

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

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### Introduction

There are currently 12 institutions participating in the Greater One-horned or Indian Rhinoceros SSP. However, only seven institutions are breeding this species due to the fact that two have single animals, two have animals that have not yet reached sexual maturity and one has a newly acquired male that has yet to breed.

Population genetic analysis has shown that the minimum viable population size (MVP) in order to maintain 90% of original genetic diversity for 200 years is approximately 294 animals, about eight times the current population size in North America. Under these conditions, each participating institution would need to allocate space for 24 animals. Even if the current number of participating institutions was doubled, 12 animals would have to be maintained at each in order to meet the SSP's goals.

At the 1989 Master Plan session, a more realistic approach of maintaining 50 animals was discussed. Ideally, at least 84 animals will need to be maintained through births and importations to meet the minimum objectives of the SSP.

Data Table (current through 1 January 1991)

	One year ago	Current year
Participating institutions	12	12
Captive Population	150	155
# SSP animals managed	34	36
# SSP animals not required to meet goals	1	0
# animals in non-participant collections but desirable to SSP	-	-
Total births in SSP program	22	22
# surviving to 1 yr.	13	13
# of desired births	3	1
# of undesired births	0	0
# of deaths of SSP animals	-	-
# of imports	2	0
# of exports	1	0
# of founders with represented descendants	14	14

### Current Population Status

At present, the SSP population appears to be somewhat secure. Competition with other rhino species has occurred, but does not appear to be serious at this time. At the 1989 Master Plan session, future breeding, surplus and management priorities were discussed. Another meeting is planned for early 1992.

There are no non-SSP animals in North America. The wild population appears to be somewhat stable, although poaching has occurred in India (present population about 1500) and the Nepal population in Chitwan National Park is expanding by about 10% per year. Forty-three animals have been translocated from Chitwan to the Royal Bardia National Park in the past three years. The species coordinator is working with the Nepalese government to obtain at least six more founder animals for the SSP.

### Demographic Trends

Life history table analysis of the North American studbook population indicates a growth rate ( $r$ ) of 1.043, a generation time ( $T$ ) of 17.5 years, a rate of population increase per generation ( $R_0$ ) of 2.122, and a life expectancy at birth of 20 years. The Greater One-horned Rhino SSP population has grown at the annual rate of 1.3 animals per year since 1982. All recruitment has been through births and two importations (1987 and 1990). The San Diego Wild Animal Park recorded three births in 1990.

### **Population Genetics**

Inbreeding coefficients (ICs) for each living animal have been calculated. There are several founder animals with ICs of 0.22000. If the founder population is to effectively meet the SSP's goals, then 6-8 new founders need to be brought into the SSP.

### **Research**

Research into rhino reproduction is ongoing at a number of facilities, notably the Cincinnati Zoo, San Diego Zoo and National Zoological Park. Nutritional research is also a priority, particularly as it relates to Vitamin E levels in captive animals.

### **Short-term Goals for Upcoming Year**

- (1) Update the Master Plan.
- (2) Pair single animals where possible.
- (3) Encourage research on rhino nutrition, especially as it relates to Vitamin E.
- (4) Encourage more institutions to become participants in the SSP. At present, three institutions have expressed interest in joining if animals become available.