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RHINOCEROS ADVISORY GROUP

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Primary goals

Considering the continuing crisis in rhino conservation, the primary goals of the AZA Rhinoceros Advisory Group are:

1. Develop viable *ex situ* populations as:
 - a) reservoirs of genetic and demographic material as potential reinforcement of populations in the wild;
 - b) subjects for research to improve conservation management *in situ* as well as *ex situ*; and
 - c) ambassadors to stimulate public awareness and support, especially financial, for rhino conservation.
2. Improve captive husbandry and management through research in health, nutrition, behavior and reproduction.
3. Facilitate and coordinate among the SSP programs for all rhino species (in collaboration with the species coordinators and the management groups).
4. Assist (financial, technical, and administrative) with selected *in situ* efforts for rhino with emphasis on those projects that are significant, feasible, and provide appropriate opportunities for application of the particular expertise that the captive conservation community can provide in terms of intensive management technology.
5. Partner with the International Rhino Foundation (IRF) particularly in pursuit of goal 4.

Data table (current through 1 July 1997)

	Two years ago	One year ago	Current year
# of meetings	1	1	0
# of studbooks under umbrella	4	4	4
# of SSPs under umbrella	4	4	4
# of new studbook petitions submitted	4	0	0
# of new studbooks approved	0	4	0
# of new SSP petitions submitted	0	0	0
# of new SSPs approved	0	0	0

Special concerns

The conservation crisis for rhinoceros remains acute. There has been improvement on some fronts and setbacks on others. In Africa, the situation for northern white rhino has deteriorated more than for any other taxa over the last year as a result of the civil war in Zaire (now Democratic Republic of Congo). There has been a virtual total breakdown of the protection system in Garamba National Park with a number of rhino either known or suspected of being lost to poachers. Numbers of rhino are now estimated at 24 maximum, down from a high of 32 in 1994. The zoo conservation community including many AZA institutions, led by Columbus Zoo and facilitated by the International Rhino Foundation, will continue to assist with their major project of support for guards as the situation permits. The southern white rhino have continued to increase (now ~ 7,600). Numbers of black rhino have continued their stabilization and even recovery over the last year at about 2,400; however, the poaching threat is still serious. However, 85 percent of southern white rhino and 40 percent of black rhino are in South Africa, which is still in early days of new nationhood.

In Asia, the Sumatran rhino, with fewer than 400 individuals, remains under intense poaching pressure although the rhino protection units (RPU), formed with International Rhino Foundation (IRF) and IUCN/SSC Asian Rhino Specialist Group (AsRSG) facilitation, seem to be ameliorating the situation. A major colloquium on Javan rhino conducted on the two known populations in Indonesia (~50) and Vietnam (~20), under auspices of AsRSG/ IRF with support from the USFWS Rhinoceros and Tiger Conservation Fund (RTCF), has been encouraging in delineating more effective conservation action and greater coordination among the many organizations involved in conservation for this species (e.g. Minnesota Zoo Adopt-A-Park Program, AAZK Bowling for Rhinos, WWF, Fauna & Flora International, PHPA, IRF, AsRSG). Poaching pressure on the Indian rhino (~ 2,000) remains high and the possibility of a major decline is real.

The AZA Rhinoceros Advisory Group also remains concerned with the successful implementation and management of sustainable *ex situ* populations, especially considering the critical state of wild populations. All of the Rhino SSP programs have deficiencies that are receiving attention. Major problems relate to husbandry, health and reproduction of the animals as well as financial and physical resources. There has been improvement over the last year in growth and health of the black rhino population. However, a major demographic problem persists in the sex ratio of births in the populations of both eastern and southern black rhino (and perhaps is developing in Indian rhino). The captive populations must attain stability

and sustainability. Additionally, there is need to develop the methodology and programs to use captive populations for reestablishment and reinforcement of wild populations.

The Sumatran rhino continues as the greatest challenge in rhino conservation both *ex situ* and *in situ*. All three (1.2) surviving individuals in the SSP population (from a maximum of seven) have been consolidated at the Cincinnati Zoo. Last year it was stated in the Rhinoceros Advisory Group report that if no reproduction occurred during the year, the RAG recommendation would be that these animals be moved to larger and more natural enclosures in the southern United States. Since then, a major new reproductive research program has been initiated at the Cincinnati Zoo. Concurrently, efforts continue to develop managed breeding centers in native habitat in both Indonesia and Malaysia have progressed, especially at Way Kambas National Park in Sumatra, which should be ready to receive animals by September 1997. The situation for the SSP program for this species will be reassessed at the RAG meeting in November 1997.

There is continuing need to identify feasible and significant ways in which AZA institutions can assist with selected *in situ* programs for rhino conservation both financially and technically.

Progress toward goals

1. Implementation, with adaptive adjustments, has continued on the AZA SSP Master Plan for Rhino (consolidating all species) issued in February 1996. An update will be produced through a RAG workshop in November 1997 at White Oak Conservation Center.
2. Further implementation of the AZA Regional Collection Plan for Rhino has occurred as several new institutions have added rhinos and others have converted species.
3. The AZA Rhinoceros Husbandry Manual was published during the last year.
4. A new AZA SSP species coordinator has been appointed.
5. The eight major research projects that the RAG and IRF have been supporting are generating useful results. These projects comprise:
 - a) one on the health of black rhino;
 - b) one on the nutrition of all rhino;
 - c) three on reproductive research on Sumatran rhino;
 - d) three on reproductive research on African rhino but with extension to all rhino; and
 - e) one on improved health/husbandry databases and tissue sample collections.A major new research project on possible management factors causing the skew toward males in sex ratios of rhino calves born in the SSP has been initiated.
6. The RAG has provided letters of support for other research projects applying for funding from sources other than IRF.
7. In an effort to correct for the skew toward males in sex ratio of calves in the black rhino, three female eastern black rhino have been acquired from the population in Addo Elephant National Park as part of a program through which two AZA institutions have provided National Parks Board of South Africa with funds for their *in situ* rhino conservation programs.
8. There has been significant progress on several components of the five-year action plan's *in situ* programs, through partnership with the International Rhino Foundation (IRF). Progress includes:
 - a) Development of sanctuary programs for Sumatran rhino in Indonesia and Malaysia has advanced, especially in Way Kambas National Park (Sumatra), which should be ready to receive rhino in September 1997.
 - b) Deployment of rhino protection units (RPU) for Sumatran rhino, in Javan rhino in Indonesia and Malaysia.
 - c) Finalization of plans to form RPU for Javan rhino in Ujung Kulon National Park, Indonesia, and prepare for them in Cat Loc Nature Reserve, Vietnam.
9. The RAG/IRF Program Office has been working closely with the Office of International Affairs, U.S. Fish and Wildlife Service, on various projects involving implementation of the Rhinoceros and Tiger Conservation Fund (RTCF) including:
 - a) review of proposals submitted to USFWS for support under RTCF;
 - b) receipt of grants for several IRF projects (RPU and SRS); and
 - c) conduct of the major Colloquium on Javan Rhino.
10. The web site, established in conjunction with the IRF (at new address <http://www.rhinos-irf.org>) has continued to evolve and now has a listserv operational to facilitate communication among various rhino constituencies including the Rhino TAG.
11. The RAG Program Office has continued to provide technical services for the AZA Rhino Master Plans and to maintain the AZA Rhino Regional Studbooks as well as the International Studbook for Sumatran Rhino.
12. The RAG has continued to facilitate interactions between the SSP and other Regional Captive Breeding Programs and the International Studbooks for African and Indian Rhinoceros.

13. There have been delays in publication of Around the Horn, The Rhino Conservation Newsletter (the joint newsletter of the AZA Rhino Advisory Group, the IRF, and the Rhino Global Action Plan (GCAP)) due to reorganization of the Program Office.

Financial report

Starting balance (as of 31 July 1996)	\$1,910.76
Funds raised*	\$0.00
Funds expended*	
Support for AZA husbandry manual	\$1,800.00
Bank charges	\$82.50
Total	\$1,882.50
Ending balance (as of 30 June 1997)	\$28.26

*Much of the AZA Rhino Advisory Group's activities relative to *in situ* programs and research projects are in

Short-term goals for upcoming year

1. Continue with implementation and produce update of the AZA SSP Master Plan for Rhino.
2. Continue financial support of management-oriented research on rhinos, especially in conjunction with the IRF Research Program. Continue efforts to better coordinate and catalyze research on rhino reproduction.
3. Continue and increase support of programs for *in situ* conservation of rhinos, again in conjunction with IRF.
4. Facilitate additional exchanges of rhino between SSP and other regional rhino breeding programs.
5. Contribute to improvement of the SSP program for Sumatran rhino.
6. Form technical support teams for management/manipulation of rhino.

BLACK RHINOCEROS

(*Diceros bicornis*)

Species Coordinator: Dr. Don Farst, Gladys Porter Zoo

Regional Studbook Keeper: Thomas J. Foose, Ph.D., The Wilds & International Rhino Foundation

Introduction

The AZA Black Rhino SSP continues its attempts to develop self-sustaining populations of two subspecies or geographical varieties of the species as a back-up to wild populations and as a resource to conduct management-oriented research and generate funds for *in situ* conservation. Updated SSP master plan recommendations were issued as part of the consolidated AZA SSP Rhino Master Plan in February 1996. An update of this master plan will be produced at an AZA Rhinoceros Advisory Group workshop in November 1997 at White Oak Conservation Center.

Target population objectives for black rhino in the AZA SSP were proposed: 90 *michaeli* and 80 *minor*. The goal is to preserve 90 percent of the gene diversity in the population for 110 to 150 years (i.e. 8-10 rhino generations). In 1994, based upon feedback from the regional programs to the GCAP/GASP, these population targets were further refined to reflect a time frame for achievement. This change recognizes the need for more performance measurement and attainable objectives in captive breeding programs for rhino. The seven year/50 year/ and 100 year target population objectives are: *michaeli* 90/90/90 and *minor* 50/80/80.

Data table *D. b. michaeli* (current through 1 July 1997)

	Two years ago	One year ago	Current year
Participating institutions	27	27	31
Total world captive population			87.98 (185)
Total North American captive population	37.29 (66)	39.30 (69)	41.31 (73)
# of SSP animals managed	37.29 (66)	39.30 (69)	41.31 (73)
# of SSP recommended births	4	3	3.0
# of nonrecommended births	0	0	0
# of deaths of SSP animals	6	1	0.3 (3)
# of imports	0	0	0.4 (4)
# of exports	1	0	0
# of founders with descendants	37	38	39

Data table *D. b. minor* (current through 1 July 1997)

	Two years ago	One year ago	Current year
Participating institutions	10	10	10
Total world captive population			29.32 (61)
Total North American captive population	11.17 (28)	13.18 (31)	18.20 (38)
# of SSP animals managed	11.17 (28)	13.18 (31)	18.20 (38)
# of SSP recommended births	0	5	5.2 (7)
# of nonrecommended births	0	0	0
# of deaths of SSP animals	1	2	0
# of imports	0	0	0
# of exports	3	0	0
# of founders with descendants	18	22	27

Current population status

The SSP population of *minor* is now growing vigorously and should attain its desired size of 80 in less than one rhino generation. The *michaeli* population is larger and nearer to its target population size but has been more or less stagnant for a number of years. According to the International Studbook for African Rhinoceros, the global captive population of *michaeli* is 87.98 (185) and of *minor* 29.32 (61) for a total of 116.130 (246)

Wild populations of black rhino appear to have stabilized at about 2,400 and are actually recovering slowly in some areas although the threat of significant poaching remains throughout the range.

Demographic trends

Objectives for reproduction in the master plan are more specific and ambitious than in previous Black Rhino Master Plans. *Michaeli*: seven births per year for next five years, with a total of 29 recommended breedings, and recruitment of eight more of the breeding-age nonbreeder males and 11 more of the breeding-age nonbreeder females to reproduction so there will be 20.17 breeders instead of the current 12.16. *Minor*: Four to five calves per year for next five years, with a total of 14 recommended breedings, and recruitment of three more breeding-age nonbreeder males and especially 6 more of the breeding-age nonbreeder females to reproduction so there would be 7.13 breeders instead of the current 4.7. Reproduction over the last two years appears to be fulfilling these admittedly ambitious goals for *minor* but not for *michaeli*. The skew in sex ratio of *michaeli* calves over the last seven years in conjunction with the aging of the breeder female population is impeding achievement of the demographic objectives.

The greatest demographic problem in *michaeli* is now the serious skew toward males in sex ratio of calves born in the SSP: 20 of the last 25 surviving births have been male. The pattern is now statistically significant. A similar trend, although not yet statistically, may be developing in *minor*. In an endeavor to redress this demographic imbalance, three females were imported over the last year from the *michaeli* population in Addo Elephant National Park in South Africa. An attempt to acquire another female, captive-born, from Japan failed with the death of the rhino to congestive heart failure soon after its arrival in North America. However, a further importation of a female from Japan is being arranged as part of an exchange between the SSP and Species Survival Committee Japan (SSCJ).

There continues to be unsatisfactory survival of black rhino under intensive management due to a complex of health problems (including hemolytic anemia, liver toxicities, encephalomalacia, various infectious disease, etc.). However, with various preventive and therapeutic measures suggested by the continuing research on these problems, mortality has declined appreciably over the last several years.

Population genetics

The genetic foundation of the *michaeli* population seems adequate at this time: There are 39 founders; gene diversity is about .97. The addition of new founder lines with animals imported for demographic reasons will further secure this situation. The genetic status of *minor* in the N.A. population is also sound: There are 27 founders with another potential one; gene diversity is about 0.96.

There is an ongoing effort to increase founder representation through recruitment of reproduction from nonbreeder founders already in the population.

Special concerns

The possible causes of the skew toward males in sex ratio of calves needs to be intensively investigated to determine whether there are possible management factors causing this pattern. Health and husbandry need to be improved to increase survival and reproduction in this species. Additional space for both subspecies needs to be increased and coordinated with each other and with the two other major rhino taxa in SSP programs, i.e. the white and Indian rhino. The Black Rhino SSP has been working in particular with the White Rhino SSP in the hopes of moving white rhino from selected institutions to open up more space for black rhino. Better coordination is the reason for combining the black and white rhino first in the African Rhino SSP Master Plan of 1994 and now in the totally consolidated AZA Rhino Master Plan of 1996. The question of whether or not to keep *michaeli* and *minor* as two subspecies is still pending and the possibility of a workshop on the issue remains under consideration.

Research

There are several major research projects in progress involving black rhino, under the auspices of the AZA Rhinoceros Advisory Group and with funding from the International Rhino Foundation.

- Pathophysiologic basis of diseases affecting captive African black rhinoceros: conducted by Dr. Don Paglia of UCLA and Dr. Eric Harley of the University of Capetown.
- Basic reproductive biology of rhinoceros: conducted jointly by Mike Fouraker of the Fort Worth Zoo, Dr Terri Roth of the Center for Reproduction of Endangered Wildlife at the Cincinnati Zoo, and Dr. Janine Brown of the National Zoo's Conservation and Research Center-Smithsonian Institution.
- Basic rhino nutrition: conducted by Dr. Ellen Dierenfeld at the Wildlife Conservation Society.
- Possible determinants of skew towards males in the sex ration of rhino calves in North American facilities: conducted jointly by Ms. Shirley Atkinson of the Wilds, Dr. Ellen Dierenfeld of the Wildlife Conservation Society and Dr. Tom Foose of the IRF and the Wilds.

Field conservation

The SSP is working with the International Rhino Foundation (IRF) to provide support for selected *in situ* projects throughout Africa. Due to problems in the Department of National Parks and Wildlife Management in Zimbabwe, the major program of support for conservation programs there has been terminated. However, an alternative program through the new rhino center being developed jointly by Chipangali Wildlife Trust in Zimbabwe and the Marwell Preservation Trust in the U.K. is developing. Significant support for *in situ* conservation has commenced in South Africa where a cooperative agreement has been concluded with National Parks Board in South Africa.

Progress toward goals

1. There is a new AZA SSP species coordinator: Dr. Don Farst, who previously served as the sub-species coordinator for southern black rhino.
2. An appreciable number of rhino continue to be relocated in an endeavor to induce more reproduction. There are already positive results from these moves and more relocations are planned.
3. To redress the demographic imbalance caused by the skew toward males in sex ratio of *michaeli* calves born in the SSP, three females have been acquired from the free-ranging population in Addo Elephant National Park, South Africa, to which this subspecies had been translocated in the 1960s from Kenya.
4. Major research projects on health, nutrition and reproduction are in progress with support from the IRF.
5. Captive habitat for black rhino in North America has been and continues to be expanded through coordination with the White Rhino SSP.

Financial report

The Black Rhino SSP does not maintain a separate bank account but works through the AZA Rhinoceros Advisory Group account and the International Rhino Foundation.

Short-term goals for upcoming year

1. The SSP master plan recommendations for black rhino will be updated at a meeting of the Rhinoceros Advisory Group at White Oak Conservation Center in November 1997.
2. Attempts to reproduce all breeding age females will continue and recommendations to wean calves as soon as possible to be able to expose post-lactational cows to bulls will continue.
3. There will be an intensive research effort to determine whether there are management factors causing the skew towards males in the sex ratio of black rhino calves born in the SSP.
4. The SSP will continue to interact with other regional *ex situ* breeding programs as well as *in situ* protection and management efforts. In particular, an additional female *michaeli* will be imported from Japan (under auspices of the SSCJ) to redress the current imbalance in sex ratio in this SSP population. In return, a male *michaeli* will be provided to the Japanese SSCJ population.
5. More space will be sought for both *michaeli* and *minor* in order to achieve the carrying capacity of 170 animals.

GREATER ONE-HORNED ASIAN RHINOCEROS
(*Rhinoceros unicornis*)

Species Coordinator: Michael Dec, Los Angeles Zoo
Regional Studbook Keeper: Tom Foose, The Wilds

Introduction

The goal of this SSP is to preserve 90 percent of the gene diversity from the wild population for a period of 100 years. To achieve this goal, it has been determined that the target population for the SSP is 90 rhino. In accordance with the 1994 Global Captive Action Plan for Rhino, the 7-, 50- and 100-year target population goals are 50, 90 and 90, respectively.

Current population status

At the current rate of increase, the SSP population should have no problem attaining its seven-year (i.e. from 1994 to 2001) target population of 50 by the year 2001. There are currently 17 institutions participating in the Greater One-horned Asian Rhinoceros SSP. Several transfers have taken place to enhance the breeding potential for the SSP. However, there are still only eight institutions that have bred this species. Five institutions have single males and two have animals that have reached sexual maturity, but have not produced offspring yet.

A female calf was born at the Oklahoma City Zoo, becoming an F₂. This is not the first time second generation calves have been born in the SSP; however, the sire of this calf is the only living offspring of its founder parents.

A male and a female, both founders that had failed to reproduce, died during this reporting period. The SSP is still negotiating the transfer of a founder male from India.

Data table (current through 1 July 1997)

	Two years ago	One year ago	Current year
Participating institutions	15	16	17
Global captive population	76.59	80.62*	70.64
# of SSP animals managed	42	45	43
# of recommended births	5	3	3
# of SSP deaths	2	1	2
# of nonrecommended births	0	0	0
# of imports	0	0	0
# of exports	1	2	2
# of founders w/represented descendants	17	17	17

*There are no non-SSP animals in North America, however, one female has been designated as over-represented to the current SSP population. This animal currently resides at the San Diego Wild Animal Park. In the data table it should be noted that not all of holders of this species have replied to the international studbook questionnaire; as a result, the numbers in the total population are skewed for 1996 reporting period.

Poaching continues to be a problem in both range states, but it does not appear to be any more significant than in past years. The wild population of about 2,100 appears to be increasing slightly.

Demographic trends

Life history table analysis of the North American population indicates a growth rate (r) of 1.043, a generation time (T) of 19 years, a rate of population increase per generation (R₀) of 2.122, and a life expectancy at birth of 20 years. This SSP species has grown at an annual rate of 1.3 animals per year since 1982, even with a number of exports.

Population genetics

The gene diversity in the population is .917. Descendant population mean kinship is .0832. There are 17 actual founders and seven more potential founders.

Inbreeding coefficient (f) has been calculated for each living animal. There are several animals with f=0.25. If the founder population is going to effectively meet the SSP's goals, we still need to obtain six to eight new founders for the North American population. The acquisition of any animals from India or Nepal will put the SSP closer to its goals.

Research

There are several major research projects in progress involving greater one-horned Asian rhino under the auspices of the AZA Rhinoceros Advisory Group and with funding from the International Rhino Foundation.

- Basic reproductive biology of the rhinoceros is being conducted by Mike Fouraker, Ft. Worth Zoo; Dr. Terri Roth, Center for Reproduction of Endangered Wildlife at the Cincinnati Zoo; and Dr. Janine Brown, National Zoo's Conservation and Research Center-Smithsonian Institution.
- Basic rhino nutrition is being conducted by Dr. Ellen Dierenfeld at the Wildlife Conservation Society.
- Possible determinants of skew towards males in the sex ratio of rhino calves in North American facilities is being conducted jointly by Shirley Atkinson of the Wilds, Dr. Ellen Dierenfeld of WCS and Dr. Tom Foose of the IRF and the Wilds.

Field conservation

The SSP is working with the International Rhino Foundation (IRF) to provide support for selected *in situ* projects for both *Rhinoceros unicornis* and its congeneric species *Rhinoceros sondaicus* (the Javan rhino). A probable project for the next year is support of the newly formed rhino protection units for Javan rhino in Ujung Kulon National Park, Indonesia.

Short-term goals for the upcoming year

1. Pair single animals where possible.
2. Locate new founders for the SSP.
3. Encourage more institutions to become participants in the SSP.
4. Encourage more breeding within genetic guidelines.

Progress toward goals

The SSP is actively pursuing new founders. New holders are coming on line at the rate of one per year.

Financial report

At this point the SSP does not have a separate account, rather it works through the Rhinoceros TAG and the IRF.

WHITE RHINOCEROS (*Ceratotherium simum*)

Species Coordinator: Michael Fouraker, Fort Worth Zoological Park
Regional Studbook Keeper: Tom Foose, Ph.D., The Wilds

Introduction

In spite of five births this year within the White Rhino SSP, the population continues to face a demographic crisis. Immediate concerns for the White Rhino SSP continue to be the demographic status of the population, the need for additional founders, and the need for adequate captive space and herd management.

Data table (current through July 1997)

	Two years ago	One year ago	Current year
Participating institutions	42	42	39
Total captive population	53.71	55.67	55.65
# of SSP animals managed	124	120	120
# of SSP recommended births	1.2	2.1	3.2
# of SSP nonrecommended births	0	0	0
# of deaths of SSP animals	0.3	0.1	3.5
# of imports	0	0	0
# of exports	4	4	4
# of founders with descendants	38	38	38

Demographic trends

The southern white rhino population is not self-sustaining and is in a demographic crisis. As indicated last year, only three percent of the captive population is captive-born and -bred, numerous genetically valuable individuals have not reproduced, and the age structure is senescing (46 percent of the population is older than 25 years of age).

As noted in the above data table, the managed population declined by four animals due to exports this year and there were five births within the population. Four of these births, however, were to previously proven breeders and only one was to a previously unproven breeder. A particular concern of the SSP is the recruitment of unproven individuals into the breeding population.

As reported last year, the northern white population consists of only 2.2 (4) animals, none of which have reproduced. Furthermore, all are more than 20 years of age and thus may be postreproductive.

Population genetics

The genetic objective of the White Rhino SSP is to maintain 90 percent gene diversity for 110-150 years. This goal may be achievable if the current attempts at improved reproduction succeed.

The situation for the northern white rhino continues to look bleak. Without reproduction and with such a low number of founders, this population is not likely to be genetically viable without the global management of both captive and remnant wild animals.

Special concerns

1. Demographic crisis: The major problem facing the White Rhino SSP that requires immediate attention is the demographic status of the population. Reproduction to date has been sporadic across institutions, and only a few institutions have produced calves consistently. As noted previously, unproven breeders must be recruited into the breeding population in order to meet the population's genetic goals. The number of requests from institutions to the SSP for animals exceeds the number of individuals available.
2. Continued need for large enclosures and social groups: Large captive spaces must be identified that can hold white rhinos in herd situations to encourage reproduction. There are a total of 86 adult spaces and 35 calf spaces in 13 facilities (current and proposed). If transfer recommendations are completed and institutions are successful in managing the additional animals, these numbers would bring the target breeding population closer.
3. Transit deaths: Four white rhinos died within transit this year.

Research

1. Understanding basic reproductive biology to conserve the African rhinoceros (T. Roth, Principal Investigator, Center for the Reproduction of Endangered Wildlife [CREW]).
To date, nine White Rhino SSP institutions are participating in an International Rhino Foundation (IRF)-funded project examining the basic reproductive biology of the African rhino (additional institutions propose to join this effort). The project encompasses four studies with the following specific objectives:
 - a) to establish the reproductive status of the extant population by measuring reproductive cycle patterns via hormonal profiles and relating these data to reproductive behavior, seasonality and stress;
 - b) to determine the feasibility of noninvasively estimating time of ovulation;
 - c) to examine the impact of seasonality on male reproductive hormones;
 - d) to begin developing and testing the feasibility of transcervical artificial insemination; and
 - e) to set the stage for the development of a rhino genome resource bank.Data collection is ongoing and includes the collection of feces (to monitor hormonal patterns) and behavioral data (to identify behaviors that may correlate to estrus; coordinated by T. Wagener, Fort Worth Zoological Park). Data collection will continue for 18 months from the onset of the project, which began in March 1996. Preliminary results of the first 12 months of data will be presented to the IRF and Rhino TAG this year.
2. Research populations: Twenty southern white rhinos, including 12 females, have been designated for research programs at both The Wilds and White Oak Conservation Center. Research priorities at these institutions are being evaluated. Additionally, reproductive research using ultrasonography continues at the Fossil Rim Wildlife Center (R. Radcliffe).

Progress toward goals

1. Compliance with SSP master plan recommendations is good. Thirteen animals have been transferred to date based on the SSP and master plan recommendations.
2. Significant research projects have been funded that will set the stage for hopefully increasing the population growth rate and recruiting additional founders into the population. Additional research projects are being pursued by several individuals.
3. The AZA Rhino Husbandry Resource Manual (which includes sections on white rhino) continues to be requested. It has been distributed to more than 300 institutions throughout the world.

Financial report

There are no funds at this time.

Short-term goals for upcoming year

1. Continue to facilitate and encourage the compliance with all master plan recommendations.
2. Continue to support and conduct research leading to increasing the population growth rate and recruiting additional founders.
3. Hold another master plan workshop to analyze the current status of the population.