordinator Gil Myers, Smithsonian's National Zoo	2002	February 2008	October 2006; Extension granted by TAG; next PMP scheduled w/PMC in 12/09	n/a
Roan antelope	1991	NA Regional Studbook Keeper & PMP Coordinator Andi Kornack, Binder Park Zoo	2002	May 2007	Extension granted by TAG; First PMP scheduled w/PMC in 6/09	n/a
Sable antelope	1991	NA Regional Studbook Keeper & PMP Coordinator Jill Piltz, Disney's Animal Kingdom	2000	July 2008	January 2009	n/a
South African springbok	2000	NA Regional Studbook Keeper & PMP Coordinator Jessica Scallan, Tulsa Zoo	November 2007	January 2009	2005 (Previous PMP coordinator)	n/a
Southern gerenuk	1988	NA Regional Studbook Keeper & PMP Coordinator Robert Barnes, Los Angeles Zoo	1988	December 2008 (current through Dec 31 2007)	December 2008	n/a
<b>Small Antelope Subgroup - Jeff Holland, Subgroup Vice-Chair</b>						
Blue duiker	1994	NA Regional Studbook Keeper & PMP Coordinator Sarah Ksiazek, Kansas City Zoo	March 2008	2007 (Previous studbook keeper)	July 2006 (Previous PMP coordinator)	n/a
Red-flanked duiker	1997	NA Regional Studbook Keeper & PMP Coordinator Chris Pfefferkorn, Oregon Zoo	1997	April 2009	July 2006	n/a
Yellow-backed duiker	1995	NA Regional Studbook Keeper & PMP Coordinator Linda Rohr Bachers, Milwaukee Zoo	1995	January 2009	October 2008	n/a

Program	Date Program Initiated	Current Program Leader	Date Leadership Assumed	Date of Last Studbook Update	Date of Last PMP Publication	Date of Last SSP Publication
Kenyan Guenther's dik dik	1989	NA Regional Studbook Keeper & PMP Coordinator Paige McNickle, Phoenix Zoo	October 2008	2008 (Previous studbook keeper)	April 2008 (Previous PMP coordinator)	n/a
Kirk's dik dik	1989	NA Regional Studbook Keeper & PMP Coordinator Paige McNickle, Phoenix Zoo	October 2008	2008 (Previous studbook keeper)	October 2007 (Previous PMP coordinator)	n/a
Steenbok	2008	NA Regional Studbook Keeper & PMP Coordinator Bonnie Heather Holland, Los Angeles Zoo	August 2008	First Studbook Pending	First PMP to be scheduled w/PMC	n/a
Klipspringer	2002	NA Regional Studbook Keeper & PMP Coordinator Michael Lebanik, Disney's Animal Kingdom	February 2007	June 2008	May 2009 (draft)	n/a
<b>Hartebeest Subgroup - Dan Beetem, Subgroup Vice-Chair</b>						
Jackson's hartebeest	1993	NA Regional Studbook Keeper & PMP Coordinator Currently Vacant - program leader selection in progress	Vacant	2002 (Previous studbook keeper)	First PMP to be scheduled w/PMC	n/a
White-bearded wildebeest	2000	NA Regional Studbook Keeper & PMP Coordinator Kristen Wolfe, Disney's Animal Kingdom	March 2009	2001 (Previous studbook keeper)	2006 (Previous PMP coordinator)	n/a
Bontebok	1989	NA Regional Studbook Keeper & PMP Coordinator Liesl King, Disney's Animal Kingdom	June 2007	November 2008	February 2009	n/a
<b>Waterbuck Subgroup - Randy Rieches, Subgroup Vice-Chair</b>						
Common waterbuck	2000	NA Regional Studbook Keeper & PMP Coordinator Michelle Smurl, Brevard Zoo	2000	October 2008	May 2007	n/a
Nile lechwe	1990	NA Regional Studbook Keeper & PMP Coordinator Matt Hohne, Disney's Animal Kingdom	2003	February 2007	October 2008	n/a
Rhebok	2006	NA Regional Studbook Keeper & PMP Coordinator Michael Langridge, San Diego Zoo	August 2007	First Studbook Pending	First PMP to be scheduled w/PMC	n/a
<b>Aridland Antelope, Gazelle and Pronghorn Subgroup - Martha Fischer, Subgroup Chair</b>						
Addax	1989	International Studbook Keeper Terrie Correll, Tulsa Zoo	1989	2005	n/a	n/a
Addax	1989	SSP Coordinator Bill Houston, Saint Louis Zoo	1996	n/a	n/a	May 2009 (draft)
Scimitar-horned oryx	1986	SSP Coordinator Ed Spevak, Saint Louis Zoo	2004	n/a	n/a	March 2009 (draft)
Gemsbok	1995	NA Regional Studbook Keeper & PMP Coordinator Justin Chuven, SDWAP	2006	August 2008	2005 (Previous PMP coordinator)	n/a
Fringe-eared oryx	1995	NA Regional Studbook Keeper & PMP Coordinator Justin Chuven, SDWAP	2006	August 2008	2005 (Previous PMP coordinator)	n/a
Arabian oryx	1984	International Studbook Keeper Karen Sausman, The Living Desert	January 2008	1995 (Previous studbook keeper)	n/a	n/a
Arabian oryx	1986	SSP Coordinator Terrie Correll, Tulsa Zoo	January 2008	n/a	n/a	2007 (Previous SSP coordinator)

Program	Date Program Initiated	Current Program Leader	Date Leadership Assumed	Date of Last Studbook Update	Date of Last PMP Publication	Date of Last SSP Publication
Cuvier's gazelle	1990 Studbook 1995 PMP	NA Regional Studbook Keeper & PMP Coordinator Wendy Enright, The Living Desert	2002	June 2008	August 2008	n/a
Addra gazelle	1995	NA Regional Studbook Keeper & SSP Coordinator Ann Petric, with support from the Saint Louis Zoo	April 2008	2007 (Previous studbook keeper)	n/a	February 2009
Grant's gazelle	1995	NA Regional Studbook Keeper & PMP Coordinator Christy Poelker, Saint Louis Zoo	October 2007	October 2008	May 2009	n/a
Thomson's gazelle	1995	NA Regional Studbook Keeper & PMP Coordinator Lanny Brown, Phoenix Zoo	April 2009	2004 (Previous studbook keeper)	2005 (Previous PMP coordinator)	n/a
Slender-horned gazelle	1980 Studbook 1995 SSP	International Studbook Keeper & SSP Coordinator Terrie Correll, Tulsa Zoo	January 2008	January 2006 (Previous studbook keeper)	n/a	October 2008
Nubian Soemmerring's gazelle	1991 Studbook 2003 PMP	NA Regional Studbook Keeper & PMP Coordinator Stacey Feige Konwiser, The Living Desert	August 2006	February 2009	November 2008	n/a
Speke's gazelle	1986 Studbook 1996 PMP 2008 SSP	NA Regional Studbook Keeper & SSP Coordinator Martha Fischer, Saint Louis Zoo	1986	February 2008	May 2008	In process, 2009
<b>Giraffe Subgroup - Subgroup Vice-Chair, Vacant</b>						
Masai giraffe	1989 Studbook 1999 SSP 2005 PMP	International Studbook Keeper & PMP Coordinator Laurie Bingaman Lackey ISIS, with support from Disney's Animal Kingdom	1992	February 2008	September 2007	n/a
Giraffe, retic/roth complex	1989 Studbook 1999 SSP 2005 PMP	International Studbook Keeper & PMP Coordinator Laurie Bingaman Lackey ISIS, with support from Disney's Animal Kingdom	1992	February 2007	September 2007	n/a
Okapi	1981	SSP Coordinator Ann Petric, with support from Saint Louis Zoo	2000	n/a	n/a	September 2008