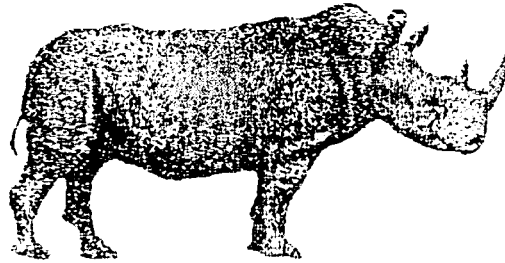

SUMMARY

**NORTHERN WHITE RHINOCEROS
CONSERVATION STRATEGY WORKSHOP**

**White Oak Conservation Center
18-20 October 1995**



Summary Prepared By:

**Thomas J. Foose, Ph.D.
Program Director
International Rhino Foundation (IRF)
October 1996**



ACKNOWLEDGMENTS

Financial support for this workshop were provided from 4 major sources:

- (1) A Global Environment Facility (GEF) Grant from the United Nations Development Programme (UNDP).
- (2) A matching grant from the Howard Gilman Foundation through the International Rhino Foundation (IRF).
- (3) Accommodations, meals, ground transportation at the workshop site, and much other logistical assistance was provided by the White Oak Conservation Center.

Holly Dublin, J. P. d'Huart, Jacqueline d'Huart, Kes Smith, and Fraser Smith from the World Wide Fund for Nature (WWF) East Africa Regional Office provided much information and assistance in organizing and conducting the workshop.

Many members of the staff at White Oak Conservation Center provided exceptional help and support. In particular, Becky Thompson assisted with coordination of local arrangements and transcribed most of the output produced at the workshop from flip charts and other sources as the basis for this Workshop Summary.

The professional (Harrie Vredenburg and Frances Westley) and volunteer facilitators (Simon Stuart, Bob Lacy, J.P. d'Huart, and John Hough) all contributed greatly to the operation of the workshop.

Finally, Bob Lacy has devoted much time and effort to extend the population habitat and viability analysis (PHVA) simulations for the northern white rhino populations.

WORKSHOP BACKGROUND AND PURPOSE

THE PROBLEM:

The rhinoceros family and the ecosystems they inhabit represent an important component of the planet's biodiversity heritage. All 5 species and all but one subspecies of rhinoceros are threatened by extinction due to both unsustainable exploitation and habitat loss. The northern white rhinoceros (*Ceratotherium simum cottoni*) is the rarest of the distinct kinds of rhino. Only 30 are known to exist in the wild, all of them in a single location, Garamba National Park in Zaire, which is itself a World Heritage Site. This rhino population has doubled during the last 10 years due to intense protection through the combined efforts of the Institut Zairois pour la Conservation de la nature (IZCN) and a number of international donors and partners: WWF, Frankfurt Zoological Society, IUCN, Save the Rhino International, International Rhino Foundation (IRF). However, the challenges to survival of this rhino are great and increasing, aggravating the risks that always exist when all of the few individuals of small population are in a single site, i.e. all the eggs are in one basket. Current levels and sources of support will be inadequate to contend with these challenges. Another 9 northern white rhino are maintained in captivity but under current conditions are not reproducing.

THE PROPOSED RESPONSE TO THE PROBLEM:

The proposed response is to develop an integrated management strategy and a sustainable funding plan for the northern white rhinoceros and its ecosystems.

Integrated Management Strategy

- ▶ A multi-faceted, short-term and long-term, integrated management strategy is needed. The strategy should manage all known northern white rhino as a metapopulation. The immediate goal must be to maximize the rate of increase of the global population of rhino.
- ▶ Conservation of the core population in Garamba is considered integral to any such strategy and therefore adequate support for *in situ* must remain the highest priority of any metapopulation strategy.
- ▶ Among the methods that may be included in a metapopulation strategy are:
 - ▶ possible translocation of some rhino from Garamba to establish a second free-ranging population in another country, but with Zaire retaining ownership of any rhinos moved.
 - ▶ consolidation of the captive population into a more ecologically conducive situation for breeding.

Sustainable Funding Plan

- ▶ A more innovative and self-reliant system of support is needed that may include:
 - ▶ utilizing *ex situ* rhino programs to generate funds for the conservation of *in situ* populations and ecosystems
 - ▶ establishment of a Trust Fund for support the northern white rhino, Garamba National Park, and integrated conservation and development in the buffer zone areas.
 - ▶ ecotourism (At Garamba this option would be over the longer term if and when the area stabilizes.)

Development of a GEF project of approximately \$ 10 Million over a period of 5 years (1996-2000) is considered central to initiation of both the integrated management strategy and the sustainable funding plan for conservation of northern white rhino as well as Garamba National Park and other protected areas in the native habitat and historic range to which the northern white rhinoceros may be restored.

PROJECT DEVELOPMENT PROCESS:

The first steps in development of the management strategy and funding plan are to:

- (1) Prepare a document delineating options for this strategy and plan.
- (2) Conduct a workshop of key players and major stakeholders from both the field and captive conservation communities to consider these options and recommend the preferred strategy.
- (3) Produce a workshop report presenting conclusions and recommendations as the basis for a project proposal to GEF to initiate and catalyze an integrated management strategy and sustainable funding plan.
- (4) Submit a proposal to UNDP for a second phase preparatory mission (\$ 300.000 level) to design and prepare a full GEF project document.

Steps (1)-(3) of this process have been supported by a grant from the United Nations Development Programme through GEF (Global Environment Facility) Project ZAI/95/G41 and a matching grant from the Howard Gilman Foundation to the International Rhino Foundation (IRF).

NORTHERN WHITE RHINO WORKSHOP PARTICIPANTS

Country	Name	Position/Organization
Zaire	Kena Mwauke	Secretary General for Environment
	Mbuyu Muteba	Director of Cabinet of Minister of Environment
	N. Nzau Kunkemba	IZCN, Director Administration and Finance
	Bihini Won wa Musiti	IZCN, Director Science
	Muhindo Mesi	Principle Conservator, Garamba National Park
	Mbayma Atalia	Rhino Protection Officer, Garamba National Park
Kenya	Fraser Smith	Chief Technical Adviser, Garamba National Park
	Kes Hillman-Smith	Technical Adviser, Garamba National Park
	Karl Ruf	Chief Technical Assistant, Epulu Okapi Conservation Project
	Tim Oloo	Rhino Coordinator, Kenya Wildlife Service
Uganda	Jean-Pierre d'Huart	Head WWF East Africa Regional Office
	Holly Dublin	Senior Conservation Adviser, WWF - E. Africa Reg. Of.
	Mark Stanley Price	Chair, IUCN/SSC Re-Introduction Specialist Group Field Director African Wildlife Foundation
South Africa	Eric Edroma	Director, Uganda National Parks
South Africa	Martin Brooks	Chairman, IUCN/SSC African Rhino Specialist Group
	Richard Emslie	Scientific Officer, African Rhino Specialist Group
United Kingdom	Pete Morkel	Chief Veterinarian, National Parks Board, S. Africa
	Nigel Leader-Williams	Consultant to WWF/WCS on Rhino Conservation; Institute of Zoology, Zoological Society of London
Czech Republic	Ivan Pojer	Director, Dvur Kralove Zoo
	Dana Holeckova	Rhino Coordinator, Dvur Kralove Zoo
	Kristina Tomasova	European Species Coordinator White Rhino, Dvur Kralove
Switzerland	Simon Stuart	Chief, Species Conservation, IUCN/SSC
United States	Jim Dolan	Director Animal Collections, San Diego Zoological Society
	Larry Killmar	General Curator, San Diego Zoological Society
	Jerry Borin	Director, Columbus Zoo; IRF
	Harry Peachy	Pachyderm Curator, Columbus Zoo; IRF
	Bob Reece	Chairman, AZA Rhino Advisory Group; IRF Board
	Mike Fouraker	North American Species Coordinator for White Rhino; IRF
	Tom Foose	Program Officer, International Rhino Foundation (IRF)
	John Lukas	Director White Oak Conservation Center; President, IRF
	William Karesh	Field Veterinarian, Wildlife Conservation Society (WCS)
	Bob Lacy	Population Biologist, Chicago Zoological Society
Canada	John Hough	GEF Coordinator, Africa, UNDP
	Frances Westley	Facilitator/McGill University
	Harrie Vredenburg	Facilitator/University of Calgary

WORKSHOP AGENDA

Day 1 - 18 October 1996

- Introduction and Overview of Past Meetings
- Workshop Process Guidelines and Review of Agenda
- Visioning: Conservation Goals for Northern White Rhino
- Reports on Current Status of the Rhino
- What We Do and Do Not Know About Northern White Rhino
- Review of Options Document
- Expanding Options: Initial Exploration/Enrichment of Management Strategies

Day 2 - 19 October 1996

- Revisiting Contract/ Vision and Agenda by Facilitators
- Evaluating Management Strategies Working Groups on Specific Issues
- Selecting Management Strategies
- Identifying Critical Implementation Issues
- Selecting Themes for Working Groups
- First Group Meeting: Defining Problem/Brainstorming Solutions

Day 3 - 20 October 1996

- Revisiting Contract / Vision and Agenda
- Second Group Meeting: Defining Action Steps and responsibilities
- Preparation of Final Reports
- Presentation to Plenary
- Wrap-Up

WORKSHOP OVERVIEW

This workshop continued and in many respects culminated a series of smaller meetings under AfRSG auspices over the previous 2 years. The Workshop was conducted under auspices of the African Rhino Specialist Group (AfRSG) of the Species Survival Commission (SSC) of IUCN-The World Conservation Union. Co-sponsors were: World Wide Fund for Nature (WWF); United Nations Development Programme (UNDP) through a grant GEF Project ZAI/95/G41; the International Rhino Foundation (IRF); the Howard Gilman Foundation through a special matching grant to the IRF; White Oak Conservation Center.

A total of 35 persons participated representing all the major stakeholders and interested/involved parties with northern white rhino. These participants represented 9 countries of nationality and/or residence. The workshop was conducted in both English and French, with translation provided both by two paid translators and the large number of participants who were bilingual.

Two professional facilitators were employed for the meeting since it was known in advance that there were multiple and often conflicting interests, agendas, positions, and personalities involved.

The workshop organizers (AfRSG, IRF, and WWF) devoted much time and effort to formulating an agenda and structure for the workshop. Originally, a rather traditional and technical agenda oriented toward products and outcomes was proposed based on the considerable groundwork and previous meetings that had already occurred over the last two years. (It should be noted that these meetings were smaller and did not involve concurrently or completely all the key players and stakeholders.) However, consultations with the professional facilitators recommended a more simplified agenda emphasizing a more emergent process. Compromise was negotiated and the result was agreement on the simplified agenda that appears above.

Two detailed documents were prepared as a background for the meeting:

- *Options Document to Guide Strategy Development for the Northern White Rhinoceros* (Appendices 1 A & B)
- *Companion Reference Document to Options Document to Guide Strategy Development for the Northern White Rhinoceros.* (Appendix 2)

These documents were used as a basis for the discussions.

Guidelines were established for the conduct of the workshop.

- Everyone participates as an equal; no one dominates.
- Every idea, option, plan, belief, and fact can be examined and discussed.
- Good will and intent is assumed.
- Everyone will be forthright, expressing doubts or questions, avoiding hidden agendas.
- Everyone is responsible for process as well as content.
- Integrative solutions will be sought.
- Agreement by consensus.
- Process and schedule will be adjusted to achieve goals and objectives.
- Facilitators can call time out.

A number of initial working group exercises were utilized to: develop trust; articulate interests and agendas; and evaluate options. Participants were organized into "interest groups". The composition of these groups and the interests they enumerated by the various group are presented below.

Some important points were noted from the Interest Group Reports:

- (1) Custodians of captive rhino want more rhino to reinforce their collections but do not want to move their animals to a new site.
- (2) Ministry of Environment and IZCN desire a second breeding population established, first using captive rhino, later supplemented with translocations from Garamba.
- (3) Enhancing protection and management in Garamba is a priority for almost everyone.
- (4) IRF is interested in assisting with recruitment of captive rhino so they contribute to propagation of the subspecies.
- (5) Moving rhino from Garamba is considered risky, both for the rhino moved and for the Garamba rhino population.
- (6) There are concerns about cost considerations of *in situ* versus *ex situ*, ecosystem versus species conservation activities.

After these initial exercises, the workshop moved onto consideration of explicit Options. Three major Options were presented in the background document and used as the main frame of reference for the workshop.

- (1) *Continuation of Status Quo of both Wild and Captive Population*
- (2) *Independent Improvements For Wild and Captive Populations*
 - (A) *Captive Population:*
 - *Relocation to more free-ranging conditions*
 - (B) *Wild Population:*
 - *A new approach at Garamba (e.g. and I.P.Z.)*
 - *Creation of second population and sanctuary by translocating some rhino either in or outside Africa*
- (3) *Combination of Wild and Captive Population Under a Coordinated Metapopulation Management Approach.*
 - (A) *Inside Africa using either*
 - *Mainly captive supplemented by Garamba*
 - *Mainly Garamba rhino supplemented by captive*
 - (B) *Outside Africa*
 - *Mainly captive supplemented by few from Garamba*
 - *Entirely captive rhino at first supplemented later by some rhino from Garamba.*

All Options included as a primary component the provision of adequate funding for in situ conservation in Garamba as a mandatory component.

The facilitators then conducted a "brainstorming session" about the Options after which a straw poll was conducted to indicate preferences for the 3 Options.

Major points that emerged from the brainstorming session were:

- (1) Provide higher and consistent levels of support for Garamba
- (2) Aggressively pursue all options to increase breeding of captive Northern white rhino.
- (3) Create a fenced sanctuary within Garamba like at Ngulia in Tsavo National Park in Kenya; at least create an Intensive Protection Zone (IPZ), i.e. an unfenced but heavily patrolled area, in Garamba.
- (4) All stakeholders - increase sensitivity to each other's needs.
- (5) Establish new population in other range state.
- (6) Establish new population in non-range state in Africa.
- (7) Establish new population in Zaire - other part of Garamba.
- (8) Increase flow of information between different stakeholders.

The initial straw poll on the Options indicated a plurality (13 votes) in favor of Option 3 but significant support for both Option 1 (9 votes) and Option 2. (5 votes). There were about 8 abstentions. Subsequent discussion refined these positions somewhat.

Based on the articulation of interests and discussion of Options, a Goal Statement was constructed and appears in the next section.

As suggested in the Goal Statement, there was majority agreement that vital components of a viable strategy for the northern white rhino would be to:

- establish a second population as soon as possible using the rhino in captivity and some rhino translocated from Garamba, as long as it would not further endanger the population in Garamba.
- maximize probability to induce the rhino in captivity to reproduce.

Toward this goal, strong sentiment was expressed in the workshop to remove a few rhino from Garamba and combine them with the rhino from captivity in at least a free-ranging situation different from their current captive locations. There was a refinement proposed, i.e. accelerate development of reproductive technology using southern white rhino to permit genetic material to be moved between captive and wild population via gametes and embryos.

However, the custodians of the rhino disagreed on the details of such action:

- (1) The delegation from the Zaire Government stated they would permit a few rhino to be translocated from Garamba but only if the rhino in captivity were consolidated and in a location different from the two captive facilities that currently maintain northern white rhino (San Diego Wild Animal Park and Dvur Kralove Zoological Garden). They emphasized that this new location for the second population could be inside or outside Africa.

(This option appeared to have the support of most of the participants at the workshop. Notable exceptions were the representatives from the two captive institutions that maintain northern white rhino.)

- (2) Representatives from the two captive institutions stated they desired to retain their animals and they declined to consolidate their rhino at a new site. Instead, these captive institutions proposed instead that Zaire provide two male rhino, one each to San Diego and Dvur Kralove, for added stimulus to reproduction reinforcing the efforts already in progress at both zoos to breed the rhino. The background for this position is summarized in the report of Interest Group 5.

This apparent stalemate between custodians of wild and captive rhino emerged during the second day. The workshop organizers and facilitators decided that it would be useful for these two groups of rhino custodians to interact and negotiate directly and separately from the plenary workshop. Hence much of the third day was devoted to these discussions. Emphasis was on exploring the possibility of combining all captive rhino at a third site with the addition of a few from Garamba. During the discussions, a number of benefits to both parties from such a plan were delineated:

- Garamba would retain its primary status in the conservation strategy in that there would not be a second "wild" population to distract attention.
- In particular, there would be no competition for funding with Garamba as might be the case if a second free-ranging population were established using only translocations from Garamba.
- The captive population would gain some new rhino and the contribution from captivity would retain its importance.
- It would provide high profile for the Czech Republic and Dvur Kralove which actually owns all but one of the rhino in captivity.
- It would be an international cooperative project with an international management committee formed comprising representatives of Zaire and the zoos.
- Dvur Kralove and San Diego would provide much expertise and input on management of the rhino and thereby receive much recognition.
- Zaire would also have much influence on the rhino in the new free-ranging site.

In the end, it was not possible at the workshop to reconcile the custodians of the wild and captive rhino. The captive custodians did agree to a plan to consolidate most of the rhino at Dvur Kralove which indicated it would provide more free-ranging conditions.

However, subsequent to the workshop, the hormonal therapy to induce reproduction that has been in progress at the San Diego Wild Animal Park commenced to produce results with copulation occurring several times with one of the two females and estrus cycles observed in the other. As a consequence, the proposed consolidation of rhino from San Diego to Dvur Kralove has not occurred as of October 1996.

There was also some indication at the end of the workshop that Zaire might reconsider and permit at least 1 male rhino to be moved from Garamba in an attempt to stimulate reproduction in the captive rhinos. These discussions are continuing.

The rest of the workshop participants continued to conduct working sessions which had commenced during the second day on a number of important aspects of conservation and management of northern white rhino *in situ* and *ex situ*, including:

- Management Strategy for Garamba
- What Know and Do Not Know About the Biology of Northern White Rhino: Key Factors for Viable Population
- Key Non-Biological Factors for Conservation Success in Garamba
- Monitoring of Rhino, Poaching, and Ecosystem in Garamba
- Population Viability Assessment Using Stochastic Population Simulation
- Funding for Garamba
- Criteria for Selection of a Site for a Second Free-Ranging, Preferably Wild, Population.
- Management of Rhino in Captivity: Keys for Success in Reproducing

Brief summaries of the recommendations of these working groups are presented below.

A major consideration for the workshop was to conduct a population and habitat viability assessment (PHVA) for using stochastic simulation software (known as VORTEX) for the northern white rhino in Garamba under various scenarios including various levels and frequencies of poaching, other stochastic risks, and possible removals for a second population. These assessments are critical to predict the viability or vulnerability of the existing population and any new population. Extensive simulations were conducted prior to the Workshop and appear in the Companion Document. Much discussion of the input parameters used occurred at the workshop and some further simulations were performed. More extensive simulations continued after the workshop and the results are presented in Appendix 3.

Finally, the official conclusions of the workshop as well as the significant results and recommendations are presented below.

GROUPS TO ESTABLISH INTERESTS

Group 1 - Representatives from Zaire and Garamba Project (Conducted mostly in French)

J.P. d'Huart - Leader

Kena Mwauke

Mbuyu Mutera

N. Nzau Kunkemba

Bihini Won wa Musiti

Group 2 - Representatives from Zaire and Garamba (Conducted mostly in English)

Frances Westley - Leader

Muhindo Mesi

Mbayma Atalia

Fraser Smith

Kes Hillman-Smith

Pete Morkel

William Karesh

Group 3 - Representatives of International IUCN AfRSG, WWF, AWF

Bob Lacy - Leader

Mark Stanley Price

Martin Brooks

Richard Emslie

Nigel Leader-Williams

Holly Dublin

Group 4 - Representatives of International Rhino Foundation

Tom Foose - Leader

Harrie Peachy

Jerry Borin

Bob Reece

Mike Fouraker

Group 5 - Representatives of Institutions With Captive Northern White Rhino *Harrie*

Vredenburg - Leader

Jim Dolan

Larry Killmar

Ivan Pojer

Dana Holeckova

Kristina Tomasova

Group 6 - Representatives of Possible Sites for Second Population

Simon Stuart

- Leader

John Lukas

Tim Oloo

Eric Edroma

John Hough

REPORTS FROM INTEREST GROUPS

GROUPS 1 & 2 - ZAIRE AND GARAMBA

Ambiguous wording - 1 safe way out

Concern about captive performance	=>	Encourage	
+		New	=> Vote 2
Recognizing captive desires to keep rhinos		Solution (Include use of Southern white rhino)	

Concern for captive animals to increase before adding new "wild" Northern white rhinos.

1. Higher and consistent levels of support => Garamba
 - 60% park receipts to be retained at Garamba (40%=>HQ)
 - International Northern white rhino awareness campaign to underpin fund raising.
2. Aggressively pursue all options to increase breeding of captive rhino.
 - use Southern white rhino more.
 - combine all captives => "free range" + captive population
 - captive population in Africa
3. Increase involvement of local communities in conservation and ensure they benefit from Garamba ecosystem.
4. Establish new population in another range state.

Combien? Et quels individus?

→ Sera déterminé par les biologistes Zairois une fois les conditions préalables sont remplies.

Liste des Priorités

1. Renforcer la conserv del la Garamba.
2. Mélange d'indiv por etablir une nouv. population (voir ci - de ssus)

-
1. Conservation of Garamba and it Northern White Rhino.
 2. Development / Enrichment of local population.
 3. Increased support for Garamba project.
 4. Increasing knowledge & understanding.

GROUP 3 - IUCN AfRSG, WWF, AWF

- Ensure that sectional stakeholders develop and implement innovative, NWR Taxon-wide solutions.
- Maximize growth of global NWR population.
- Long term viability of NWR taxon.
- Conservation of all African rhino taxa in situ.

GROUP 4 - INTERNATIONAL RHINO FOUNDATION

- Commitment to Rhino conservation.
- Effective & recognized role in rhino conservation.
- Facilitation of a contribution of captive rhino to a viable meta-population.

GROUP 5 - CAPTIVE INSTITUTIONS WITH NORTHERN WHITE RHINO

- Professional need of Dvur Kralove & San Diego staff to continue in ongoing project which has already received some success.
- Best interest of individual animals to continue in project.
- Czech national, institutional & professional pride tied to stewardship of last remaining captive animals (-1) as well as collaboration with San Diego. ("Crown Jewels")
- Need of two wild-caught males to significantly increase probability of captive breeding success.

GROUP 6 - SECOND POPULATION SITE CANDIDATES

- Restoration of Ugandan fauna.
- Attracting finance for conservation .
- Increase attractions for eco-tourism.
- To assist Northern White Rhino conservation by providing a secure site in Africa for a free-ranging population.
- To rejuvenate the captive population's contribution to the survival of the Northern White Rhino
- Assist developing country governments to conserve the Northern White Rhino as part of the world's biodiversity.
- To facilitate actions that will lead to the long-term survival of the Northern White Rhino.

GOAL STATEMENT

Our goal is to ensure a greatly expanded meta-population of Northern white rhino, that has repopulated a number of sites within its former range and that includes a captive component.

The population should be held under a variety of management systems that ensure:

- security from poaching.
- habitat and eco-system integrity.
- financial sustainability.
- benefits to local communities.
- a genetically managed captive population that serves as a conservation / education tool.

Realization of this vision will be supported by:

- initial emphasis on growing population in Garamba.
- establishment of a second free ranging , breeding population.
- ensuring that all rhinos in the global population contribute to breeding at maximum possible levels.
- ensuring support for appropriate monitoring and research programs.
- ensuring the institutional strength of the IZCN.

Notre objectif est d'assurer une meta-population de rhino blanc de nord viable et grandement élargie, qui a repeuplé un certain nombre de sites au sein de son ancienne aire de distribution, et qui comprenant un volet de captivité.

La population devrait être gérée selon une variété de systèmes qui assurent:

- une sécurité vis-à-vis du braconnage.
- l'intégrité de l'habitat et de l'écosystème.
- un financement durable.
- des bénéfices aux communautés locales.
- une population captive, gérée génétiquement qui sert d'outil d'éducation à la conservation.

La réalisation de cette vision sera supportée par:

- un accent initial sur une population croissante à la Garamba.
- l'établissement d'une seconde population en liberté qui se reproduit.
- l'assurance que tous les rhinos de la population globale contribuent à la reproduction au niveau le plus élevé possible.
- l'assurance d'un support pour des programmes de surveillance continue et de recherche.
- l'assurance du renforcement institutionnel de l'IZCN.

WORKING GROUP REPORT ON OVERALL STRATEGY FOR NORTHERN WHITE RHINO AND GARAMBA

1. **Security & Development of Greater Garamba Ecosystem**
 - a. International commitment to P.N.G. (Garamba National Park)
 - b. Zaire Ministry of Environment Commitment to P.N.G.
 - c. High level military support
 - d. Eco-tourism development
 - e. Sport (safari) hunting possibility
 - f. Community / Domain / Ecosystem Integration
 - g. All weather road development
 - h. Communications / Radio
 - i. Implement expanded Monitoring Program.
 - j. Enhance Research/Monitoring
2. **Development of funding and investment coalition (with priority on GEF)**
3. **Sequential and contingent strategy for captive breeding and establishment of second population.**

Consolidate all captive animals in semi-natural situation

or

Move some animals (2-3) from Dvur Kralove & San Diego Wild Animal Park to a new site (semi-natural)

Consider Potential use of (sterilized) Southern white rhinos to assist Northern white rhinos under various conditions.

then

Evaluate and consider new animal(s) from P.N.G.

Following enhanced support for P.N.G. and consolidation of captive population and/or breeding in captive,

then

When "several" (3-4) more females breed in P.N.G. and total is approx. 40, consider establishing second population in Africa, with some animals from P.N.G., and some from captivity.

Start Planning Now:

Site. Size. location. relationship to, role of second site vs. P.N.G.. and for interactive management of rhino. Planning to include provision for emergency use in advance. Develop reactions to contingencies in park.

Second population preparations and establishment to be funded separately and without detriment to P.N.G. support.

Possibly Strategies for Objectives for Second and Captive Populations

- (a) Maintain captive population as is.
- (b) Move some animals.
- (c) Consolidate all captive rhino in an existing or new site..
- (d) Move some Dvur Kralove and San Diego WAP animals to new site.
- (e) Performance evaluation and then consider input of wild individuals (PNG)

EMERGENCY RESPONSE AND ACTION

Rapid deterioration of the situation. non-biological (poaching) or biological (reproduction), in Garamba may require emergency response. In part this emergency response may be an acceleration of the above sequential and contingent strategy.

Triggers for an Emergency Response:

- Non-Biological:
 - Poaching of significant number of rhino (What is this number?)
 - Movement southward of the elephant poaching.
 - Evidence of poaching south of Garamba River
 - Poaching of elephants only for tusks, not meat.
 - Major new warfare in area; influx of many new armed refugees moving across Sudan border.
- Biological:
 - Greatly decreased population growth
 - Decline in number of or unfulfilled expectation of recruitment of breeding females.

WORKING GROUP REPORT ON STATUS OF CURRENT BIOLOGICAL INFORMATION ON WHITE RHINO

- a. Garamba
- b. Establishment of a new population (based primarily on SWR)

Fact	Checked (strong info)	Believed (some info)	Best Guess (no info)
Number of rhinos in Garamba	✓		
Age of ♀ at first breeding (range & area)		✓	
Age of ♂ at first breeding		✓	
Area current per animal - Density	✓		
Area current per animal - Home range	✓		
Poaching mortality - Age specific			?
Natural mortality - Age specific	✓		
Age Distribution	✓		
Observed inter-calf intervals	✓		
Reliable identification methods	✓		
Aging methods	✓		
Group composition & associations	✓		
Determinants of home range & ranging patterns	?	✓	
Calf survival rates	✓		
Establishment of new populations			
Captive Team / Methods	✓		
Habitat		✓	
Min.# Male Founders	✓	?	
Min. # Female Founders	✓	?	
Fact	Checked (strong info)	Believed (some info)	Best Guess (no info)
Boma - ing	✓		
Stocking densities - grazers		✓	
Sequence of release		✓	
Founder familiarity (social / genetic)			✓

Ages of released animals		✓	
De-horning / Tipping		✓	
Seasonality of Area		?	✓
Fenced?	✓		
Disease Factors		✓	
Site planning + preparation		✓	
Percentage of females breeding	✓		
Variation in female performance	✓		
Accidental deaths		✓	
Degree of disturbance			✓
Season of release	✓		
Management capacity	✓		
Minimum area required / animal		✓	
Captive vs. Wild Founders	[✓general]		✓(rhinos)

Footnote: Often using info from SWR to predict impact on NWR.

Categories of Data

1. Strong (Checked)
2. Some (Believed)
3. Weak (Best Guess)

Important Area of Uncertainty

A. Vis-à-vis Garamba

High

- Age of first reproduction (♀♀)
- Determinants of home range
- Minimum area required per individual

Medium / Low

- Age of first reproduction (♂♂)

B. Vis-à-vis a new population

High

- Habitat
- Founders
- Founder familiarity
- Seasonality of area
- Deaths
 - Disease
 - Accidental

Medium

- ? #male / #female founders*
- ? Degree of disturbance*
- Age released

*Still being discussed

4 major issues were discussed in particular" as a basis for the work of this group.

- (1) Low density and large home ranges of northern white rhino currently in Garamba.

The density is lower than it must have been when the population was much larger. It is also lower by a factor of 100 compared to southern white rhino densities in South Africa. There are questions/concerns whether there has been a decline in carrying capacity or habitat quality including loss of tree cover due to repeated burning and the large increase in numbers and density of elephants (probably due to compression because of poaching pressure in the north). There was also query whether the large home ranges are due to low numbers or other ecological/social factors.

- (2) Age and Reproductive Status of Female Rhino in Garamba:

The apparent failure of 5 young adult females (i.e., > 7 years of age) to produce first calf. There is need to investigate this matter further with comparisons to performance of southern white rhino in various situations. The results will have a major impact on the population modelling.

- (3) Minimum Requirements for a New Population in Terms of Founder Number and Composition.

It was believed that data from translocations of southern white rhino to establish new populations would be a good guide.

- (4) Genetic Distinctness of Northern White Rhino from Southern White Rhino to Justify Conservation as a Separate Taxon.

Based on historical distribution, ecological patterns, and genetic characteristics, the distinctness of the northern white rhino as a separate taxon for conservation was reaffirmed by the working group.

WORKING GROUP REPORT ON MONITORING IN GARAMBA

GOAL: The goal of monitoring in Garamba at this time should be to contribute to conservation and management of the rhino and the ecosystem, not to conduct basic research.

PROCEDURE:

- Working group to examine objectives and methods of monitoring and to provide suggestions on improvements to activities in relation to objectives, and on presentation of program to donors.
- Kes Smith to draft proposal and to circulate for comment before the AfRSG meeting in February.
- Working group at AfRSG meeting to discuss proposal and modify program as required
- Possible visit to Garamba by some participants, later became recommendation for a Joint Technical Mission.
- Examine past results to be part of proposal document.

TYPES OF MONITORING

There are 3 basic types of monitoring needed and conducted in Garamba:

- (1) Rhino Monitoring
- (2) Anti-Poaching/Patrol Monitoring
- (3) Ecosystem Monitoring

OBJECTIVES OF MONITORING

Rhino Monitoring:

- To follow the population dynamics, movements, social behavior and home range use of the rhino.
- To use the most reliable methods possible: e.g., individual recognition of rhino, standard data sheets, regular systematic aerial reconnaissance.
- To use this information in guidance of guards.
- To contribute, both directly in patrol guidance and field presence and indirectly through increasing understanding and knowledge, to the conservation of the rhino.
- The monitoring and field presence is enhanced by research projects.

Anti-Poaching/Patrol Monitoring:

- To measure and map indicators of poaching and other illegal activity and their effects on wildlife.
- To measure effort in terms of: manpower; time and coverage in the field; and results.
- To use this information to assess the status of the rhino, the ecosystem, and the effects of management activities as well as to provide information for management planning.

Ecosystem Monitoring:

- To conduct inventories (census), and follow dynamics of large mammal populations, vegetation, and human factors.
- To use this information to assess the status of the ecosystem, the effects of management activities, and to provide information for management planning.

IMPROVEMENTS

- Greater focus of effort on rhinos.
- Radio telemetry would greatly facilitate monitoring especially of individual animals (i.e., improved recognition and location:
 - There is need to re-examine performance of ear tag transmitters in relation to horn transmitter.
- Standardize and objectify methods for recognition of rhinos; currently only Kes Smith and Mbyma Atalia can identify all rhino by field markings; possible use of fecal steroids for individual identification.
- Use guards more in monitoring of rhino.
- Guard training could use Trevor Sandwith course.
- Use distance sampling techniques for ecosystem monitoring

WORKING GROUP REPORT ON KEY NON-BIOLOGICAL ISSUES FOR CONSERVATION OF NORTHERN WHITE RHINO

1. Effective staff infrastructure



Local Population Development

2. Political & Economic Stability
+ Emergency Response Plan

3. Minimize border threats

Security = ↘ Poaching

Funding Essential

Sources / Incentives	Deterrents
1. Local [internal]	<ul style="list-style-type: none"> ← Guard Force adequate supervision adequate training & support Pay, food, housing, medical, bonus
2. Local [external] <ul style="list-style-type: none"> - building support for understanding of conservation - outreach programs - participation in decision making - education 	<ul style="list-style-type: none"> ← Infrastructure maintenance roads, vehicles, ammunition, uniforms, radios
3. Non-local continual- cross border	<ul style="list-style-type: none"> ← Monitoring ← Non-corrupt judicial system ← Good intelligence system ← Border patrol ← High level intelligence ← Fences ← Transmitters
Massive invasion (refugee)	<ul style="list-style-type: none"> ← Emergency plan

**NON-BIOLOGICAL FACTORS AND FACTS
CONTRIBUTING TO SUCCESS OF
CONSERVATION OF NORTHERN WHITE RHINO AND GARAMBA**

Definition of the Problem:

Relates to humans:

- Finance
 - * Staff infrastructure
 - * Equipment
- Security
 - Public support - local / national / international
 - Legal trade
 - Politics (stability)
- Management / Communication
 - Expertise - Motivation
 - Training

- International collaboration
- Human security → standard of living:
 - local communities use of the park for recreational purposes / cultural factors.

1. Problem definition

In Situ: North-central / focus on NWR Stay in Africa

Focus on **Single** vs. **Genetic model**

2. Security is Key Issue

Poaching is the Key Threat

Three Sources of Poaching

1. Internal (guards)
2. External (locals)
3. External (non-locals)

Factors

- Local population
- staff working in the park
- incomers / outsiders
- poaching by guards
- international trade demand
- civil war or unrest
- government policy / commitment [action]
- economic
- infrastructure (includes: communication, roads)

Poaching Key

2 Types: External / Local

Local population needs what is in the park.

Incentives for cooperation.

Good understanding of the law.

Need for local population to realize their interests in conservation.

Includes:

Education: Understanding of the law
Conservation

Economic:

Natural Resources:

Health care (traditional medicines)

Participation in decisions making them part of the managerial team.

- committees for local population working with park & IZCN.

How do we reach an optimal level of security?

1. Funding most NB
2. Staff situation
3. Internal poaching
Improve benefits of guards: field equipment, salaries + bonus, food
medical support for families
housing for guards, training
supervision (close control)
4. Infrastructure / Field Equipment
Roads Uniforms Vehicles
Ammunition Radios Fencing
5. External Population / Locals
Outreach programs
Facilitating funding
Importing expertise
Local services facilitate drawing in expertise (health care)
Crop protection

2 Types

- cas d'um invasion (force majeure)
Refugées => International community
- stranger poacher → border patrol
- * Technology for tagging
- * Cooperation with other countries
- * Intelligence network at high level
- * Fencing

Intelligence

Spies → looking for informants

A great deal cheaper (cost effective) to run externally.

- * Confidential / needs rewards
- * Affected by external conditions
Needs effective system of arrest

External Poaching (Non-local)

- * Emergency response
War / Refugee
- * Internal basis

Stranger Poaching

- * Border patrols
- * Technological monitoring (tagging, transmitters)
- * Fences
- * Higher level of intelligence networks.

WORKING GROUP REPORT ON SITE IDENTIFICATION CRITERIA FOR A SECOND POPULATION OF NORTHERN WHITE RHINO

A. Priority /Mandatory Aspects

1. Security

High security is essential. Totally fenced. ~ 2 meters high, either electrified or tension cable. It must keep rhino in and people out. Staffing: preferable one person / 5 km², who must be adequately outfitted and trained with monitoring capacity.

2. Habitat

High suitability necessary. Important aspects are: grass: bush ratio: seasonality of growth and production should resemble Garamba (more important than similarity in species composition): grass layer must be of adequate biomass and quality.

3. Area size

Detail will depend on results of modeling exercises regarding establishment of second population and under various sets of circumstances. But, minimum size should support 10 founders, with guaranteed space for a further 10. A space requirement of 4 km²/rhino is used for planning. A larger area would be preferable, but not to the detriment of habitat and security needs.

4. Area needs

Area needs high performance management team and operating systems. This would include staff for veterinary, biological management, administration and security.

5. Long term commitment

This must be agreed to by the receiving institution / national wildlife authority.

6. Ownership arrangement

There must be a formal ownership arrangement between Zaire and the second country. There must also be formal operating rules regarding responsibilities, policies, etc.

7. Location

The site must be far from international boundaries, to reduce the risk of illegal activities by non-citizens.

B. Second Category

1. There should be incompatible tick and trypanosome challenges in Garamba and the second site. (This may require research at Garamba) This aspect is included in the interests of helping possible return to Garamba.
2. Readiness / Speed of completion. If the second site is to be prepared to receive rhino on an emergency basis, then site selection may be influenced by the existence of infra-structure, small needs to complete security to adequate standards, etc.
3. The local community around the area must be supportive of it and its rhinos.
4. A management policy and plan for the area and its rhino must be finalized soon after the arrival there of rhinos.

WORKING GROUP REPORT ON CAPTIVE MANAGEMENT - KNOWN & UNKNOWN

What Works in Facilities with Southern White Rhinos

Assumption:

Southern rhino data applies to Northern (no hard evidence)

Facilities:

- Large Space
- Large Herds (Availability of multiple males?)
- 6+ months - 1 year; 24 hours / day (8 months)
- Territory / Dominance remain established => no need to redo

Management: Manipulate sex ratios

- Stimulus through proximity of additional males
- No separation of mother / calf from the herd
- 24 / 26 ?? month inter-birth periods (without separation)
- Breeding females (unrelated?) play "auntie" role while without calf
- Same animals play different roles - bonding between females
- Calf / male interaction non-aggressive
- Bull by himself for periods of time without cows
(Can't be too familial)
- Male should have opportunity to separate from females (not enforced)
(Traditional zoos work with sight lines)
- Try to extrapolate from wild environment
- Density effect?
- Tendency to over manage
- Look at 19th Century literature to get biology in wild.
- Once a female breeds, (where ever she is) she will breed in less than optimal conditions (first breeding is key)
- It is difficult to breed an older virgin cow (hardened hymen, absence of cycle)
- White rhinos are good mothers regardless of age
- Ovulate too frequently when "open" - scar tissues develops and reduces fertility
- Incompatibility of male/female pairs
*importance of availability of multiple males - Provide choice
- In wild, some males may be permanently on periphery and never breed. These may be males captivity is trying to breed.
- Animals put together too young develop behavioral inbreeding avoidance mechanism (sibling relationship)..
- Quality of old male sperm? (What is old? 25 years 29/31 years?)

Performance with Southern White Rhinos

- Captive programs have had considerable success with reproduction of southern rhinos but F1's have been problematic..
- Why are F1s not breeding?
 - Moved calves and bulls
 - But, in Australia, they have all conditions met except moving.
 - Founders were originally moved and did breed.
 - Breeding of F1s may be delayed due to manipulation.
 - In Australia, their limited social experience in F1 herd ("aunt-ing pattern not established)
- F1s not breeding everywhere due to management.

What Does Not Work or Has Not Worked With Northern Rhinos:

- All 3 wild caught females are virgins (thus hard to breed)
(One Czech female was mated but did not conceive. Editor's note: The same is now true for a female at San Diego since the workshop)
- These are now older virgins
- San Diego females strongly bonded (too strong for males)
(More than "auntie" relationship)
- Chemical cycling induction not helping.
- One San Diego male is inexperienced.
- San Diego breeder was raised with the two females in San Diego (i.e., simulated sibling relationship)
- Sex ratios / Combinations of the four animals have been tried unsuccessfully (San Diego)
- At Dvur Kralove, a 23 year old female first mated at 20 after hymen perforated with captive male without conceiving.
- Czech :12 year old (Captive-born) => 3 matings with 23 year old wild - caught male (no conception)
- Don't "want" each other / incompatible with 15 year old (brother)
- Six year old sub-adult female in first estrus this year (only brother or father)
- Males are problem.
- Numbers of Northern Whites not available to achieve social groups like Southern Whites
(Older ages, non-cycling & close relation)

How to succeed with northern white rhinos in captivity:

- Need 2 more males for captive breeding
- Diet may be an issue.
- Artificial Insemination may be a (remote in terms of age of animals in relation to time line to develop technology) possibility.
- Social Groupings insufficient limited by numbers and composition of collections.
- There are female relationships in place but may not be conducive to breeding
- Male separation not a problem.
- Over-management not a problem now but may have been early in life history of captive individuals.
- None of captive females have conceived. May be a problem as evidence from southern white rhino suggests that females won't breed for first time after age 23. Hence, only the 7 and 12 year old northern white in captivity seem to have a high probability of breeding. These highest probability females currently have no appropriate male with them.
- If older female is successfully bred chances are she will breed again and be a good mother. (hus hardened hymen removed?)
- Compatibility and choice may be absent.\
- Maybe captive males are "peripheral" males and will never breed. Evidence from suggests that some males consigned to this status for life or by nature.
- Some captive males and females have been raised together. May have developed sibling relationship = inbreeding avoidance behavior.
- 2 of the 4 males are 23+ years: 1 is 25+. There may be a sperm quality problem.
- Only younger male in captivity is F1 and is mating. F1s may be all right if conditions right.

WORKING GROUP REPORT ON FUNDING FOR GARAMBA AND NORTHERN WHITE RHINO

Urgent and General Financing Required for Garamba:

A Minimum of US \$260,000 per year → An Optimum of \$ 680,000 per year.

Current Commitments:

WWF \$180,000 per year

(Editor's note: Believe this has been increased in 1996 to \$ 200,000 +; it will be clarified in the new Project Document being prepared by WWF.

IRF \$ 50,000 per year

Collectively a few other donors (FZS, WCS) \$35,000 > < \$ 100,000

Short-Term Fund Needs.

A Minimum of US \$260,000 per year → An Optimum of \$ 680,000 per year.

1995 / 1996 - Commitments of \$ 310,000 seem firm.

Possible Sources of Funds Over Shorter-Term:

South Africa

Taiwan - (IUCN)

IRF

National Geographic (through film release 3/96)

GEF - \$40,000-50,000 in 1996 for two years

Long term Funds Needs and Strategies

Goal: Sustainable Financing in perpetuity

Possible Methods:

1. Eco-tourism

2. Securement of major GEF that might stimulate release of donors "in waiting"

GTZ

EY

World Bank

It is critical that in 2 - 3 years - other donors who have departed for political reasons will return

3. Trust Fund

Funding Mechanisms and Modalities

A coordination Mechanism is required

There is need to share load on project support and administrative costs.

Funding organizations must coordinate with each other and with IZCN.

Need to have the same vision of transferring responsibility to Zarois (3 years).

Donors must request IZCN to assume coordinator.

Garamba project has been a model of coordination between funders, management and scientific interests but can be a better one with some modifications.

CONCLUSIONS

As Presented by AfRSG Chair Martin Brooks

- Frank exchange of views allowing definite positions to be taken and understood.
- Agreement on need to change programs in captivity and wild (i.e. option 2)
- Expanded appreciation of difficulties experienced by each party, i.e. mutual understanding.
- Commitment by Dvur Kralove to consolidate most of the captive rhino in their institution under more free-ranging conditions and by San Diego to continue intensive attempts to induce reproduction with hormonal therapy.
- Commitment in principle by Zaire to establish a second free-ranging (if possible wild) population by Zaire. The formulation of a suitable plan will be pursued by the AfRSG in close cooperation into Zaire.
- Some progress made toward securing sustainable support for Garamba National Park.
- Gratitude to UNDP, Howard Gilman Foundation, Tom Foose, interpreters and participants as well as to the facilitators for their expert guidance.

SIGNIFICANT RESULTS AND RECOMMENDATIONS FROM THE WORKSHOP

- (1) Assembly and interaction for first time of all principle stakeholders and interested parties in Northern White Rhinoceros. In particular, this workshop provided opportunity for the first direct discussions between officials from Zaire and representatives of the captive institutions which maintain northern white rhino. The experiences and relationships that developed will be the basis for improved and continued dialogue on conservation of the northern white rhino and Garamba.
- (2) More complete and critical synthesis of information about Northern White Rhino and its ecosystem in Garamba National Park.
- (3) More rigorous articulation of the risks, opportunities, and options for further conservation activities of Northern White Rhino.
- (4) In particular, a very explicit assessment of the viability, or alternatively the vulnerability, of the population of northern white rhinos under various scenarios of threats (e.g., poaching or catastrophes) and management. The results of these assessments to date are presented in two documents:

Companion Reference Document to Options Document to Guide Strategy Development for the Northern White Rhinoceros. (Attached as Appendix 2 to this report.)

Further Population Viability and Habitat Assessment of Northern White Rhino in Garamba National Park, Zaire. (Attached as Appendix 3 to this report.)

- (5) Recommendation of and Plans for a Joint Technical Assistance Mission to Garamba National Park which was conducted in February 1996 by selected staff from the IUCN/SSC African Rhino Specialist Group and WWF. Major conclusions and recommendation are:
 - To develop an Intensive Protection Zone (IPZ) in the area of Garamba National Park occupied by the rhino.
 - To secure high level political support for the northern white rhino and Garamba National Park especially through an audience of ranking conservationists with President Mobutu of Zaire
 - To reorganize, intensify, and better motivate the protection and management staff at Garamba by providing more training, equipment, salary, and incentives.
- (6) Decision and Agreement by Government of Zaire to establish a second free-ranging population of northern white rhino using rhino translocated from Garamba as soon as that population has increased to a larger size (e.g. 50 individuals) and when an acceptable site for the relocation can be established. The AfRSG will work with IZCN, WWF, IRF, and other partners to develop a more explicit plan.
- (7) Better commitment and direction to develop a coalition of partners to continue and expand the conservation work on the northern white rhino in Zaire, including

- (8) Commitment of the custodians of the captive rhinos to intensify efforts to induce these animals to reproduce. Efforts may include:
- Provision of larger enclosures and more free-ranging conditions at Dvur Kralove
 - Possible relocation of some rhinos between the two captive facilities with the rhino, especially from San Diego to Dvur Kralove.
- (9) Interest in and foundation for continued dialogue between Zaire and the captive institutions with the rhino about possible cooperative and interactive actions with the populations they maintain, including possible provision of a male from Garamba to help stimulate reproduction in the captive rhino.

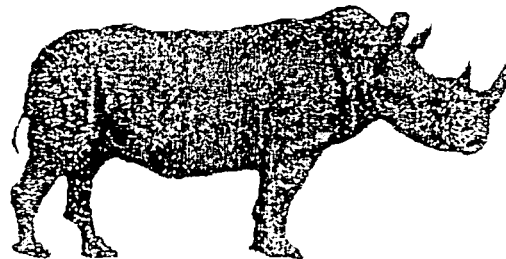
DEVELOPMENTS WITH NORTHERN WHITE RHINO SINCE THE WORKSHOP

- In early 1996 (February and March), two rhino were discovered poached in Garamba National Park. There was strong evidence that local military leaders were implicated. There was an immediate response by IUCN, WWF, and IRF who directed a letter to President Mobutu of Zaire to intervene. President Mobutu acted quickly and decisively to discipline and transfer the involved military officials.
- In April 1996, IUCN/SSC AfRSG & WWF conducted a Joint Technical Assistance Mission to Garamba National Park to Advise on the Protection and Conservation of Northern White Rhino. The Mission performed an assessment of the protection, management, and research program on the northern white rhino.
- A new Garamba Conservation Project Document is being formulated as a point of reference for further action plan development.
- Preliminary members of the two new oversight committees for the Northern White Rhino/Garamba Project have been identified.
- There have been repeated copulations of 1 of the 2 females at the San Diego Wild Animal Park; the other female appears to be reproductively cycling on a regular basis.

APPENDICES

- 1 A *Options Document to Guide Strategy Development for the Northern White Rhinoceros. (English Version) 30 Pages.*
- 1 B *Document Des Options Pour Aider A La Mise Au Point D'une Strategie Pour le Rhinoceros Blanc du Nord. (French Version) 30 Pages.*
- 2 *Companion Reference Document to Options Document to Guide Strategy Development for the Northern White Rhinoceros. 127 pages.*
- 3 *Further Population Modelling of Northern White Rhinoceros Populations Under Various Management Scenarios. 41 pages.*

**OPTIONS DOCUMENT
TO GUIDE STRATEGY DEVELOPMENT
FOR
THE NORTHERN WHITE RHINOCEROS**
(Ceratotherium simum cottoni)



**Prepared by
Kes Smith, Fraser Smith, Holly Dublin, Tom Foose**

**On Behalf of
The IUCN/SSC African Rhino Specialist Group**

August 1995