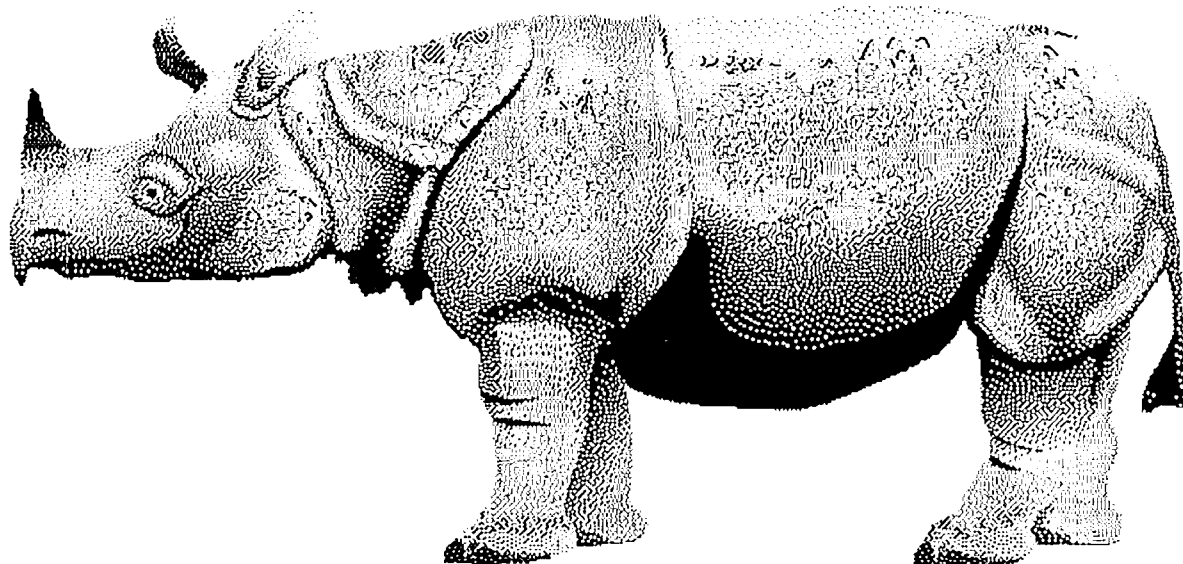




**JAVAN RHINO
COLLOQUIUM**

Report & Recommendations

Bogor - Cisaria, 1-3 July 1997



JAVAN RHINO COLLOQUIUM

BOGOR - CISARUA

1-3 July 1997

REPORT & RECOMMENDATIONS

Organizers:

Directorate General Forest Protection and Nature Conservation (PHPA)
Ujung Kulon National Park (TNUK)
UNDP/GEF Sumatran Rhino Conservation Project
IUCN/SSC Asian Rhino Specialist Group (AsRSG)
International Rhino Foundation (IRF)
U.S. Fish & Wildlife Service Rhino and Tiger Conservation Fund (USFWS)
Indonesian Center for Reproduction of Endangered Wildlife (ICREW)
Yayasan Mitra Rhino (YMR)

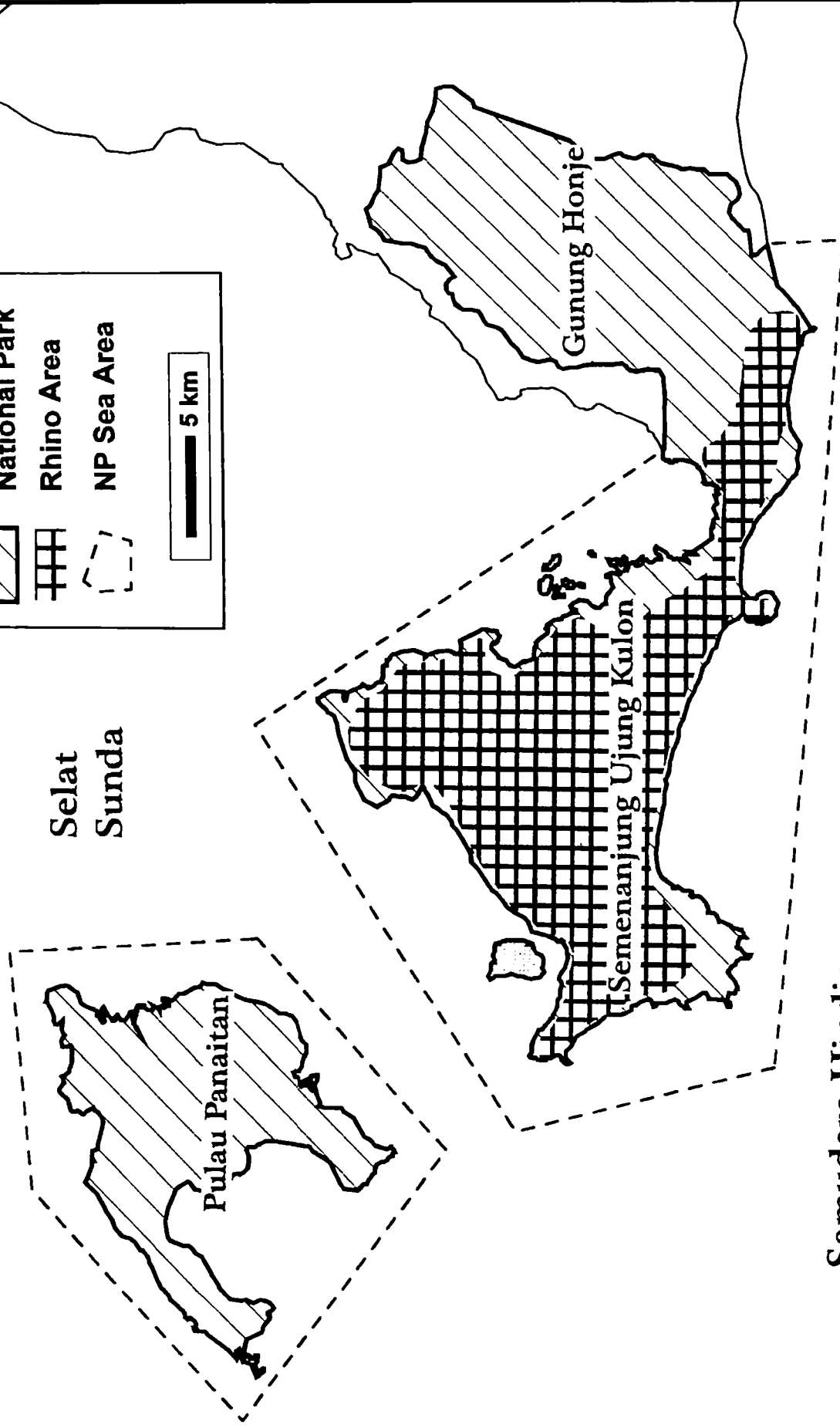
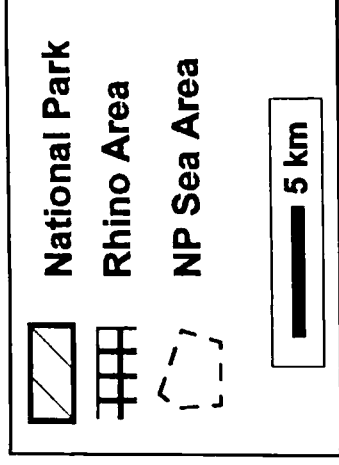
Compilers: Javan Rhino Colloquium Editorial Committee (Dr. Tom Foose & Dr. Nico van Strien, Co-chairs)

Cover photograph: Alain Compost

Javan Rhino Colloquium Editorial Committee:

**Agoes Sriyanto
Haerudin R. Sadjudin
Haryanto R. Putro
Nazir Foead
Nico J. van Strien (Co-chair)
Thomas J. Foose (Co-chair)
Tri Nugroho
Marcellus Adi**

TAMAN NASIONAL UJUNG KULON



Selat
Sunda

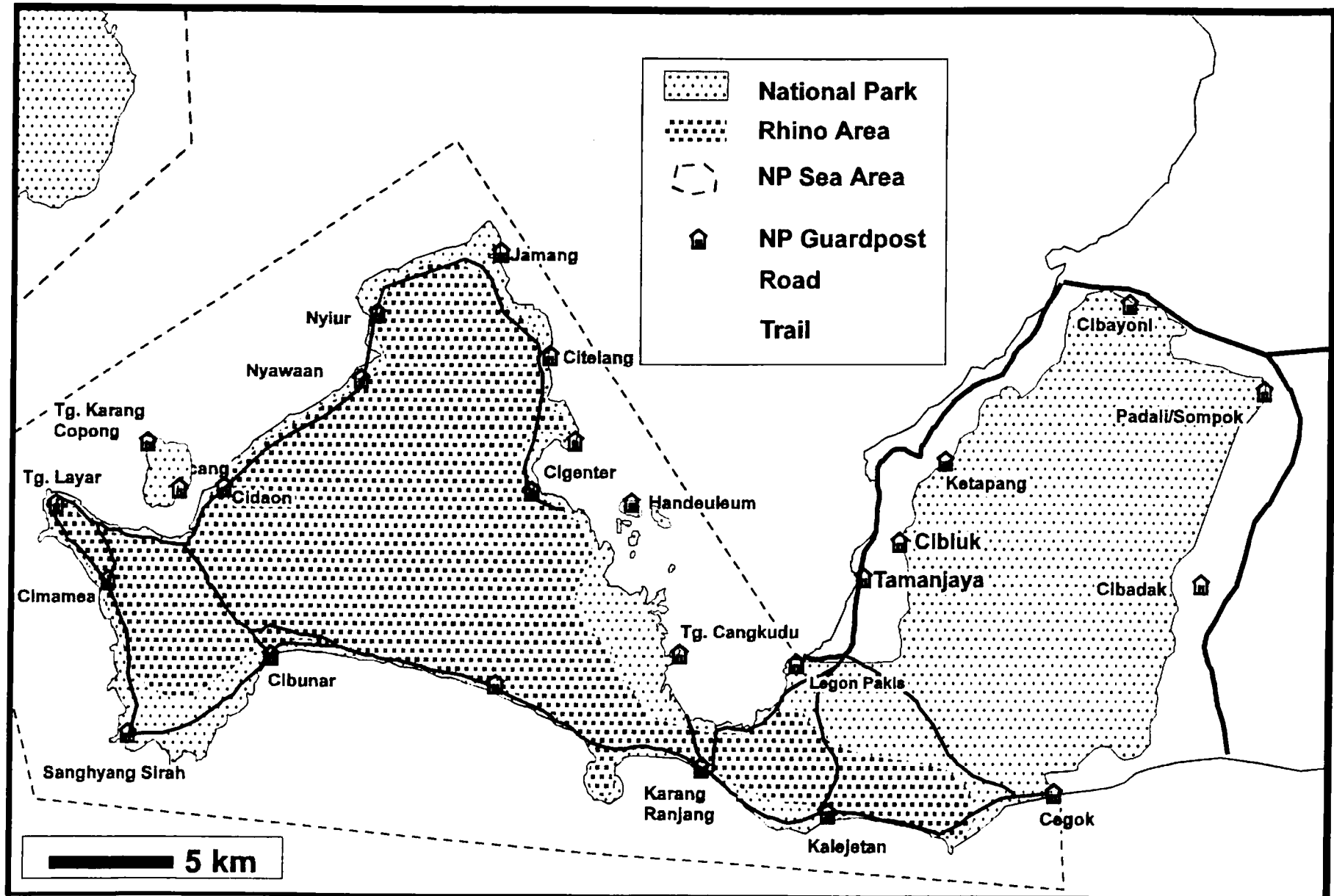
Pulau Panaitan

Gunung Honje

Semenanjung Ujung Kulon

Samudera Hindia

UJUNG KULON NATIONAL PARK - Access and Guardposts



KATA PENGANTAR

Pada tanggal 1 - 3 Juli 1997, bertempat di Safari Garden Hotel telah diselenggarakan Javan Rhino Colloquium. Colloquium ini telah berjalan dengan baik berkat kerjasama berbagai pihak, terutama dukungan Direktorat Jenderal PHPA, Taman Nasional Ujung Kulon, IUCN/SSC AsRSG dan Yayasan Mitra Rhino. Dukungan dana utama berasal dari *Rhino and Tiger Conservation Fund dari United States Fish and Wildlife Service*. Selain itu *International Rhino Foundation* juga memberikan dana untuk mendukung administrasi. Pelaksanaan, persiapan dan pengorganisasian juga dibantu oleh Proyek PHPA/GEF-UNDP Konservasi Badak Sumatera.

Colloquium ini bertujuan untuk mendapatkan konsensus diantara berbagai pihak yang sudah dan akan terlibat dalam upaya-upaya penyelamatan badak Jawa di Taman Nasional Ujung Kulon dan di Cat Loc di Vietnam, sekaligus menyepakati prioritas kegiatan yang perlu segera dilaksanakan secara terintegrasi dan berkesinambungan, termasuk dukungan dananya. Untuk itu telah hadir wakil-wakil dari berbagai institusi baik dari dalam maupun luar negeri. Daftar peserta yang hadir dapat dilihat di halaman ?.

Laporan ini adalah laporan sementara yang dapat dibuat oleh Tim Editorial Javan Rhino Colloquium sebelum nantinya akan dibuat laporan final. Selanjutnya kami mengucapkan terima-kasih atas dukungan berbagai pihak yang telah mendukung terselenggaranya Javan Rhino Colloquium dan semoga laporan ini dapat bermanfaat.

Tim Redaksi
Bogor, 6 Oktober 1997

EXECUTIVE SUMMARY

A Javan Rhino Colloquium was conducted 1-3 July 1997 at the Safari Garden Hotel, Cisarua, Bogor, Indonesia. The ultimate goal of the conservation program for this species is to ensure long-term viability. Toward this end, the objectives of the Colloquium were:

- To assemble all the principal parties involved or interested in conservation efforts for the Javan Rhino in Ujung Kulon as well as representatives working with the species in Vietnam to better delineate and coordinate interests, activities, needs
- To attempt to arrive at a **consensus plan of action** for conservation of the Javan rhino in Ujung Kulon, that would include:
 - **affirmation of priorities;**
 - **detailed proposals for effective actions;**
 - **identification of parties who would implement actions, thereby coordinating and reconciling the various initiatives and interests;**
 - **formulation of a work plan and time table.**
 - **consideration of mechanisms for long-term financial sustainability of Javan rhino conservation in Ujung Kulon.**
- To integrate and prioritize various kinds of conservation activities, i.e.:
 - protection
 - management
 - research
- To provide guidance and priorities for funding agencies
- In summary, to advance effective actions to conserve the Javan rhino in Ujung Kulon.
- To delineate some possible actions for Javan Rhino in Cat Loc Wildlife Reserve, Vietnam

The Colloquium comprised intensive and interactive sessions, both plenary and working groups. The situation in Ujung Kulon was considered first and the representatives from Vietnam participated in the various working groups.

There were 5 major working groups on the situation in Ujung Kulon:

1. **Census and Survey Methods of Rhino**
2. **Intensive Protection and Institutional Aspects of Rhino Conservation** in Ujung Kulon, including
 - Rhino Protection Units
 - Facilities and Equipment
 - Training
3. **Habitat Research and Management**, including
 - Status, Change and Management
 - Numbers of Banteng and Other Herbivores and Their Impact on Rhino
 - Carrying Capacity for Rhinos
4. **Population and Habitat Viability Analysis (PHVA) Considerations:**
 - Target Population Size for Ujung Kulon
 - Establishment of a Second Population of Javan Rhino in Indonesia
 - Creation of Rhino Sanctuary within Ujung Kulon
5. **Community Interactions**

Each working group organized its considerations according to a number of major questions and points about each major problem as summarized in Table 1 which provided the framework for the Colloquium. Reports of the individual working groups as well as other background documents are also provided.

Thereafter, there was a plenary session organized along the same framework to delineate some suggestions for conservation of Javan rhino in Vietnam.

The results and recommendations of the Colloquium are summarized in Table 2.

Particularly notable for Ujung Kulon National Park, Indonesia are the recommendations:

1. to establish 2-3 rhino protection units (RPUs);
2. to improve rhino census by intensifying the transect counts in conjunction with extensive photo trapping; and
3. to initiate habitat management experiments entailing removal of Langkap and Banteng in an endeavor to expand carrying capacity to facilitate attainment of a target population size of 100 Javan rhinos.

Notable for Cat Loc Wildlife Reserve and Cat Tien National Park, Vietnam are the recommendations:

1. to conduct a track count of rhino in Cat Loc in early 1998 with technical assistance from experts from Indonesia; the track count to be correlated with a photo census later;
2. to initiate habitat analysis work in 1998, again with technical assistance from Indonesia;
3. to encourage the large WWF project being conducted in Cat Tien to provide for specific rhino action, including increasing the number of guards in Cat Loc from 8 to 40.

Table 1
FRAMEWORK FOR CONSIDERATIONS AT THE JAVAN RHINO COLLOQUIUM

PROBLEM	KNOWN	NEED TO KNOW	BEING DONE	NEED TO DO	WHEN	WHO	COST	FUNDER
Rhino - Numbers - Age/Sex Classes - Births/Deaths								
Rhino Poaching								
Target Population								
Rhino Protection								
Training/Equipment								
Habitat: - Vegetation - Banteng (Numbers)								
Second Population								
Sanctuary in TNUK								
Community Work								

**TABLE 2
OVERVIEW OF RECOMMENDED ACTIONS FOR JAVAN RHINO CONSERVATION IN UJUNG KULON**

ITEM (Number refers to Working Group Program)	Priority	1997	1998	1999	FUNDED	UNFUNDED
1.1 TRACK COUNT CENSUS Training Transects Operations/Census	1		March March April -----	-----		\$ 5,000 \$ 7,500 \$ 140,000
1.2 PHOTO-TRAP CENSUS Equipment Training Operations	1		March March April -----	-----	AAZK \$ 18,000 AAZK/AaP \$ 1,500 AAZK \$ 12,000	
1.3 DNA/GENETIC SURVEY Collection Analysis	1		April -----	Jan -----	WWF \$ 10,000	WWF? \$ 45,000 \$ 10,000
2.1 RHINO PROTECTION UNITS (RPU)s Recruitment Training Deployment/Operations	1	Oct-Nov	Jan-feb April -----	-----	USFWS \$ 30,000 IRF \$ 10,000 AAZK \$ 5,000	
2.3 COMMUNICATION Walky-talkies DX Communication Repeater	1		March March March		AAZK \$ 14,000	\$ 9,500 \$ 11,500
2.4 WEAPONS FOR FOREST GUARDS	1	On-going process			GOI	No extra costs
2.5 SURVEY EQUIPMENT 40 Compass 7 GPS 32 Binoculars	1	Sept-Oct				\$ 5,000 \$ 11,500 \$ 5,000
2.6 TRANSPORTATION 2 Speed-boats 7 Motor cycles Radar Unit 4WD Vehicle	2		April		MCOA \$ 10,500 AAZK \$ 3,000	\$ 39,500 \$ 17,500 \$ 50,000
2.7 PERSONNEL EQUIPMENT	1		Partial purchase			\$ 15,500

TABLE 2
OVERVIEW OF RECOMMENDED ACTIONS FOR JAVAN RHINO CONSERVATION IN UJUNG KULON

ITEM (Number refers to Working Group Program)	Priority	1997	1998	1999	FUNDED	UNFUNDED
2.8 UKNP MANAGEMENT REVIEW Staff Subsistance	1	Sept (completed)			FFI \$ 10,000 USFWS \$ 5,100	
2.9 PARTICIPATORY HUMAN RESOURCE DEVELOPMENT	3		If recommended by 2.8			\$ 24,000
2.10 TRAINING FOR MANAGEMENT	2		As above			Not budgeted
3.1 LANGKAP ECOLOGY IN UK	1	Since 1996	-----	-----		GOI? \$ 125,000
3.2 COMPARATIVE LANGKAP INVASION	2		-----	-----		GOI/WWF Japan? \$150,000
3.3 PALM-CIVET SEED DISPERSAL	1		-----	-----		\$ 50,000
3.4 COMPETITION RHINO & BANTENG	1	-----	-----	-----	GOI \$ 110,000	
3.5 HERBIVORE DIET OVERLAP	1		-----	-----		\$ 50,000
3.7 JAVAN RHINO BEHAVIOR	3			-----		\$ 250,000
3.8 RHINO AND BANTENG FOOD & FECAL STUDY	1			-----		\$ 40,000
3.9 GRAZING AREA MANAGEMENT	2		-----	-----		per Ha \$ 3,500
3.10 WEATHER STATIONS	3					\$ 15,000
3.11 GIS DATABASE/MANAGEMENT IS	1		-----	-----	Proposed to JICA	Not budgeted
4.1 2ND POPULATION & SANCTUARY Indentification of translocation sites Feasibility Study for Sanctuary in UK Construction of Outer Fence	1 1 3		Mar----- Jun-----	After study		\$ 15,000 \$ 7,000 Not budgeted
4.2 BANTENG REMOVAL EXPERIMENTS Census Removal Monitoring	1	Rhino census data	Mar-Apr 2nd half		PHPA	Not budgeted Not budgeted
4.3 LANDKAP REMOVAL EXPERIMENTS	1	See 2.8 above				
5.1 HUMAN CARRYING CAPACITY	3					\$ 25,000

TABLE 2
OVERVIEW OF RECOMMENDED ACTIONS FOR JAVAN RHINO CONSERVATION IN UJUNG KULON

ITEM (Number refers to Working Group Program)	Priority	1997	1998	1999	FUNDED	UNFUNDED
5.2 LANGKAP SUGAR SOUVENIRS	1	-----	-----		WWF \$ 2,000	
5.3 RHINO EDUCATION PROGRAM	2			-----		\$ 50,000
5.4 VISITOR ROUTES RE-ALIGNMENT	3			-----	Wanawisata \$ 20,000	
5.5 HUMAN POP. CONTROL/MIGRATION	1				GOI	Not budgeted
5.6 COMMUNITY DEVELOPMENT (19 Villages)	3	-----	-----	-----	WWF \$ 33,000	LATIN \$ 15,000 ALAMI \$ 15,000

TABLE 3
OVERVIEW OF RECOMMENDED ACTIONS FOR JAVAN RHINO CONSERVATION IN VIETNAM

ITEM (Number refers to Working Group Program)	Priority	1997	1998	1999	FUNDED	UNFUNDED
6.1 CENSUS IN CAT LOC	1		-----		USFWS \$ 27,000	USFWS \$ 10,600
6.2 PRELIMINARY HABITAT ANALYSIS IN CAT LOC AND CAT TIEN 3-year study training by Indonesian experts	1		----- Feb-Mar	-----	USFWS \$ 75,000	WWF? \$ 3,300
6.3 EXTENDED STUDY ON JAVAN RHINO HABITAT IN VIETNAM	1		-----	-----		\$ 225,000

The Javan rhino (*Rhinoceros sondaicus*) is a critically endangered species. Fewer than 70 Javan rhino are believed to exist in only 2 known populations: 15-20 in Cat Loc Nature Reserve in Vietnam; 50-60 in Ujung Kulon National Park in West Java, Indonesia.

In Ujung Kulon, there has been and continues or proposes to be considerable activity on the Javan Rhino but the efforts are largely uncoordinated and, perhaps as a consequence not maximally effective.

Some examples of this activity are:

- A Population and Habitat Viability Analysis (PHVA) Workshop conducted in 1989 and a more general Indonesian Rhino Conservation Workshop conducted in 1991 to formulate action plans for the Javan as well as the Sumatran Rhino.
- As a result of these workshops, both an Indonesian Rhino Conservation Strategy and AsRSG Action Plan which provide recommendations for Javan Rhino conservation.
- The approximately \$ 25,000/year through the Adopt a Park Program initiated by the Minnesota Zoo and being supported now by the Bowling for Rhinos Program of the American Association of Zoo Keepers. By the end of 1996, this investment will probably be in excess of \$ 150,000.
- The numerous WWF projects over the years, notably the photographic survey conducted by Mike Griffiths.
- The major project (several hundred thousand dollars) conducted by the Government of New Zealand on Park Development.
- The Adopt-A-Warden program by the Minnesota Conservation Officers who have been to Ujung Kulon multiple times over the last several years.
- The habitat assessment work over the last 6 years by Institut Pertanian Bogor, reflected in two proposals submitted to RTCF from Biodiversity Conservation Indonesia.
- The assessment of conservation of the Javan Rhino in Ujung Kulon conducted by the AsRSG in 1995.
- An eco-tourism concession already conferred on a group of previous DG's of PHPA. Their programs and projects need to be integrated into any future plans in this area.
- At least 8 proposals relating to the Javan Rhino in Ujung Kulon that have been submitted to the USFWS RTCF in 1996/96, prior to the Colloquium.
 - 36 Education Conservation for the Communities - Yayasan Alam Mitra Indonesia.
 - 42 Population and Habitat Viability Analysis of Javan Rhino in Ujung Kulon National Park - Indonesian Institute of Sciences and Fauna and Flora International (LIPI-FFI).
 - 51 Role of Palm Civet in Langkap Invasion of Ujung Kulon N.P. - Biodiversity Conservation Indonesia (BCI)
 - 52 Javan Rhino Food and Faeces - BCI
 - 53 Comparative Study on Langkap Invasion - Bogor Agricultural Univ. (IPB)
 - 54 Analysis of Habitat Utilization of Javan Rhino - Bogor Agricultural Univ. (IBP)
 - 57 Javan Rhino Training Course - Yayasan Mitra Rhino (YMR)
 - 59 Adopt-a-Warden - Submitted by Minnesota Conservation Officers Association
- Substantial inputs from national and international donors for a great number of years including extensive training of all kinds for Park personnel.

Despite this considerable investment and activity,

- There is incomplete information on the size and structure of the rhino population.
- The rhino population has not increased in size for at least a decade.
- Javan rhino continue to be lost to poachers in Ujung Kulon.
- There still are not sufficiently intensive anti-poaching patrols conducted according to an effective schedule with good evaluation of performance or with satisfactory population monitoring techniques.

- Major habitat changes appear to be occurring, including proliferation of vegetation not utilized by the rhino and increase in the population of potentially competing herbivores, especially the banteng.
- The rhino population continues to be subject to the risks that imperil small, isolated or unique, populations, for example epidemic disease, natural disasters, human-caused catastrophes.

The ultimate goal of the conservation program for the Javan Rhino should be to ensure long-term viability. Principles of conservation biology, especially the process of population and habitat viability analysis (*Lacy et al. 1995*), recommend certain target population sizes, distributions and growth rates to avoid the demographic, genetic, stochastic and other environmental risks that confront small and fragmented populations. An earlier PHVA on the Javan Rhino in Indonesia (*Seal & Foose 1989*), the Sumatran Rhino In Indonesia (*Soemarna et al. 1994*) and Malaysia (*in prep, 1997*); the Indian Rhino in India (*Molur et al 1995*); the Black Rhino in Kenya (*Foose et al 1995*); and the Northern White Rhino in Zaire (*in prep, 1997*) have generated a number of major and common conclusions concerning the size, distribution, and growth of rhino populations:

1. Any rhino population under 10 individuals is at high risk of extinction even under ideal conditions.
2. Populations in the range of 10 - 75 individuals may also be at significant risk if threats such as poaching or habitat constraints are operating.
3. To maximize probability of survival under all kinds of risks, individual populations of 100 or more or populations that can be expanded rapidly to 100 or more individuals are advisable.
4. Growth rates of 5%/year seem desirable for population to be able to sustain itself or recover from periodic losses.
5. To avoid the risks of having "all the eggs in one basket", at least 5, or better more, populations of 100 or more individuals are recommended for rhino species or subspecies.
6. For long-term viability, a total metapopulation (i.e., the individual populations that are managed or interact collectively) of 2,000 - 3,000 individuals is highly desirable.

Since the biological parameters and to some extent the risks are similar for all rhinoceros species, these previous PHVA analyses provide a good foundation for conservation recommendations on the Javan rhino.

The current size and distribution of both the Indonesian (*Rhinoceros sondaicus sondaicus*) and the Vietnamese Javan Rhino (*Rhinoceros sondaicus annamiticus*) are far from these target goal recommendations.

Therefore, it seems critical that there be some attempt to develop a more effective, integrated and coordinated plan for Javan Rhino conservation in Ujung Kulon.

ORIGINATION AND OPERATION OF THE COLLOQUIUM

Discussions among PHPA, the AsRSG, and the USFWS generated the concept of a colloquium to assemble the parties that are actually or proposing to be operative in Javan rhino conservation to discuss relative needs and interests and produce an ad hoc plan that would:

- affirm priorities;
- propose specific actions;
- identify parties who would implement actions thereby coordinating and reconciling the various initiatives and interests;
- develop a work plan and time table.
- consider mechanisms for long-term financial sustainability of Javan rhino conservation in Ujung Kulon.

The colloquium included:

- An opportunity for each participant individual, institution, and organization to present a statement of their activities and interests.
- Working Group sessions which produced draft reports.
- Intensively facilitated plenary sessions wherein consensus was developed on a draft plan for conservation action plan formulated during the meeting from the Working Group reports.

An Editorial Team drafted the final plan, which will be submitted formally to PHPA for their endorsement. The document will be available to organizations and institutions interested and involved in support of conservation for the Javan Rhino in Ujung Kulon.

Anticipated Benefits and Outputs of the Colloquium therefore are:

- A more effective and coordinated action plan for Javan rhino conservation in Ujung Kulon.
- Better guidance for funding agencies in assessing priorities and proposals.
- Motivation for the formation of a Consortium of Parties involved with Ujung Kulon.

Personnel and Organizations Involved

The colloquium is a collaborative effort among the PHPA, Ujung Kulon National Park, the IUCN/SSC Asian Rhino Specialist Group (AsRSG) and YMR (Yayasan Mitra Rhino - Foundation of Rhino Friends). Major financial support for the Colloquium is being provided by a grant (Contract Number 14-48-98210-97-G27) from the Rhino and Tiger Conservation Fund of the United States Fish & Wildlife Service. The International Rhino Foundation (IRF) is providing financial and administrative back-up.

AsRSG is coordinating the GEF Project on Sumatran Rhino Conservation for UNDP. The AsRSG maintains an office in Indonesia. The International Rhino Foundation acts as the official financial agent for the AsRSG through a Memorandum of Agreement with IUCN and provides AsRSG with program office support. The actual contractor for the Javan Rhino Colloquium Project was IRF.

OBJECTIVES of COLLOQUIUM on JAVAN RHINO & UJUNG KULON

- To assemble all the principle parties involved or interested in conservation efforts for the Javan Rhino in Ujung Kulon to better delineate and coordinate interests, activities, needs
- To attempt to arrive at a **consensus plan of action** for conservation of the Javan rhino in Ujung Kulon, that would include:
 - **consensus on goals and objectives;**
 - **affirmation of relative priorities;**
 - **detailed proposals effective actions;**
 - **identification of parties who would implement actions thereby coordinating and reconciling the various initiatives and interests;**
 - **formulation of a work plan and time table.**
 - **consideration of mechanisms for long-term financial sustainability of Javan rhino conservation in Ujung Kulon.**
- To integrate and prioritize various kinds of conservation activities, i.e.:
 - protection
 - management
 - research
- To provide guidance and priorities for funding agencies
- In summary, to advance effective actions to conserve the Javan rhino in Ujung Kulon.

GROUND RULES FOR CONDUCT OF COLLOQUIUM

- The Goal is to Complete a Draft of Revised Action Plan & Recommendations By the End of Meeting.
- Every Problem, Idea, Option, Plan, Belief, Interest, Need Can Be Examined and Discussed.
- Every One Participates as an Equal; No One Dominates.
- Good Intent and Will is Assumed.
- Agreement on Recommendations Will Be By Consensus
- If Consensus Not Available, Dissenters Can Submit Written Minority Opinions for Inclusion in Workshop Report.
- There will be No Change in Recommendations After Consensus with Minority Opinions Accepted at Workshop.
- Facilitators Can Call a "Time Out".
- Process and Schedule Will Be Adjusted to Achieve the Goals and Objectives.

COLLOQUIUM EDITORIAL PROCESS

The editorial process of the Report and Recommendations of the Workshop has consisted of:

- (1) formation at the Colloquium of the Editorial Committee which conducted an initial meeting at the conclusion of the Colloquium;
- (2) production by Editorial Committee Co-Chairs Foose and van Strien of an initial draft which was draft circulated to all Editorial Committee members for review;
- (3) feedback from the Editorial Committee to Foose and van Strien;
- (4) production by Foose and van Strien of a second draft incorporating the feedback from other Editorial Committee members;
- (5) a final meeting of most members of the Editorial Committee to review the second draft and produce a final version;
- (6) production of the final Report and Recommendations by Foose and van Strien.

CONSORTIUM DEVELOPMENT

The Colloquium succeeded in its objective assembling virtually all of the important parties involved and interested in conservation of Javan rhino in Indonesia as well as many of the key persons from Vietnam. From this foundation, which extended an earlier workshop conducted by IBP, a consortium (BAKUL) has been formed concerning the Javan rhino in Indonesia to continue the communication, cooperation, and coordination among the parties.

ORGANIZATION / Name	Function
Directorate General Forest Protection and Nature Conservation (PHPA)	
Dwiatmo Siswomartono	Director Flora & Fauna Conservation & Nature Reserves. Indonesian Rhino Conservation officer. <i>Convener</i>
Pudji S. Pratjihno	Division of Flora & Fauna Conservation
Ujung Kulon National Park (TNUK)	
Agoes Sriyanto	Kepala (Head)
Tedi Sutedi	Chief of Programming Section
Djarkasih	Species Conservation Specialist
UNDP/GEF Sumatran Rhino Conservation Project	
A.A. Hutabarat	Project Manager.
Muniful Hamid	National Field Operations Consultant
Dadan D. Subrata	Administration
IUCN/SSC Asian Rhino Specialist Group (AsRSG)	
Mohd Khan bin Momin Khan	Chairman. <i>Co-convener</i>
Effendy Sumardja	Deputy Chairman
Nico van Strien	Program Officer. <i>Facilitator</i>
International Rhino Foundation (IRF)	
Thomas J. Foose	Program Officer AsRSG/IRF. <i>Project Manager and Facilitator</i>
U.S. Fish & Wildlife Service Rhino and Tiger Conservation Fund (USFWS)	
Fred Bagley	Program Officer
Indonesian Center for Reproduction of Endangered Wildlife (ICREW)	
Jansen Manansang	Director. <i>Facilitator</i>
Yayasan Mitra Rhino (YMR)	
Haerudin R. Sadjudin	Program Officer. <i>Facilitator</i>
Neulis Kurniasih	Administration
Shanty Mullydianthi	Administration
Bogor Agricultural Institute (IPB)	
E.K.S. Harini Muntasib	Teamleader Javan Rhino Habitat Management Project
Haryanto R. Putro	Teamleader Langkap Project
Biodiversity Conservation Indonesia (BCI)	
Kuswandono	Staff
Widodo Prayitno	Staff
Lembaga Alam Tropika Indonesia (LATIN)	
Tri Nugroho	Social Conservation
Sarifudin	Staff
WWF-Indonesia	
Ron Lilley	Species Conservation Program
Nazir Foead	Javan Rhino Research Program
Darmawan Liswanto	Species Conservation Program
Minesota Zoo, Adopt-A-Park Program for Ujung Kulon	
Ronald Tilson	Director Conservation
American Association of Zoo Keepers (AAZK)	
Patty Pearthree	Coordinator Bowling for Rhinos
Adopt-A-Warden Minesota Conservation Officers Association	
Gary Westby	Project Leader

LIST OF PARTICIPANTS TO JAVAN RHINO COLLOQUIUM 1-3 JULY 1997

ORGANIZATION / Name	Function
Yayasan Alam Mitra Indonesia (ALAMI)	
Chairul Saleh	Staff
Tatang Mitra Setia	GEF Community Outreach Consultant
Sumatran Rhino Sanctuary Project (SRS)	
Marcellus Adi C. T. R.	Curator
Rhino Trust	
Anne Merz	Founder
Flora and Fauna International (FFI)	
Mark Rose	Director
Indonesia Institute of Science (LIPI)	
Jito Sugarjito	Coordinator LIPI/FFI Indonesia Program
Gono Semiadi	Staff
USAID Indonesia Mission	
Holly Ferrette	Rural Environmental Management Office
Ketut Djati	Protected Areas and Biodiversity Conservation Program
Indonesian Wildlife Fund (IWF)	
Erizal A.M. Zuhud	Representative
Wanawisata, Ujung Kulon ecotourism operator	
Wardono Saleh	Director
Vietnam delegation	
Nguyen Nhu Phuong	Nature Reserve and Environment Unit, Head
Nguyen Xuan Dang	Fauna Unit, Head
Vu Ngoc Lan	Cat Loc Nature Reserve, Director
Do Quang Tung	Vietnam GEF Project Office
Resource persons	
Widodo S. Ramono	Rhino Specialist and former Indonesia Rhino Conservation Officer
Tony Sumampau	Taman Safari Indonesia, Director
Iswanthi Prastyani	Taman Safari Indonesia
Daniel Walter Sinaga	Leuser Development Program
Dwi Sutantohadi	Coordinator Kerinci-Seblat NP, GEF Sumatran Rhino Project
Arief Rubianto	Coordinator Way Kambas NP, GEF Sumatran Rhino Project
Hariyo T. Wibisono	Coordinator Bukit Barisan Selatan NP, GEF Sumatran Rhino Project
Mal Clarbrough	Former Park Management Adviser, New Zealand Government
Sjamsuddin Joeda	Balai Karantina Hewan - DEPTAN
Catherine Bloxam	Bristol University\IPB Sumatran Rhino Survey
James Burton	Bristol University\IPB Sumatran Rhino Survey
Waldemar Hasiholan	Bukit Barisan Selatan N.P., Chief of Programming. Section
Greg Breining	Minnesota Conservation Officer
Robert R. Boehlke	Minnesota Conservation Officer
Dan Scheren	Minnesota Conservation Officer
Douglas Sandstrom	Minnesota Conservation Officer
Michael Doubet	Minnesota Conservation Officer
Donald Slinger	Minnesota Conservation Officer
Shantini Dawson	Conservation Consultant, Vietnam

TUESDAY - 1 JULY 1997, Morning

08:00 - 09:00	Registration
09:00 - 10:00	Opening & Overview - Chairman: Dwiatmo Siswomartono
09:00 - 09:15	Opening Address by Director General PHPA - Dwiatmo Siswomartono on behalf of Ir Soemarsono
09:15 - 09:35	Priority Actions to Conserve the Javan Rhino in Ujung Kulon National Park - Agoes Sriyanto
09:35 - 09:50	Review of Javan Rhino Action Plans in Indonesian Rhino Conservation Strategy and AsRSG Action Plan - Dwiatmo Siswomartono & Nico van Strien
09:50 - 10:00	Objectives and Groundrules of Colloquium - Mohd Khan & Tom Foose
10:00 - 10:30	Coffee/Tea Break
10:30 - 13:00	Interest/Activity Group Presentations - Chairman: Tom Foose
	Population and Ecological Status of Javan Rhino:
10:40 - 10:50	Recent Census - Agoes Sriyanto
10:50 - 11:00	Useful Insights from Recent Sumatran Rhino Photo Census in Way Kambas - Ron Tilson (in absence of Bastoni and Neil Franklin)
11:00 - 11:10	Fecal DNA Population Monitoring Techniques & Research - Nazir Foad
11:10 - 11:20	Javan Rhino Ecology - Haerudin R. Sadjudin
11:20 - 11:35	Recent Javan Rhino Habitat Status and Trend - Harini Muntasib & Haryanto R. Putro
11:35 - 11:45	Dietary Overlap Between Javan Rhino & Other Herbivorous Animals in Ujung Kulon - Jito Sugarjito
	Protection
11:45 - 11:55	Relevance of Experience from GEF Rhino Conservation Project - Muniful Hamid, Dwi Sutantohadi, Hariyo Wibosono, Arief Rubianto, & Philip Wells
11:55 - 12:00	Suggestions for Intensified Rhino Protection Units (RPU) & Activity in Ujung Kulon - A.A. Hutabarat
12:00 - 12:10	AsRSG proposal for a Javan Rhino Sanctuary in Ujung Kulon - Nico van Strien
	Training
12:10 - 12:20	YMR Programs & Plans - Haerudin Sadjudin
12:20 - 12:30	Minnesota Conservation Officers Adopt a Warden Program & Plans - Gary Westby
	Community Relations
12:30 - 12:40	LATIN - Programs and Plans - Tri Nugroho
12:40 - 12:50	ALAMI Programs and Plans - Chairul Saleh
	Javan Rhino in Vietnam
12:50 - 13:00	Javan Rhino Conservation in Vietnam - Nguyen Nhu Phuong et al.
13:00 - 14:00	LUNCH

TUESDAY - 1 JULY 1997, Afternoon

Support Programs

- 14:00 - 14:10 Minnesota Zoo Adopt-A-Park, Ujung Kulon Program - Ron Tilson
- 14:10 - 14:20 American Association of Zoo Keepers, Program - Patty Pearthree
- 14:20 - 14:30 USFWS Rhino & Tiger Conservation Fund - Fred Bagley
- 14:30 - 16:30 *Plenary Session to Identify Major Problems, Objectives & Priorities and to Assess What Is Known and What Needs To Be Known Emerging From Previous Action Plans & Programs - Facilitated by Jito Sugardjito & Nico van Strien*

Examples of possibilities include:

- Census of Rhino Numbers
- Intensified Protection of Rhinos
 - Rhino Protection Units (RPU's)
 - Facilities & Equipment
 - Training
- Habitat
 - Status, Change & Management
 - Numbers of Banteng & Other Herbivores & Their Impact on Rhino
- Carrying Capacity for Rhinos
- Population and Habitat Viability Assessment (PHVA) Considerations:
 - Target Population Size for Ujung Kulon
 - Establishment of a Second Population of Javan Rhino in Indonesia.
- Creation of Rhino Sanctuary within Ujung Kulon
- Community Interactions

16:30 - 17:00	Coffee/Tea Break
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17:00 - 17:30 *Formation of Working Groups in Major Areas of Problems, Priorities. Facilitator A.A. Hutabarat. Haryanto Putro & Tom Foose*

17:30 - 19:00 Working Group Sessions

19:00 - 20:00	DINNER
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WEDNESDAY - 2 JULY 1997

08:00 - 10:00 Continued Working Group Sessions

10:00 - 10:30 Reports of Working Groups - Chairman Haerudin Sadjudin

10:30 - 11:00	Coffee/Tea Break
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11:00 - 13:00 *Plenary Session to Develop First Draft of Revised Action Plan for Javan Rhino in Ujung Kulon - Facilitators Dwiatmo Siswomartono, Nico van Strien & Tom Foose*

13:00 - 14:00	Lunch
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14:00 - 16:00 Working Group Sessions.

16:00 - 16:30	Coffee/Tea Break
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16:30 - 17:00 Discussion of Possible Coordination of Indonesia and Vietnam Programs for Javan Rhino - Facilitators Fred Bagley & Shantini Dawson

17:00 - 19:00 *Plenary Session to Develop Second Draft of Revised Action Plan for Javan Rhino in Ujung Kulon - Facilitators Dwiatmo Siswomartono, Nico van Strien & Tom Foose*

19:00 - 20:30	DINNER
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THURSDAY - 3 JULY 1997

08:30 - 10:00 *Plenary Session to Formulate Third Draft of Action Plan with Schedule of Actions, Actors, Budgets, Resources, Commitments: Facilitators Dwiatmo Siswomartono, Nico van Strien & Tom Foose*

10:00 - 10:30	Coffee/Tea Break
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10:30 - 12:30 *Consensus Adoption and Finalization of Action Plan for Javan Rhino in Indonesia with Possible Recommendations also Relating to Vietnam - Facilitators Dwiatmo Siswomartono, Nico van Strien & Tom Foose*

12:30 - 13:00 CLOSE

13:00 - 14:00	LUNCH
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14:00 - 17:00 *Working Session of Report Production Committee to Prepare Final Recommendations and Report Adopted in Meeting.*

KEYNOTE ADDRESS

DIRECTOR GENERAL OF FOREST PROTECTION AND NATURE CONSERVATION, MINISTRY OF FORESTRY, INDONESIA ON THE OPENING OF COLLOQUIUM OF JAVAN RHINO, SAFARI GARDEN HOTEL, CISARUA-BOGOR, INDONESIA, BOGOR 1-3 JULY 1997

Distinguished participants, ladies and gentlemen.

First of all, let us thank God-The Almighty for his blessing, so that we could be here to day to participate in the Colloquium of Javan Rhino at the Safari Garden Hotel, Cisarua Bogor.

Ladies and gentlemen,

We have learned that development is a continuing process that requires the availability of resources. Thus, the resources such as flora and fauna shall be sustained by considering the scale of priority in utilizing them. As one of the Seven Megadiversity Countries in the world (M7), Indonesia realizes that such diversity is an essential requirement for its development program.

Like in other countries (both developed and developing), the acceleration of the destruction of biological diversity has been caused by inappropriate economic policy that leads to over exploitation of natural resources. To reduce this, it is important to formulate policies and strengthen the institution in the areas of in situ conservation in terrestrial and marine protected areas as well as outside protected areas and ex situ conservation such as zoos, safari parks, arboreta and captive breeding centers.

Ladies and gentlemen,

As most of us may know there are two species of rhino in Indonesia. Javan Rhino and Sumatran Rhino. The status of both species is endangered. They are known as key species of biodiversity conservation. Protection of these species will also preserve other wildlife as well as a wide range habitat types for rhinos from coastal to mountains. The population of Javan rhino in Ujung Kulon National Park is estimated at about only 60 individuals. A small population of Javan rhino has also been found in Vietnam recently.

Ladies and gentlemen,

The Rhino Conservation Strategy of 1983 that refers to the National Conservation Strategy guides conservation efforts for these species in Indonesia. The goal of the rhino strategy is to maintain viable populations of rhino in Indonesia and to secure the condition of their habitats.

The action plan of rhino conservation strategy, then, defines the long and short term priorities.

Looking into the priority actions and having the Javan rhino as the main topic for this colloquium, I would like to reiterate several activities for the conservation of the species in Ujung Kulon National Park. Namely strengthening management capacity, increasing the effectiveness of protection system of the NP including patrolling and law enforcement, establishing rhino protection unit, conservation education and awareness program, enhancing ecotourism, extension of the habitat of Javan rhino and research.

Ladies and gentlemen,

Although Rhino Conservation Strategy, action plan and results of research on rhino have been available, there are still more things to be carried out and reviewed.

In this particular event I would like to urge all participants to reconsider that Rhino conservation efforts should address issues of improving the capacity of human resources to protect the species. Though some funding come from international resources, in the foreseeable future we would like to see that Indonesians could be more independent in undertaking these kinds of efforts.

As some results of the ongoing management research are available, I believe some of them are ready to be implemented and some of them are still in need of further deliberations. Respectively I do hope that the results of some research findings such as in habitat improvement and population management shall be adapted for their implementation in the field by applying appropriate and simple field techniques and guidelines. In cases where the final results of the ongoing research are not yet available and to lessen the unforeseen risk, small scale experimental measures can be applied such as in controlling the (suspected) overexpansion of Langkap plants. Other measures that need to be prioritized are education and extension programs followed by law enforcement to reduce poaching, provision of technical guidelines for field staffs, and enhancement of local participation in the management of National Park, which leads to the improvement of local communities's welfare.

Ladies and gentlemen,

As aforementioned, besides Ujung Kulon National Park, a population of Javan rhino also occurs in Vietnam, specifically in Cat Loc Nature Reserve. Some of the management authority officials and the staffs of the Park are together here with us. On behalf of the Government of Indonesia, I would like to welcome you in Indonesia. I do hope that this occasion can provide a forum where we can share information and experience in Javan rhino management.

Finally, I would like to extend my appreciation for the organizer and those who have helped us and made this workshop possible. Again, I also wish you all very much success in your deliberation.

Thank you.

Wass. Wr. Wb.

Soemarsono

Director General of Forest Protection and Nature Conservation.

UJUNG KULON NATIONAL PARK, PRIORITY ACTIONS TO CONSERVE JAVAN RHINO IN UJUNG KULON NATIONAL PARK

Agoes Sriyanto & Tedi Sutedi

ABSTRACT

The Javan Rhino (*Rhinoceros sondaicus*) population in Ujung Kulon National Park has not changed considerably and has leveled off at about 50 individuals over the last twenty years. The population is subject to environment change, habitat destruction, inter-species competition, loss of genetic diversity, epidemic and human disturbance when they live concentrated in a limited area, Ujung Kulon Peninsula.

Management experience suggests that ongoing protection and guarding efforts are not enough to conserve the rhino successfully. Increased attention and efforts are required concerning: their population and natural habitat management; the availability of updated data and information on the entire ecosystem; and comprehensive and systematic research activities on the biology and ecology of Javan rhino. Further management needs tested, systematic, and integrated actions to develop a viable rhino population.

INTRODUCTION

Ujung Kulon National Park is a low land tropical rain forest ecosystem still undergoing succession. The Javan Rhino (*Rhinoceros sondaicus*) is the most important part but is interrelated to the other components of this ecosystem. Hence, all changes of ecosystem due to natural or human activities will affect the existence of the Javan rhino.

Conservation of Javan rhino is considered inadequate at this time. A major problem is insufficient data and information. Moreover, conservation efforts have concentrated only on activities to protect the rhino population and habitat. Experience suggests that systematic and comprehensive research support and tested conservation management actions are badly needed as well for rhino conservation.

Therefore, further Javan rhino conservation must include not only actions for population and habitat protection, but also for population and habitat management indicated by research activities sustain and increase the Javan rhino population at a rate to prevent extinction.

CONSERVATION PROBLEMS

In the execution of Javan rhino conservation, the viability of the rhinos is threatened by some problems as follow :

- a. Distribution of Javan rhinos. They are concentrated on Ujung Kulon peninsula. The peninsula covers only areas of 30,000 hectares. This condition renders the rhino to be vulnerable extinction from a number of various factors: environment change; habitat destruction; intra-species competition; genetic degradation; epidemic diseases; and human disturbance, such as poaching, encroaching, illegal cutting, etc.
- b. Poaching of Javan rhinos. Poaching has decreased over the last decade. However, protection against poaching threat must remain in recognition that illegal trade of rhino horn and other parts still exists. The limited capability of our park guards/rangers to patrol and to prevent poaching of rhino and illegal trade in rhino parts is also a contributing problem for Javan rhino conservation effort.
- c. Succession process and ecological dynamic of the forest. The succession process and ecological dynamic still continues and is complicated by the fast spread of the Langkap species (*Arenga*

obtusifolia) over the peninsula. This fast Langkap distribution can retard the growth of rhino food plants. In addition, decreased quality of habitat in Ujung Kulon peninsula also threatening rhinos preservation seriously.

- d. Grazing areas. Existing grazing areas have yet to be managed well and are used only by small number of Banteng. This condition causes the Banteng to be distributed over the forest constituting rhino habitat and causes competition for space and food between the rhinos and the Banteng threatening the rhinos survival.

PRIORITY MANAGEMENT ACTIONS TO CONSERVE JAVAN RHINO

In consideration of the problems facing Javan rhino conservation, the long-term objectives for the Javan rhino conservation program are:

1. to maintain the Javan rhino population at a size and rate of reproduction which can ensure the long-term survival of the species through conservation management practices.
2. to increase the natural carrying capacity of Javan rhino habitat in Ujung Kulon National Park.

To achieve the objectives, population and habitat monitoring are absolutely required to ensure the availability of updated data and information as the basis for decision making process of the park management. Noting that Ujung Kulon is an island habitat which is still under ecological succession process since the Krakatau eruption in 1883 and which has not yet reached a climax community, ecological dynamics could be dangerous to the survival of the rhino.

As a national park and one of the natural world heritage site, the management of Ujung Kulon does not exclusively deal with Javan rhino but also inclusively with a whole biodiversity management, conservation education and ecotourism development. Within this framework, management actions with many different specific and hierarchized objectives should be formulated and carefully designed to prevent the negative impacts to the Javan rhino survival.

- a. Draft guidelines for Javan rhino habitat management based on Langkap cutting have been formulated and discussed through a workshop held on March 18th, 1997 in Bogor. As far as known, Langkap dominance will decrease the availability of Javan rhino food plant. However, before a large scale implementation of Langkap cutting, there is need of research support concerning : (a) Langkap ecology, both synecology and autecology (under study), including some comparative studies outside Ujung Kulon National Park; (b) Common Palm Civet population and behavior as seed disperser of Langkap in Ujung Kulon National Park; and (c) Increase in data accuracy on Javan rhino population thought improved methodology.
- b. The most recent and on going research carried out by IPB team in collaboration with the park management including : (a) Pilot project on Javan rhino habitat management (FY 1991/1992 - 1996/1997); (b) Langkap invasion and its role in Javan Rhino habitat degradation (FY 1996/1997 - 1998/1999); (c) Competition between Javan rhino and Banteng (FY 1997/1998 - 1999/2000); (d) Javan rhino consensus organized by the park management (FY 1994/1995 - 1996/1997); and (e) Some socio-economic and cultural studies by LATIN and WWF - Indonesia Programme (FY 1991/1992 - 1996/1997), can be used as primary information to formulate some further management actions.

In the final analysis, priority actions to conserve Javan rhino can be formulated as follow :

- a. To update the Population and Habitat Viability Analysis (PHVA) for the Javan rhino to determine proper specific actions and revise Indonesian Rhino Conservation Strategy.
- b. To install automatic climate station in three sites, namely Cidaon/Peucang, Cibunar and Karangranjang. Climate instability could be a strong factor affecting habitat dynamic of Javan rhino.
- c. To formulated a computerized management information system or data base, including a Geographic Information System (GIS) based on systematic monitoring. Considering the present

limitation of human resources in Ujung Kulon National Park, the participation of co-operating organizations is needed for an adequate monitoring system.

- d. To properly manage grazing areas to prevent risk of intensive competition of Banteng with Javan rhino. It is assumed that good quality of grazing areas will attract Banteng and concentrate their population in the grazing areas.
- e. To strengthen the institutional capacity to improve the protection system. A study on ranger commitment and behavior, supported by analysis of poaching history and installation of a semi-automatic or automatic alarm system may be required to improve safeguarding system. It should be noted that increasing incentive is not automatically increase effectiveness of safeguarding against poaching and other illegal activities in the park.
- f. To improve management facilities and equipment.
- g. To develop conservation education materials and nature interpretation tracks.
- h. To evaluate all species present in Ujung Kulon National Park.

The current research projects have performed some important need for future management of Ujung Kulon National Park. However, other research projects of top priority have been identified as follow :

- a. Comparative study of census methods to gain more accurate data on Javan rhino population. Two options were proposed : (1) Increase intensity of camera trapping methods; and (2) Reveal the optimum transect distance in track count methods.
- b. Comparative study on Langkap ecology outside Ujung Kulon National Park. Recommended study sites are : Nias Island, Cikepuh Nature Reserve, Siberut Island and along Rokan River-Riau (one proposal has been submitted to Rhino and Tiger Conservation Fund).
- c. Study on the population and behavior of Common Palm Civet (*Paradoxurus hermaphroditus*) in Ujung Kulon National Park (one proposal has been submitted to Rhino and Tiger Conservation Fund).
- d. Javan rhino genetic mapping as a basis for more accurate population and habitat viability assessments (PHVAs) as well as for establishment of a second population (will be carried out by WWF-Indonesia Programme).
- e. Policy study on Ujung Kulon National Park, especially addressing to clarify the status of Ujung Kulon as a natural world heritage site (ranger commitment and behavior).
- f. Evaluation of Javan rhino ecology and behavior especially resources utilization and movement pattern and fecal analysis (including identification of reproduction status). Observation rhino behavior is proposed to be carried out through canopy track or Rhino sanctuary in small area (two proposal have been submitted to Rhino and Tiger Conservation Fund).

CONCLUSION AND SUGGESTION

1. Conservation of Javan rhino requires not only protection and safeguarding efforts for their population and habitat but also needs pro-active efforts to manage the population and habitat of Javan rhino in a comprehensive and integrated manner.
2. Javan rhino conservation needs support from: better data and information; systematic and comprehensive research; and the integrated, systematic and tested management actions.
3. Priority actions to conserve Javan rhino include updating of Population and Habitat Viability Analysis (PHVA) for Javan rhino with further actions, installing climate stations, computerizing data and information, managing grazing areas property (ranger commitment and behavior), furnishing facilities and equipment, developing rhino conservation education materials and evaluating the present of conserved species.

4. Priority necessary researches to support Javan rhino conservation include study on census method, study on Ujung Kulon ecology, study on population and behavior of Common Palm Civet, mapping of Javan rhino genetic, study on management policy, and evaluation of behavior and ecology of Javan rhino.

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Bogor Agricultural Institute (IPB)**THE DEVELOPMENT OF SCIENTIFICALLY BASED MANAGEMENT OF UJUNG KULON NATIONAL PARK, WEST JAVA**Haryanto R. Putro

FRAMEWORK

Designing a scientific-based management of Ujung Kulon National Park (UKNP) needs appropriate understanding of ecological phenomena, especially concerning the species present and their functions; ecological dynamics in the park; aesthetic and cultural values of the park; and socio-economics and culture condition of people living surrounding the park. Zoning as an important management tool has to be based on a set of data related to the above aspects to ensure that conservation and utilization functions of the park can be harmonized. In addition, strengthening institutional linkages of the park management with other local formal and informal institutions will be the key to management success. Within this framework, IPB programs do not deal only with Javan Rhino. However, programs and plans on Javan Rhino management will be the main focus of IPB until the year 2005 (*see basic framework below*).

OBJECTIVE

Specific objectives of IPB programs on Javan Rhino management are:

1. To the maintain the Javan rhino population at a certain size which can ensure the long term survival of the species through conservation management practices.
2. To the increase natural carrying capacity of Javan rhino habitat in Ujung Kulon National Park.

ONGOING RESEARCH

Research carried out by IPB:

- | | |
|---------------------|--|
| 1991/1992-1996/1997 | <p>Pilot Project on the Habitat Management of Javan Rhino (<i>Rhinoceros sondaicus</i>) in Ujung Kulon National Park, West Java. Funded by Competitive Grant Research "(Penelitian Hibah Bersaing)", Directorate of Higher Education, Ministry of Education and Culture.</p> <p>Research Team: Harini Muntasib (PI), Haryanto R. Putro, Burhanuddin Masy'ud, Dones Rinaldi and Harnios Arief.</p> |
| 1996/1997-1998/1999 | <p>The Ecology of Langkap (<i>Arenga obtusifolia</i>) and Its Roles in Javan Rhino (<i>Rhinoceros sondaicus</i>) Habitat Degradation in Ujung Kulon National Park, West Java. Funded by The Integrated Selective Research (RUT) III, Ministry of Research and Technology.</p> <p>Research Team: Haryanto R. Putro (IPB, PI), Agoes Sriyanto (UKNP) and Soma Trenggana (Bakosurtanal)</p> |

1997/1998-1999/2000

The Competition between Javan Rhino (*Rhinoceros sondaicus*) and Banteng (*Bos javanicus*) in Ujung Kulon National Park, West Java. Funded by Competitive Grant Research "(Penelitian Hibah Bersaing)", Directorate of Higher Education, Ministry of Education and Culture.

Research Team: Harini Muntasib (PI), Haryanto R. Putro, Burhanuddin Masy'ud, Dones Rinaldi and Harnios Arief.

PROPOSED RESEARCH AND ACTION:

Brief Description of Proposed Researches:

1. Analysis of Habitat Utilization of Javan Rhino (*Rhinoceros sondaicus*) in Ujung Kulon National Park, West Java.

This research is aimed determining the spatial aspects of Javan Rhino ecology in Ujung Kulon National Park, especially the habitat utilization by the rhino. This research will be used as the basis of Javan Rhino habitat management.

2. Study on Food and Faecal Content of Javan Rhino (*Rhinoceros sondaicus*) in Ujung Kulon National Park, West Java.

This proposed study aims to look at the faeces content, estimate the digestive capacity and examine the food plant species available for the Javan Rhino. Comparing and analyzing new data with available information from previous research is expected to provide some insight in the estimation of Javan rhino carrying capacity in Ujung Kulon National Park. The research objectives are:

- 2.1. To reveal Javan Rhino food plants species through observation of the fiber fragments in faeces.
- 2.2. To identify the characteristics of vegetation types where the Javan Rhino eliminate faeces
- 2.3. To estimated faeces age based on the value of C/N ratio
- 2.4. To describe Javan Rhino faeces characteristics
- 2.5. To reveal chemical composition of faeces
- 2.6. To estimate Javan Rhino digestive capacity in the wild

3. Comparative Study On Langkap (*Arenga Obtusifolia*) Invasion Within Forest Ecosystems In Java and Sumatera: A Case Study In Ujung Kulon National Park, Cikepuh Nature Reserve, Riau and Nias Island.

Investigations carried out by IPB team in Ujung Kulon National Park provided evidence that Langkap invasion could disturb the forest ecosystem in the park and further could cause degradation of Javan rhino habitat. The invasion of the species in the park has been considered by many researchers, such as Schenkel and Schenkel-Hulliger (1969), Schenkel and Ramono (1978), Amman (1985), Hommel (1983, 1987) and Muntasib, et..al. (1991-1996). However, detailed research specifically aiming to identify the invasion of the species in the park began only in 1996 and will be conducted until 1999. In search of management action alternative of the Langkap invasion in Ujung Kulon National Park, a comparative study on Langkap invasion outside the park should be carried out to identify the nature of biological, ecological and invasive characteristics of the species within forest communities. This research aims to:

- 3.1. Identify the nature of biological, ecological and invasive characters of the species within forest communities outside Ujung Kulon National Park.
- 3.2. Provide strong ecological considerations for Langkap management in Ujung Kulon National Park.

4. The Role of Palm Civet (*Paradoxurus hermaphroditus*) in Langkap Invasion in Ujung Kulon National Park, West Java.

The role of the common palm civet in Langkap seed dispersal has been clearly demonstrated in the previous research, however, the lack of data base on the species has caused the unanswered question: To what extent does the common palm civet play significant roles in Langkap invasion?. This question will be impossible to answer without data on the civet population and ranging behaviour. This research aims to:

- 4.1. Estimate the common palm civet population in Ujung Kulon National Park
 - 4.2. Identify the home range size of the common palm civet in Ujung Kulon National Park
 - 4.3. Map Langkap seed distributed through the civet faeces
 - 4.4. Build a model of Langkap distribution pattern based on the civet faecal dropping
5. Study on Javan Rhino (*Rhinoceros sondaicus*) Behavior Using Canopy Tract Methods and Indirect Observation

Javan Rhino behavior need to be evaluated on the basis of more reliable methods. Canopy tract methods and indirect observation methods will be developed by IPB in this study.

6. The Improvement of Javan Rhino (*Rhinoceros sondaicus*) Census Methods

Two possible improvements of current Javan Rhino census methods are proposed, namely: (1) determining the optimum transect distance in tract count method; and (2) developing a more comprehensive and systematic application of camera trapping. The first will be carried out through a comparative study on four different transect distances (0.5, 1.0, 1.5 and 2 km) at the same time. The second will be carried out through installation of approximately 60 units of camera trap in primary and secondary tract of Javan Rhino. Each camera unit will consist of: Yasicha 109 Programmable camera with normal lens, a lens cap, flashlight, own-designed mechanical sensor, battery and charger and own-designed camera protection cabinet.

Brief Description of Proposed Actions:

1. Implementation of Javan Rhino Habitat Management

Guidelines for Javan Rhino Habitat Management have been formulated by IPB based on 5 years research (1991/1992-1996/1997). Small scale management experimentation is proposed as follow:

- A. Langkap cutting in 5-10 ha area based on spotted-gap or random gap methods.
- B. Planting of Javan Rhino food plant in unproductive habitat and Langkap cutting area.

2. Grazing Ground Management

Minimizing interaction between Javan Rhino and Banteng will directly decrease the possibility of competition between the two large herbivores. Grazing ground management using controlled burning will be implemented to concentrate Banteng population in Ujung Kulon Peninsula.

3. Installation of Automatic Climate Station

Climatic instability could be a strong factor affecting habitat dynamics of Javan rhino. Installation of three automatic climate stations in Cidaun or Peucang, Cibunar and Karangranjang will provide the best description of climate variation in Ujung Kulon Peninsula. No climate measurements are now being collected in Ujung Kulon. The nearest climate station is not representative to Ujung Kulon peninsula. There will also be monitoring of microclimate components at upper and middle canopy, and near ground will also be carried out to provide a data base for the Javan Rhino habitat management actions.

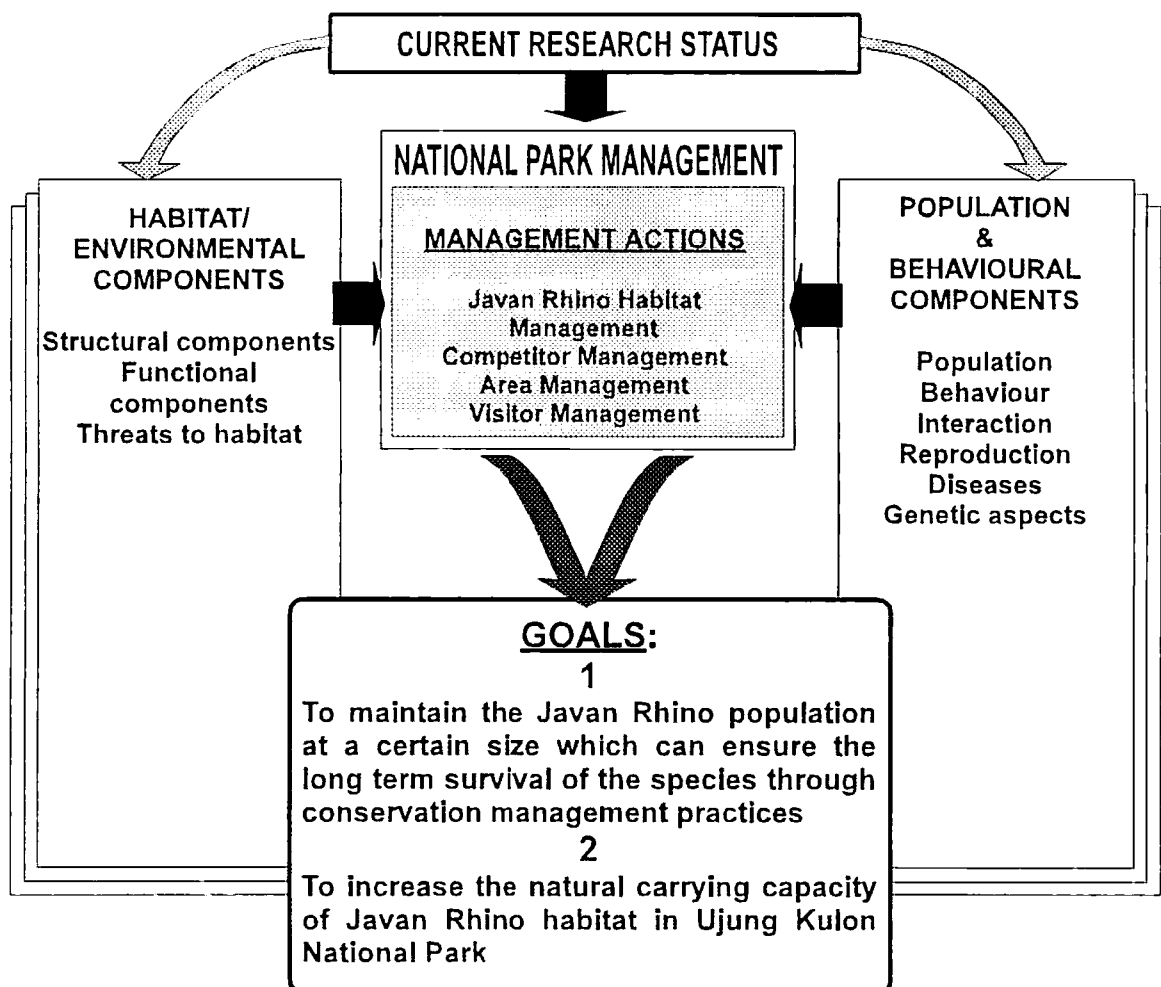
4. Participative Human Resource Development

The UKNP manager is now lacking human resources with appropriate capabilities for analysis of problems related to Javan Rhino and National Park management. IPB in collaboration with BCI will provide two qualified persons who will stay in Taman Jaya to help the head of UKNP in the decision making process.

5. Development of Computerized Data Base

IPB will develop a computerized data base, both for spatial and attribute data, to support the UKNP manager in decision making. Vegetation mapping with special emphasis on Langkap distribution is now in process. Additionally, a GIS approach will be applied for important national park features, including plant and animal distribution.

THE DEVELOPMENT OF SCIENTIFIC-BASED MANAGEMENT OF UJUNG KULON NATIONAL PARK, WEST JAVA



Adopt-A-Warden Minnesota Conservation Officers Association**“WARDENS HELPING WARDENS AROUND THE WORLD”**

Gary Westby

Interests

Minnesota Conservation Officers are interested in the conservation management and protection of natural resources. Officers are becoming increasingly aware of their global inter-relatedness and responsibilities for the sustainability of our world's resources and in this case specifically the Javan Rhino. Conservation officers have developed a kinship, a mutual respect for comrades who choose to protect these natural resources, often at the expense of their own lives and welfare. Within Minnesota and throughout North America thousands of conservation officers exchange information and support in order that they might assist each other in their pursuit of their common goals. We are interested in making the game wardens of Indonesia and specifically the park guards of Ujung Kulon aware that by mere virtue of their choice of occupation and endeavors, that they inherently are members of this same fraternity. We believe we can help guards of Ujung Kulon deter poaching by supporting them with equipment, training and encouragement. We would like to help to develop an understanding of their important role in their countries environmental future. In return we will cultivate a mutual appreciation of our diverse cultures and an awareness that our unique environmental issues may not be as unique as we once thought.

Objectives and Initiatives

- * To help equip and train park guards according to the needs and priorities defined by the park personnel so they can effectively deter poaching and protect the natural habitat of the Javan Rhinos and all the other plants and animals.
- * To provide encouragement and improve the stature and respect for park guards.
- * To promote a system that will lead to self reliance i.e. ecotourism, legalized hunting and education.
- * To establish an ongoing program of joint training/patrol missions each year.
- * To establish the necessary system of equipment delivery and accountability.
- * To pursue with our Indonesian counterparts and other organizations methods for developing culturally appropriate education programs that will not only support conservation methods but enhance their local economies.
- * To promote understanding of our cultures, their diversities as well as our many similarities.

Activities

Conservation Officers have supplied hand cuffs, radios, backpacks, furniture and first aid materials. They have participated in joint patrols with park guards. Officers have conducted training in radio and hand cuffing procedures, officer safety training, defensive tactics training and first aid. Funds associated with the Rhinoceros and Tiger Conservation Fund will provide for one sixteen to eighteen foot patrol boat fully equipped, park guard patrol items, one water well, handcuffs, radios, and transportation costs for training officers and educational specialists and support staff. Future instruction can be offered in additional defense tactics, pain compliance, mace, knife defense, navigation, first aid, interview and interrogation, and watercraft operation. Extensive training could be

offered in the use of firearms if permission was secured from the Indonesian Government. Our project has generated considerable publicity because of its grass roots nature. It is a unique effort of field wardens helping field wardens with the assistance of citizens. People appreciate this basic effort in conservation. The program has been featured in scores of newspaper articles and radio shows. We have conducted slide presentations in schools, churches, civic and sportsman's groups. We have financed our previous efforts through fund raisers and private donations. The Safari Club International has been our most generous supporter.

The Minnesota Indonesian Society has been a long time supporter as well as the American Museum of Asmat Art, American Association of Zoo Keepers, the Minnesota Zoo and the Minnesota Department of Natural Resources. A most recent development is the expressed interest from the children of the schools where we have given slide presentations. They are requesting more information from children from Indonesia. They would very much like to communicate with children from Ujung Kulon and develop friendships. The recently formed Gamelon Society of Minnesota is eager to participate in this need for cultural exchange.

Resources

Minnesota and North America have excellent training officers, radio technicians and contacts for supplies and equipment. We have access to an ever expanding communication network. The program has generated enormous enthusiasm and desire for participation from a variety of sources.

Needs

- Long term financial support
- To develop a system of accountability to ensure continual participation by past and future contributors
- Assistance with expediting equipment shipments, i.e. mining companies
- Facilitate the exchange of cultural information and developing friendships between children of our countries.
- Interpreters, guides and transportation
- Facilitate/promote the concept of park guards traveling to Minnesota for training and promotional efforts.

Lembaga Alam Tropika Indonesia (LATIN)**COMMUNITY-BASED JAVAN RHINO CONSERVATION****Tri Nugroho**

Issues of Javan rhino conservation have been growing and attracting attention since the end of 1980s. The existence of the Javan rhino population seems to be at risk in Ujung Kulon National Park. This leads to proposal of how to reproduce them in other places.

At the end of 1991, LATIN tried to do an overview on Ujung Kulon National Park to figure out in detail the Javan rhino conservation-related problems. LATIN then found that the social economic issues are the most important aspects to be considered in the Javan rhino conservation in future.

LATIN at first hesitated to become involved in following up the findings as it was a newly-established NGO without well capacity and experience. Considering that there is still lack of research and studies on social and economic aspects of the Javan-rhino conservation, LATIN started following up the findings by carrying out an in-depth study on social economic issues in Rancapinang Village. It was the benchmark of LATIN to take part in efforts of the Javan rhino conservation in Ujung Kulon National Park by conducting a project of Community-based Javan Rhino Conservation.

The main objective of this project was to establish and/or develop a condition where there is a harmonious relationship between local people and the national park. It was found that the interaction existing so far was not balanced. It tended to disturb processes of the ecosystem balance which eventually threatened the habitat of the Javan rhinos either directly or indirectly.

In a broader context, harmonization of the interaction is the most important prerequisite for maintaining the interaction processes themselves which have to be mutual, in balance and sustainable. Eventually the interaction harmonization does not only guarantee the Javan rhino conservation and even their reproduction in long term, but also support objectives of the national park management in general.

Yayasan Alam Mitra Indonesia (ALAMI)**CONSERVATION EDUCATION FOR LOCAL COMMUNITY
AT UJUNG KULON NATIONAL PARK**

Chairul Saleh

Alam Mitra Indonesia (ALAMI) Foundation is a non governmental organization which was established on September 1994. This organization was founded to assist the government in obtaining information including data in order to formulate the strategies on the management of the natural resources in Indonesia.

GOAL

To develop and increase the participation of the people in striving for conservation and sustainability of the natural resources in Indonesia.

OBJECTIVES

- To collect ideas, opinions and information to increase the conservation work and utilization of the natural resources.
- To provide information and ideas to the government to be considered in deciding the Indonesian policy on the sustainability management of the natural resources.
- To provide assistance in proposing the ecotourism development programs in Indonesia.
- To disseminate information on natural resources and conservation in Indonesia.

COMMUNICATION, INFORMATION AND EDUCATION PROGRAM

In order to succeed the aims of this organization's program will be carried out through good networking and collaboration with the NGOs and institutions, both nationally and internationally, concerning the activities of natural resources and conservation. All information and results of research which are collected would be disseminated through the Seminars, Symposia, Workshops, Scientific and popular journals press conference as well as electronic media. Education about conservation will be part of an ecotourism training center program.

WILDLIFE RESEARCH PROGRAM

A wildlife research program is being conducted on biodiversity independently or in collaboration with national or international institution. The members of the organization have expertise in Ethology, Forest and Aquatic Ecology, Education and Ecotourism. Planning and conducting ecotourism program and making video movie on wildlife and conservation.

SEVERAL WORKS THAT HAVE BEEN DONE BY ORGANIZATION ARE AS FOLLOWS:

April 1995 : Training and Education Conservation Program at Alam Dharmapala Nature Club Akademi Pimpinan Perusahaan (APP), Jakarta.

- May 1995 : Collaboration with WWF Indonesia Program for Training of Local Guides at Taman Jaya, Ujung Kulon National Park.
- July 1995 : Collaboration with Taman Safari Indonesia (Indonesia Safari Garden) for Education Conservation.
- July 1995 - present : Consortium ALAMI-Bogor Agricultural Institute (IPB)- Wildlife Preservation Trust International (WPTI) preparing environmental education for teachers.
- August 1995-present: Consortium ALAMI-Conservation International (CI)-Gunung Gede Pangrango National Park- Pinaesaan Bank for designing and establishing The Conservation Education and Training Center at Gunung Gede Pangrango National Park (GGPNP), Bogor. The partnership is promoting the park as a site for training, education, and for developing environmentally sound microenterprises in the community surrounding GGPNP.
- October 1995-present: Collaboration with Directorate General of Forest Protection and Nature Conservation (PHPA)-GEF-UNDP Project, and Yayasan Mitra Rhino (Foundation of Rhino Friends), as a Consultant of Community Outreach Program, Sumatran Rhinoceros Conservation, in Bukit Barisan Selatan National Park and Kerinci Seblat National Park.
- June 1996 : Training for Conservation and Ecotourism Guide Program for community surrounding Gunung Halimun National Park. Collaboration with Biological Science Club (BScC) and BCNÆ16.
- August 1996 : Publishing Guide Book: How To Guiding Ecotourism In Indonesia, collaboration with Indonesian Ecotourism Network (INDECON).

Minnesota Zoo's Adopt-A-Park Program

UJUNG KULON NATIONAL PARK PROGRAM

Ronald Tilson

The Adopt-A-Park program is an *in situ* conservation initiative of the Minnesota Zoo, located in Ujung Kulon National Park, that operates at the invitation of the Directorate general of Forest protection and nature conservation (PHPA). The goal of the program is to provide assistance directly to Ujung Kulon staff to enable them to be more effective in their role as primary stewards of the park.

The idea of a zoo conservation partnership with Indonesia originated at an IUCN Species Survival Commission meeting for Indonesian rhinos in 1989. An unpublished report on Javan rhinos in Ujung Kulon concluded that "the most critical conservation issue in the park [is] the lack of a communication and transportation system necessary for effective anti-poaching activities by park staff." This need formed the impetus for the Minnesota Zoo to develop its Adopt-A-Park initiative. The program was launched in September 1990 when the zoo entered into an agreement with PHPA to work together to protect the ecological stability of Ujung Kulon National park. Priorities for programs, equipment, and guard post improvements are set exclusively by the Chief of the Park and his staff, and all projects supported by the Adopt-A-Park program are approved and administered by them. After discussions of park needs with PHPA, this focused on providing them with improved transportation and communication links, better housing and equipment, and training in law enforcement.

In the first three years, Adopt-A-park funds were used for transportation and communication links for park staff by purchasing two diesel marine engines and ordering a boat to be built locally (christened *The Minnesota*) to ferry park staff and supplies to remote guard posts, canoes for patrolling inland rivers, field bikes for patrolling roads on the eastern side of the park (where the peninsula connects with the mainland) and elements of a field communication system (to-way radios, antennas, cables, batteries, and solar power generators) for several guard posts.

In the second and third years, in partnership with the New Zealand Department of Nature Conservation with some support from the World Wildlife Fund (WWF) Indonesia Programme, the program focussed on the renovation or construction of more modern guard posts (including living quarters and office space for three or four guards, water well, water tower, toilet and bath, information signs, and solar-powered two-way radios). New conservation partnerships were begun in 1994 with the American Association of Zoo keepers (AAZK's) *Bowling for Rhinos* program and the Minnesota Conservation Officer's *Adopt-A-Warden* program. The program will continue until the rhinos are considered safe.

To date, the Adopt-A-park program has funded projects and donated equipment to Ujung Kulon valued at about US\$ 150,000. In the last two years, this has included: the construction of two guard posts, one of which serves a visitor information center at the edge of the park; the renovation of six other guard posts or wells; a new hull for the *Minnesota*, and a second larger PHPA boat (named the *Minnesota II*).

The participating conservation organizations besides the Minnesota Zoo and their contributions are listed below:

AAZK *Bowling for Rhinos*

- In 1995, the American Association of Zoo Keepers (AAZK) *Bowling for Rhinos* donated \$ 6,475 to Ujung Kulon National park to construct a well, pump, and water tower at the Karangrangjang guard post,

- In 1996, the AAZK *Bowling for Rhinos* donated another \$ 20,600 used for completion of a second PHPA boat.
- For 1997, the AAZK has donated \$ 49,250 to improve the radio communication system for park guards and other projects to be decided upon.

Minnesota Conservation Officers (MCOA)

- In 1994, the Minnesota Conservation Officers (MCOA) donated 14 reconditioned hand-held radios, complete with rechargeable batteries, chargers, speakers, and cords, and carrying case (valued at \$ 3,500 plus \$ 400 shipping by the Minnesota Zoo's Adopt-A-Park program).
- In 1995, the MCOA donated eight reconditioned mobile radio units to Ujung Kulon as part of their Adopt-A-Warden program (valued at \$ 4,000 plus \$ 800 shipping by the Minnesota Zoo's Adopt-A-Park program).
- In 1996, the MCOA provided law enforcement training for all park guards and rangers, and equipment donations of two mobile and four hand-held reconditioned radios and handcuffs were presented (valued at \$ 1,500 plus \$ 250 shipping by the Minnesota Zoo's Adopt-A-Park program). An additional donation of \$ 2,000 from the MCOA was also presented to Ujung Kulon park guards to purchase backpacks.

International Rhino Foundation (IRF)

- In 1995, the International Rhino Foundation (IRF) contributed \$ 3,750 (from the Chicago Zoological Society, the Los Angeles Zoo, and the Greater Baltimore Chapter of the American Association of Zoo Keepers) to Ujung Kulon National Park to complete construction of the PHPA boat.

Rhino Trust

- In 1996, the Rhino Trust transferred \$ 400 from the American Zoo Docents Association to the Adopt-A-park Project at Ujung Kulon National Park.
- In 1997, the Rhino Trust donated another \$ 1,500.

American Association of Zoo Keepers (AAZK)**Patty Pearthree**

Interests

The American Association of Zoo Keepers (AAZK) is interested in providing financial support to Ujung Kulon in order to allow for the protection of Javan rhinos in the wild. We rely on the staff of Ujung Kulon and Adopt-A-Park Program to inform us of the priority needs at the park and then we cover as many of these needs as our funds allow.

Objectives

AAZK strives to have 100% of monies raised through BFR (Bowling For Rhinos) used directly in the field on top priority projects that save rhinos and their habitat.

Intentions

This is a long term commitment that we intend to support as long as the funds are still needed and used properly.

Activities

AAZK began raising funds to support Ujung Kulon in 1994. \$5,000 US was sent to Ujung Kulon in 1994, \$6,475 in 1995, \$20,600 in 1996 and \$49,250 in 1997. This was a total of \$81,325 US funds.

These funds have been used to:

- Purchase hand held radios for park guards (1994 funds)
- Paid for a well, pump and water tower at the Karangranjang guard post (1995 funds)
- Completion of a new patrol boat (1996 funds)
- Plans are being finalized for the use of 1997 funds but part of these funds will be used to purchase more radios.

Resources (financial / technical)

AAZK raises funds through a National "Bowl-a-thon" held in 50-60 locations throughout the US and Canada March- July of each year. This raises \$100-150,000 annually. AAZK supports 3 parks. The first \$100,000 goes to the Lewa Wildlife Conservancy in Kenya. Any amount raised above \$100,000 each year is split between Ujung Kulon and Bukit Barisan Selatan National Park in Sumatra (through the IRF). Funds are raised during one season and then are sent to respective locations during the following year. This means funds raised during the 1997 Bowl-a-thon may not be distributed to Ujung Kulon and Bukit Barisan until as late as March of 1998.

AAZK can provide parks with personnel to care for rhino in semi- captive situations if the need arises.

Needs

AAZK has signed Memorandums of Understanding with The Adopt-A-Park Program. We provide financial assistance as long as AAZK is provided with the proof that these funds are being spent as specified. AAZK would like to be provided with slides to show progress of projects to the Association at National meetings held each September / October.

Rhinoceros and Tiger Conservation Fund, U.S. Fish and Wildlife Service**Fred Bagley****Mission**

The Rhinoceros and Tiger Conservation Fund (RTCF) supports conservation programs of nations whose activities directly or indirectly affect rhinoceros and tiger populations.

Despite protection under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the national laws of many countries whose activities affect tigers and rhinoceros, these species continue to decline throughout much of their range. Concern over dramatic reductions in their populations prompted increased support for their protection in the U.S. Congress throughout the 1980's and early 1990's. During this time period, the Congress utilized CITES as a mechanism to employ stricter controls on the sale and trade of rhinoceros and tiger products.

In 1994 the U.S. Congress passed the Rhinoceros and Tiger Conservation Act to provide financial resources, through the Rhinoceros and Tiger Conservation Fund (RTCF), for conservation programs of nations whose activities affect rhinoceros and tiger populations. The U.S. Fish and Wildlife Service's Office of International Affairs now works with other collaborators within and outside the Service to coordinate disbursement of RTCF funds through a small grants program.

The objective of the Service in this program is to increase conservation of rhinoceros and tigers through strengthening habitat/ecosystem management; surveys and monitoring; conservation education; wildlife inspection, law enforcement and forensic skills; protected area/reserve management; sustainable development in buffer zones surrounding tiger/rhinoceros habitat; management of human behavior and livestock to decrease conflicts with tigers/rhinoceros; and use of substitutes for tiger/rhinoceros products in oriental medicine. Grantees include natural resource agencies in Asia and Africa, and range country and international nongovernment organizations.

The funds financial resources are appropriated by the U.S. Congress annually. Approximately \$600,000 was available for the first funding cycle which is now nearing completion. The amount of funding available will vary from year to year according to the appropriations of Congress.

Utilizing approximately \$600,000 in fiscal year 1996/97 funding the RTCF has done the following:

- Supported the training and equipping of anti-poaching patrols at Indonesia's Way Kambas National Park to protect a newly discovered population of the Sumatran rhino;
- Provided equipment for use in law enforcement by forest guards at Way Kambas;
- Contributed to development of the infrastructure for the Sumatran Rhino Sanctuary at Way Kambas;
- Supported a conservation education program for villagers living near Sumatran rhino habitats in Sabah, Malaysia;
- Provided equipment, through the Adopt-A-Warden program, to forest guards to strengthen their ability to thwart poaching of Javan rhino at Ujung Kulon National Park and supported planning efforts to identify critical conservation needs for the species;
- Strengthened Indian rhino conservation efforts in Assam by providing field equipment (sweaters, boots, backpacks, raincoats and walkie-talkie radios) to forest guards protecting rhinos;
- Supported conservation education programs in Assam to better inform villagers of the need to conserve rhinos and assist in the anti-poaching effort;
- Funded efforts to strengthen prosecution of rhino poaching cases in Assam;

- Contributed to strengthening black rhino conservation by supporting production of training materials to assist scouts in black rhino population monitoring in Africa;
- Funded training and equipment for community game guards in Kenya;
- Supported aerial monitoring of northern white rhino in Garamba National Park, Congo, for security purposes and information on population dynamics;
- Supported conservation education in India for villagers living in the vicinity of tiger habitats and investigations into poaching and illegal trade of wild tigers;
- Assisted with assembling tiger biologists from range countries in Nepal to discuss, and work toward, standardization of field survey techniques;
- Supported a conservation education program for villagers living in the vicinity of tiger habitat at Indonesia's Way Kambas National Park; and
- Funded a socio-economic study of the status and needs of Cambodian villagers living in tiger habitat.

The RTCF seeks well developed proposals for high priority rhinoceros and tiger conservation actions which will strengthen the host country's capacity to manage these species. Proposals must be in English, have government endorsement, and a commitment of local resources to be used along with grant funds.

For a current RTCF Request For Proposals contact the Chief, Office of International Affairs, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, ARLSQ 860, Arlington, VA 22203-1622 USA (Telephone : 703-358-1754; Fax: 703-358-2849; e-mail: fred_bagley@mail.fws.gov).

Ujung Kulon National Park Project, a Bilateral Development Assistance Project between the Governments of Indonesia and New Zealand**Mal Clarbrough**

Ujung Kulon National Park Project is a Bilateral Development Assistance Project between the Governments of Indonesia and New Zealand that was undertaken by the Department of Conservation, NZ. under contract to the Ministry of Foreign Affairs & Trade, NZ.

The project commenced on 1 January 1990 with the primary goal of the project being to improve the management of Ujung Kulon National Park. The project staff working alongside the park chief and his staff on a day to day basis. On 1 July 1996 the project entered a 2 year phase of Continuing Links through the Development Programme Manager, NZ Embassy, Jakarta and DoC. ended its involvement with the project.

Although no longer involved with an interest/activity group, my interests in this colloquium is as a resource adviser with 6 years on-site experience in Ujung Kulon and some insight into the infrastructure, facility development, management planning and training activities in the Park.

In regard to management planning the park is managed in accordance with the Ujung Kulon National Park Management Plan and in this document it is accepted that the Javan rhino has high priority in Ujung Kulon. Consequently the sanctuary zone of the park reflects the perceived survival needs of the species and its habitat for the next two decades.

Taking this into consideration the current management plan has a the sanctuary zone which includes the core areas of, the peninsula, the isthmus and the Honje range. Access is by permit and only given for research or survey purposes.

To allow for public access in the park, the coastal strip of the peninsula and isthmus is zoned wilderness and to allow for access across sanctuary zone, eg. from the northern to the southern coastline corridors of wilderness zone have been established along the lines of existing tracks ie from Cidaon to Cibunar, from Tanjung Lame to Karang Ranjang, from Legon Pakis to Kalejetan and from Cikawung to Cegog.

If is true, that the Javan rhino are extremely shy, avoid any contact with humans and also avoid areas where humans have been or passed for up to 8 days. One of the many question to be answered is, do the trails across the sanctuary zone act as invisible barriers to the rhino and inhibit any natural spread from the peninsula onto and across the isthmus to the southern Honje? If so a recommendation from the colloquium could be to seek changes to the management plan to restrict public access in certain areas, especially the crossing of the isthmus.

The management plan policies however must also take into consideration the other purposes of the national park, such as; tourism, recreation, research, education, spiritual fulfilment and the interests of management, user groups, concessionaires and local people, on occasions, these are incompatible and may develop into conflict situations.

I believe that the recommendations that come from this colloquium will have some impact on other user groups therefore we must work together to educate and wherever possible accommodate other user groups into the overall strategy for the management of the Javan rhino.

Mal Clarbrough - Ujung Kulon N. P. Project Leader (1993-96); Tourism Development Officer (1990-93)

AsRSG ASIAN RHINO CONSERVATION STRATEGY - Summary

1 Concentrate efforts and funds on the 5 major ranges states of India, Nepal, Indonesia, Malaysia, and Vietnam (until or unless new information indicates significant rhino populations still survive elsewhere.)

2 Arrest further decline in the Sumatran and Javan rhinos in Indonesia, Malaysia, and Vietnam as the most critical need in Asian rhinoceros conservation.

2.1 Provide intensive protection of in situ nuclei as the paramount action required at this time.

2.2 Develop managed breeding centers called "sanctuaries" in native habitat. These managed breeding centers are an intensively protected area of native habitat delimited by a fence.

3 Reinforce the continuing recovery of populations of Indian rhinoceros in India and Nepal.

4 In the major range states, accord priority to populations with the highest probability for recovery to viability.

5 *Establish as scheduled objectives for each of the species:*

5 Year Objectives

Sumatran	No further decline in numbers.
Javan	Increase of 25% in numbers in Indonesia.
	No further decline in Vietnam.
Indian	Achievement of target numbers.

10 Year Objectives

Sumatran	Increase of 20 % in numbers.
Javan	Increase of 50% in numbers in Indonesia.
	Increase of 25% in Vietnam.
Indian	Stabilization at target numbers.

AsRSG JAVAN RHINOCEROS ACTION PLAN

Objectives

- 1 To preserve the remnant populations in the wild.
- 2 To locate and/or establish other populations in the wild.
- 3 To develop a managed breeding or "sanctuary" program to reinforce this species in the wild, but in a way that minimizes the demands on the tiny wild population.
- 4 To continue efforts to close down the trade in rhino products.

General Recommendations

- 1 Continue and intensify the surveys in Ujung Kulon National Park, Java, to determine more precisely the size and composition of the population, by special Rhino Conservation Units
- 2 Determine what resources are currently available, and those that are additionally required, to provide adequate protection for the population in Ujung Kulon. This should include a consideration of human needs in the buffer-zone outside the park.
- 3 Investigate further the status of Javan rhino in Vietnam and Laos (and perhaps) Cambodia. This investigation might be conducted in conjunction with the Kouprey Conservation Programme.
- 4 Develop as soon as possible managed breeding or "sanctuary" programs, based on information obtained by intensive survey of Ujung Kulon and the explorations in Vietnam.
- 5 Formulate guidelines, and perhaps conduct a search, for a site to establish additional wild populations in South East Asia. Animals should be generated for reintroduction from the managed breeding or "sanctuary" programs.
- 6 Introduce and enforce strict measures to ban the use of Javan rhino products in all countries, especially in Laos, where internal consumption is still permitted. More severe measures against poachers and traders are needed.

Indonesia (Java): Specific Recommendations

The situation of the Javan rhino is an emergency, and only a broad, integrative conservation program is likely to save it from extinction. With such a small population, and continuing incidences of poaching, the following actions are necessary

1 Conduct an intensive survey of the species in Ujung Kulon National Park.

The survey should concentrate on the size, composition and habitat preferences of the Rhino, and should assess the principal threats to its continued survival. Standardized surveys should be conducted annually.

2 Determine what resources are currently available, and those that are additionally required, to provide adequate protection in Ujung Kulon.

This should include:

- strong anti-poaching measures, including the establishment of Javan Rhino Protection Units.
- training of PHPA staff at all levels in wildlife and protected area management;
- an extensive public education and awareness program among local people as to the unique importance of Ujung Kulon National Park and its rhinos;
- initiation of appropriate forms of development in a buffer-zone outside the park to enable local people to derive tangible economic benefits from the park.

4 Develop as soon as possible a Javan Rhino "Sanctuary", i.e. an intensive protection zone and perhaps managed breeding center in native habitat.

Such a development is essential to improve protection and conservation of the Javan rhino in Ujung Kulon National Park where poaching does continue with loss of rhino as recently as 1994. A "sanctuary" program could also facilitate production of rhino for possible expansion of the Ujung Kulon population in areas of the Park not currently utilized as well as translocation to new sites.

5 Formulate guidelines, and perhaps conduct a search, for a site in which to establish additional wild populations in South East Asia.

The area to be selected should be within the historical range of the species, with suitable habitat for the animals to survive at a relatively high density, of sufficient size to support a viable population, and with good security against poachers.

6 Enforce strict measures to prohibit the use of Javan rhino products in Indonesia.

This is to include the application of the strongest possible penalties against poachers and traders.

ALL 3 SPECIES OF ASIAN RHINOS ARE IN A DEMOGRAPHIC CRISIS CAUSED:

- 1 primarily by over-exploitation through poacher for rhino horn and other products and;
- 2 secondarily by loss of habitat due to expanding and developing human populations

COMMON CONCLUSIONS OF THE PHVA PROCESS FOR RHINO SPECIES ARE:

- 1 Any rhino population under 10 individuals is at high risk of extinction even under ideal conditions;
- 2 To maximize probability of survival under all kinds of identifiable risks, populations of 100 or more or populations that can be rapidly expanded to 100 or more individuals, seems advisable;
- 3 To avoid the risks of having "all the eggs in one basket", at least 5 or more populations of 100 or more individuals are recommended for each regional variety of rhino considered distinct enough to be conserved as a separate taxon;
- 4 For long-term viability a total population of at least 2,000 to 3,000 rhino of each taxon seems highly desirable.

Asian Rhino Specialist Group (AsRSG) meetings

1979	Bangkok, Thailand	AsRSG Meeting. Chairman: Professor Ruedi Schenkel.
1982	Frazer's Hills, Malaysia	AsRSG Meeting. Chairman: Professor Ruedi Schenkel
1987	Kuala Lumpur, Malaysia	AsRSG meeting. Chairman: Mohd Khan bin Momin Khan

1989 First AsRSG Asian Rhino Action Plan

1989	Bogor, Indonesia	Javan Rhino Workshop
1991	Bogor, Indonesia	Rhino Conservation Strategy and Action Plan
1993	Bandar Lampung, Indonesia	Sumatran Rhino Population and Habitat Viability and Analysis
1993	Kuala Lumpur, Malaysia	Malaysian Rhino Conservation Action Plan
1993	Bogor, Indonesia	Indonesian Rhino Conservation Action Plan
1993	Jaldapara, India	Population and Habitat Viability Analysis Workshop for Indian Rhino
1995	Sandakan, Sabah, Malaysia	Malaysian Rhino Population and Habitat Viability Analysis Workshop
1995	Sandakan, Sabah, Malaysia	AsRSG meeting. Chairman: Mohd Khan bin Momin Khan

1997 Second AsRSG Asian Rhino Action Plan

1997	Bogor, Indonesia	Javan Rhino Colloquium
1998	[Proposed] Assam, India	AsRSG meeting

**WORKING GROUP REPORTS
AND RECOMMENDATIONS**

CENSUS AND SURVEY TECHNIQUES WORKING GROUP (1) REPORT

Members:

Djarkasih, Ron Tilson, Widodo Prayitno, James Burton, Hariyo T. Wibisono, Vu Ngoc Lan, Nguyen Xuan Dang, Nazir Foead, Haerudin Sadjudin, Shantini Dawson.

PRIORITIES

- A. Ascertain Population Status
 - Total numbers
 - Sex ratio
 - Age classes
 - Habitat preferences
- B. Long-term monitoring/population dynamics
 - birth/death rate
 - density
 - parentage
 - sexual maturity
 - calf survival
- D. Methodology in use at present and new methods proposed
 - Track counts
 - Photo-trapping
 - Genetic analysis (DNA finger-printing through dung)
- D. Trade-offs of the different methods
 - accuracy/precision
 - equipment/costs
 - speed/time-frame

METHODOLOGY AND TRADE OFFS

(1) **Track method**, as used today has the following problems:

Positive

- + been in use for the last 30 years
- + method can be replicated easily
- + equipment requirements minimal
- + costs relatively low, especially when done in conjunction with anti-poaching units
- + relatively quick

Negative

- inaccuracies due to human error (transect layout; measurements by different people; differences due to substrate; differences due to age of track)
- imprecise due to sampling design/size
- information derived on age classes is minimal; sex ratio unavailable

(2) **Photo-trapping**

Positive

- + relatively new method - in use only in the last five years for census work through registration method, but with good results
- + individual identification: age/sex classes
- + information collected useful to monitor the population in the long-term
- + can be easily replicated
- + high accuracy
- + results produce good PR material

Negative

- expensive - outlay and running costs
- equipment maintenance costs high

(3) Genetic analysis (DNA)

Positive

- + useful in long-term monitoring
- + useful in individual identification
- + high accuracy in individual identification

Negative

- new, unproven method (as a means of assessing population size)
- lab analysis expensive
- collection of 'useable' material labor-intensive, thus expensive
- only secondary information can be obtained

COMPARISON OF CENSUS METHODS		
Track Counts	Photo-trapping	Genetic Analysis
<i>Population status</i>	<i>Population status/ Long-term monitoring</i>	<i>Potential population status/ Long-term monitoring</i>
<i>Not very accurate</i>	<i>Accurate</i>	<i>Accurate</i>
<i>Fast</i>	<i>Slow</i>	<i>Slow</i>
<i>Cheap</i>	<i>Expensive</i>	<i>Expensive</i>

In order to maximize results and ascertain the best method to be used in the field, the following protocol is recommended:

- (1) Carry out track counts together with photo trapping over a one year period to compare results
- (2) Genetic analysis to be carried out at the same time and results to be used as a secondary method to supplement the census results with information on population dynamics
- (3) Modify the track census sample design and do the following:
 - a. Set up permanent straight line transects set out systematically over the entire rhino census area at 2 km intervals
 - transects to be carried out in a minimum two period: Oct-Nov and Mar-Apr
 - within each period, each transect to be traversed twice a month
 - b. Same transects to be used to locate camera traps
 - density of cameras: 25 cameras/monitors moved at three month intervals over the census area
 - extra cameras (twice the number) to be purchased to replace damaged ones
 - batteries for monitor to be changed once a month
 - cameras to be checked every ten days - films changed if 7 or more shots taken; batteries in camera to be changed when film is changed
 - c. Same transects to be used for habitat preference studies using satellite imagery to determine habitat types in the census area
 - vegetation data to be collected in plots once a month at 2 km intervals along the permanent transects
 - d. For faecal DNA analysis the field protocol suggested is:
 - census area divided into four (7,500 ha each)
 - four teams of four persons each
 - rhinos will be tracked using fresh signs and fresh faecal samples to be collected
 - equipment required: test tubes, stoppers, 70% alcohol, gloves
 - sample collection to be carried out over a minimum six months

CENSUS AND SURVEY TECHNIQUES WORKING GROUP (1) PROGRAMS

1.1 CENSUS WITH TRACK COUNT METHOD

KNOWN	Used for a long time, current version is crude and limited		
NEED TO KNOW	Total numbers, age classes, habitat preferences		
BEING DONE			
NEED TO DO	a. Improve per group report b. Improve track recording c. Cutting for the transects d. Orientation train Guards		
WHEN	1 March '98 for maintain transects and training, 1 April '98 for census		
WHO	Group of PHPA, YMR, AsRSG, STP, IPB		
COST	Maintain transects of IPB's (2 km apart)	7,500	
	Training	5,000	
	Census (2 times/month)	140,000	
		Total US\$	152,500
FUNDER	Interested Parties		
PRIORITY	FIRST		

1.2 CENSUS WITH PHOTO-TRAP METHOD

KNOWN	New method, high accuracy, expensive		
NEED TO KNOW	Total number, sex ratio, age classes, habitat preference, density, calf interval		
BEING DONE			
NEED TO DO	Obtain (purchase & transport) camera Training (1 week)		
WHEN	1 March 1998		
WHO	Group of PHPA, YMR, AsRSG, STP, IPB		
COST	Camera (25 sets + 10 back-up)	18,000	
	Training staff	1,500	
	Operations & Maintenance	12,000	
		Total US\$	31,500
FUNDER	AAZK (\$ 31,000), Adopt-A-Park (\$ 500)		
PRIORITY	FIRST		

1.3 SURVEY WITH DNA/GENETIC ANALYSIS TECHNIQUE

KNOWN	Very little is known about population structure and even knowledge of size is limited		
NEED TO KNOW	More detailed population structure, including sex and pedigree information, and better estimates of total population size		
BEING DONE	Preparatory work for development of method		
NEED TO DO	a. Analysis: develop primer and obtain b. Sample collection		
WHEN	1 March 1998		
WHO	WWF, PHPA, YMR, Universities		
COST	Analysis	20,000	
	Collection	45,000	
		Total US\$	65,000
FUNDER	Candidate: WWF USA, USFWS, WWF Netherlands		
PRIORITY	FIRST		

INTENSIVE PROTECTION AND INSTITUTIONAL ASPECTS WORKING GROUP (2) REPORT

Members:

Agoes Sriyanto, A.A. Hutabarat, M. Khan, Do Quang Tung, Muniful Hamid, Sjamsuddin Joeda, Jansen Manansang, Tatang, Nguyen Nhu Phuong, Don Slinger, Fred Bagley, Michael Doubet, Mark Rose, Arief Rubianto.

Items discussed are:

- Facility and Equipment
- Institutional strengthening
- People involve in protection
- Sanctuary program

FACILITY AND EQUIPMENT

- (1) Houses (incl. Cooking utensil, sleeping accommodations, housewares, etc.)
- (2) Transportation
- (3) Communication
- (4) Weapon
- (5) Survey equipment
- (6) Personnel use

INSTITUTIONAL STRENGTHENING

- (1) Management Review
 - a. Main structure
 - b. Scope of responsibilities
 - c. Terms and conditions of employment
 - d. Staffing levels
 - e. Terms of reference for staff (Position Description)
 - f. Patrol system
 - g. Employment Process background checks
- (2) Training Program
 - a. Skills audit
 - b. Training needs analysis
 - c. Job task analysis
 - d. Established minimum training standards
 - e. Field training program for new officers
 - f. Practical attachment to another Park in Indonesia or to the park in another country
- (3) Rhino protection unit
 - a. Develop 3 RPU team (4 personnel each: 1 jagawana: 3 local people) to take patrol continuously in 15 guard posts. The teams would work a rotation with two of the teams active and the third team rotated for a month cycle to other work.
 - b. Standard education and training for rangers:
 - Senior High School,
 - Six month Ranger basic training
 - Follow training program I on the job training on the Javan rhino
 - Good moral, high discipline, dedication and responsibility.
 - Traveling Seminar and Comparative study to some parks to enhance understanding
 - Local people come from non formal leader e.g. youth, LKMD, customary leader etc.
 - Patrol system and technique
- (4) Local people involve in protection.
 - a. Identifying local candidate involve in protection
 - b. Local training
 - c. Internship
 - d. Officers working in school

(5). Javan Rhino Sanctuary

- a. Not recommended at this time. If , in five years, Sumatra project is successful then give further consideration.

INTENSIVE PROTECTION AND INSTITUTIONAL ASPECTS WORKING GROUP (2) PROGRAMS

2.1 RHINO PROTECTION UNITS

KNOWN	RPU's are an effective method to prevent poaching of rhinos	
NEED TO KNOW		
BEING DONE	Fund-raising and preparation	
NEED TO DO	a. Recruitment b. Training c. Deployment	
WHEN	Oct-Nov 1997: Recruit Jan-Feb 1998: Training May-Apr 1998: Field Test May 1998: Deployment	
WHO	GEF/UNDP Sumatran Rhino Conservation Team	
COST	3 Teams	37,500
	Coordination	10,000
	Training	5,000
		Total \$ 52,500
FUNDER	USFWS (~ \$ 30,000), IRF (\$ 10,000), AAZK (\$ 5,000)	
PRIORITY	FIRST	

2.2 ROUTINE TRAINING PROGRAM FOR GUARDS

KNOWN		
NEED TO KNOW		
BEING DONE		
NEED TO DO	Routine Guards Training	
WHEN	1997/98	
WHO	TNUK	
COST		Total ~\$ 8,000
FUNDER	GOI	
PRIORITY	FIRST	

2.3 COMMUNICATION

KNOWN			
NEED TO KNOW			
BEING DONE			
NEED TO DO	a. 32 walkie-talkie, b. 10 DX comm. c. 1 repeater for Post to Person and post to post communication		
WHEN	March 1998		
WHO	TNUK		
COST	a. Walkie-talky b. DX comm. c. Repeater	14,000 9,500 11,500	
		Total US\$	34,000
FUNDER	Walkie-talky (AAZK), Others (GOI ?)		
PRIORITY	FIRST		

2.4 WEAPONS FOR FOREST GUARDS

KNOWN	On going process		
NEED TO KNOW			
BEING DONE			
NEED TO DO	a. 20 - 25 guns b. Faster processing		
WHEN	1997/1998 Gov. Budgeting		
WHO	TNUK		
COST	No costs involved		
FUNDER	GOI		
PRIORITY	FIRST		

2.5 SURVEY EQUIPMENT

KNOWN			
NEED TO KNOW			
BEING DONE			
NEED TO DO	Field Survey: 40 compass, 7 GPS, 32 binoculars		
WHEN	Sept-Oct 1997,		
WHO	TNUK		
COST	Field equipments a. 40 compass b. 7 GPS c. 32 binoculars	5,000 11,500 5,000	
		Total US\$	21,500
FUNDER			
PRIORITY	FIRST		

2.6 TRANSPORTATION

KNOWN																
NEED TO KNOW																
BEING DONE	2 Big boats, 3 speed boats, 1 patrol boats are available															
NEED TO DO	a. 2 Speed boats, b. 7 motor cycles, c. 1 radar unit															
WHEN	April 1998															
WHO	Speed-boat: MCOA															
COST	<table border="0"> <tr> <td>a. 2 Speed-boat @ \$ 25,000</td> <td>50,000</td> <td></td> </tr> <tr> <td>b. 7 Motor Cycles @ \$ 2500</td> <td>17,500</td> <td></td> </tr> <tr> <td>c. Radar unit</td> <td>3,000</td> <td></td> </tr> <tr> <td>d. 4WD vehicle @ \$ 50,000</td> <td>50,000</td> <td></td> </tr> <tr> <td></td> <td></td> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">Total US\$ 120,500</td> </tr> </table>	a. 2 Speed-boat @ \$ 25,000	50,000		b. 7 Motor Cycles @ \$ 2500	17,500		c. Radar unit	3,000		d. 4WD vehicle @ \$ 50,000	50,000				Total US\$ 120,500
a. 2 Speed-boat @ \$ 25,000	50,000															
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c. Radar unit	3,000															
d. 4WD vehicle @ \$ 50,000	50,000															
		Total US\$ 120,500														
FUNDER	a. MCOA (\$ 10,500 partial contribution for 1 boat), b. ? c. AAZK (\$ 3,000 radar) d. ?															
PRIORITY	SECOND															

2.7 PERSONNEL EQUIPMENT

KNOWN																			
NEED TO KNOW																			
BEING DONE																			
NEED TO DO	Personnel equipment for NP guards - uniforms, backpacks, torch, bushknife, etc (100 sets)																		
WHEN	1998 (partial)																		
WHO	TNUK																		
COST	<table border="0"> <tr> <td>- uniforms</td> <td>5,000</td> <td></td> </tr> <tr> <td>- backpacks</td> <td>6,000</td> <td></td> </tr> <tr> <td>- torch</td> <td>1,500</td> <td></td> </tr> <tr> <td>- bush knife (parang)</td> <td>500</td> <td></td> </tr> <tr> <td>- pocket knife</td> <td>2,500</td> <td></td> </tr> <tr> <td></td> <td></td> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">Total US\$ 15,500</td> </tr> </table>	- uniforms	5,000		- backpacks	6,000		- torch	1,500		- bush knife (parang)	500		- pocket knife	2,500				Total US\$ 15,500
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- pocket knife	2,500																		
		Total US\$ 15,500																	
FUNDER	GOI, MCOA (supplementary)																		
PRIORITY	FIRST																		

2.8 MANAGEMENT REVIEW OF NATIONAL PARK

KNOWN	Management structure could be improved		
NEED TO KNOW	Comrehensive review of the existing management structure and recommendations for improvement		
BEING DONE	Carried out in September 1997		
NEED TO DO	Advice on management structure efficiency and effectiveness		
WHEN	September 1997		
WHO	FFI, LIPI, PHPA		
COST	Staff	10,000	
	Subsistence	5,100	
		Total US\$	15,100
FUNDER	Staff: FFI - Consultant's time Subsistence: USFWS (5,100)		
PRIORITY	FIRST		

2.9 PARTICIPATIVE HUMAN RESOURCE DEVELOPMENT

KNOWN	Lack of qualified human resource		
NEED TO KNOW			
BEING DONE	Preparatory work by BCI		
NEED TO DO	Provide 2 contract-based qualified human resource (the "Sarjana" degree) to UKNP, if supported by the Management Review Study		
WHEN	Follows the management review		
WHO	PHPA		
COST			
		Total US\$	24,000
FUNDER	PHPA and voluntary contributions		
PRIORITY	THIRD		

2.10 TRAINING PROGRAM FOR MANAGEMENT

KNOWN			
NEED TO KNOW			
BEING DONE			
NEED TO DO	Routine staff training		
WHEN	Follows the Management Review		
WHO	To be identified by Management Review		
COST	To be identified by Management Review		
		Total	
FUNDER	To be identified by Management		
PRIORITY	SECOND		

RESEARCH AND HABITAT MANAGEMENT WORKING GROUP (3) REPORT

Members:

Haryanto R. Putro, Gono Semiadi, Dwiatmo Siswomartono, E.K.S. Harini Muntasib, Kuswandono

PROBLEMS:

1. Langkap (*Arenga obtusifolia*) Invasion

- a. Research:
 - Ecological Study on Langkap (Synecological, autoecological studies, intensity of invasion)
 - Comparative study of the langkap invasion behavior in other sites
- b. Action:
 - Implementation of langkap population reduction (for habitat management purposes)
 - Utilization of langkap sugar as a souvenir from TNUK (income generation for local people)

2. Intra and inter-species competition (fauna)

- a. Research:
 - Dietary overlap
 - Space overlap
 - Behavioral study (social interaction)
- b. Action:
 - Grazing area management
 - Culling management

3. Activity of ecotourism & visitors

- a. Action
 - Visitors route management (need Feasibility study)
 - Development of conservation and environmental interpretation program/techniques

4. Encroachment

- a. Research:
 - Land carrying capacity for human population
- b. Action:
 - Population control through migration program
 - Law enforcement on perladangan, mining and settlement (real estate & resort)

5. Carrying capacity

- a. Research:
 - Study on carrying capacity for rhino, banteng and other species having negative effects on rhino survival
 - Evaluation on second population habitat outside TNUK area.
- b. Action
 - Planting of Javan Rhino food plant species in unproductive sites and below managed Langkap areas through appropriate propagation techniques (cutting, seed)

6. Climate Monitoring

- a. Action
 - Installation on three climate stations in Cidaon or Peucang, Karangranjang and Cibunar.

RESEARCH AND HABITAT MANAGEMENT WORKING GROUP (3) PROGRAMS

3.1 THE ECOLOGY OF LANGKAP (*Arenga obtusifolia*) AND ITS ROLES IN JAVAN RHINO (*Rhinoceros sondaicus*) HABITAT DEGRADATION IN UJUNG KULON NATIONAL PARK, WEST JAVA

KNOWN	Langkap invasion is an important factor in the degradation of Javan Rhino habitat	
NEED TO KNOW	To what extent has Langkap invasion happened and where?	
BEING DONE	Yes, since 1996	
NEED TO DO	Search for management option	
WHEN	1996/1997-1998/1999 (3 Years)	
WHO	IPB in collaboration with Ujung Kulon and Bakosurtanal	
COST		Total US\$ 125,000
FUNDER	The Integrated Selective Research (RUT) III, Ministry of Research and Technology, GOI	
PRIORITY	FIRST	

3.2 COMPARATIVE STUDY ON LANGKAP (*Arenga obtusifolia*) INVASION WITHIN FOREST ECOSYSTEMS IN JAVA AND SUMATERA- A CASE STUDY IN UJUNG KULON NATIONAL PARK, CIKEPUH NATURE RESERVE, RIAU AND NIAS ISLAND

KNOWN	Langkap invasion in Ujung Kulon is a unique phenomenon, not recorded in other sites	
NEED TO KNOW	What are factors affecting Langkap invasion in Ujung Kulon; Why is it different from other sites?	
BEING DONE	Not yet	
NEED TO DO	Search for firm foundation for Langkap management	
WHEN	1998-2000 (3 years)	
WHO	IPB in collaboration with BCI and Ujung Kulon	
COST		Total US\$ 150,000
FUNDER	GOI & WWF Japan (?)	
PRIORITY	SECOND	

3.3 THE ROLE OF COMMON-PALM CIVET (*Paradoxurus hermaphroditus*) IN LANGKAP INVASION IN UJUNG KULON NATIONAL PARK, WEST JAVA

KNOWN	The only active seed disperser of Langkap in UKNP is Common-palm Civet
NEED TO KNOW	Civet population and behavioral pattern, especially ranging behavior
BEING DONE	Some preliminary study is being carried out by IPB -
NEED TO DO	Determine to what extent common palm civet plays a role in Langkap invasion. How to manage the Civet population?
WHEN	1998 - 1999 (2 years)
WHO	BCI in collaboration with IPB
COST	Total US\$ 50,000
FUNDER	
PRIORITY	FIRST

3.4 THE COMPETITION BETWEEN JAVAN RHINO (*Rhinoceros sondaicus*) AND BANTENG (*Bos javanicus*) IN UJUNG KULON NATIONAL PARK, WEST JAVA

KNOWN	The population growth of Banteng seems to have negative impacts on rhino survival
NEED TO KNOW	Diet overlap, distribution overlap and social interaction between the two species
BEING DONE	Diet & Distribution study is in progress since 1997
NEED TO DO	Search for Banteng population management options
WHEN	1997/1998-1999/2000(3years)
WHO	IPB
COST	Total US\$ 110,000
FUNDER	Competitive Grant Research "(Penelitian Hibah Bersaing)" , Directorate of Higher Education, Ministry of Education and Culture
PRIORITY	FIRST

3.5 DIET SELECTION OVERLAP BETWEEN JAVAN RHINO AND HERBIVOROUS ANIMALS IN THE RHINO HABITAT

KNOWN	List of rhino food plant species
NEED TO KNOW	Diversity of herbivorous animal diets within and outside rhino habitat
BEING DONE	
NEED TO DO	Identifying the feeding behavior of rhino and herbivorous animals
WHEN	1998/1999- 1999/2000
WHO	IPI-FFI
COST	Total US\$ 50,000
FUNDER	LIPI, FFI
PRIORITY	FIRST

3.6 STUDY ON JAVAN RHINO (*Rhinoceros sondaicus*) BEHAVIOR USING CANOPY WALK METHOD

KNOWN	Javan rhino behavior records based on direct encounter and signs left by the animals
NEED TO KNOW	Social behavior, mating behavior, nursing behavior and feeding behavior
BEING DONE	
NEED TO DO	Determining rhino behavior based on direct observation
WHEN	1999 - 2000 (2 years)
WHO	BCI in collaboration with IPB
COST	Total US\$ 250,000
FUNDER	
PRIORITY	THIRD

3.7 STUDY ON FOOD AND FAECAL CONTENT OF JAVAN RHINO AND BANTENG IN UJUNG KULON NATIONAL PARK, WEST JAVA

KNOWN	Javan Rhino and Banteng diet varies over time .
NEED TO KNOW	The dynamics of Javan Rhino and Banteng diets, including preference and palatability
BEING DONE	
NEED TO DO	Faecal Analysis
WHEN	1999 - 2000 (2 years)
WHO	BCI
COST	Total US\$ 40,000
FUNDER	
PRIORITY	SECOND

3.8 IMPLEMENTATION OF LANGKAP REMOVAL AS PART OF HABITAT IMPROVEMENT PROGRAMS

KNOWN	Based on management technique developed in a pilot project by IPB, Langkap removal has significant positive impact on Javan rhino food plant growth.
NEED TO KNOW	Response of habitat at larger scale of experimentation
BEING DONE	implementation in 30 ha, including monitoring
NEED TO DO	Langkap removal at 50 % intensity based on random gap, spotted-gap and transect gap methods
WHEN	Started August/September 1998
WHO	UKNP assisted by IPB
COST	Total US\$ 120,000
FUNDER	WWF Japan (?) through WWF-IP
PRIORITY	FIRST

3.9 GRAZING AREA MANAGEMENT

KNOWN	Grazing area in Ujung Kulon has not been managed for a long time; colonization of un-grazed plant species has been recorded in many existing grazing areas
NEED TO KNOW	A good quality of grazing area should concentrate Banteng population in and surrounding the grazing area
BEING DONE	
NEED TO DO	Grazing area management based on controlled burning method and monitoring
WHEN	Starting in 1998, with further consideration after the Banteng census
WHO	UKNP assisted by IPB
COST	Per hectare 3,500
	Total US\$
FUNDER	
PRIORITY	SECOND

3.10 INSTALLATION WEATHER STATIONS AT CIDAON OR PEUCANG, CIBUNAR, AND KARANGGRANJANG

KNOWN	No record of weather/climate events and phenomena in UKNP
NEED TO KNOW	Climate components
BEING DONE	
NEED TO DO	Install weather stations in Cidaon/Peucang, Cibunar and Karangranjang. Manual stations are recommended, but automatic stations could be considered
WHEN	ASAP
WHO	UKNP
COST	3 automatic stations @ \$ 5,000 Total US\$ 15,000
FUNDER	
PRIORITY	THIRD

3.11 THE DEVELOPMENT OF COMPUTERIZED DATA BASE OR MANAGEMENT INFORMATION SYSTEM IN UKNP

KNOWN	Data base is weak in UKNP
NEED TO KNOW	
BEING DONE	Some attribute and spatial data base is being developed by IPB
NEED TO DO	Develop a computerized data base or MIS in UKNP
WHEN	ASAP
WHO	UKNP assisted by Javan Rhino Consortium (BAKUL)
COST	Total US\$
FUNDER	Proposed to JICA
PRIORITY	FIRST

POPULATION AND HABITAT VIABILITY ANALYSIS WORKING GROUP (4) REPORT

Members:

Pudji S. Pratijhno, Thomas J. Foose, Darmawan Liswanto, Iswanthi Prastyani, Marcellus Adi, Anna Merz, Patty Pearthree, Dan Scheren.

BACKGROUND & OVERVIEW

3 major topics were considered:

- I. Target Population Size & Growth
- II. Establishment of a Second Population
- III. Sanctuary

The ultimate goal of the conservation program for the Javan Rhino should be to ensure long-term viability.

Knowns are:

- Only approximate population size;
- very limited one-time information on age & sex structure and calf production.
- The population is not increasing but reproduction is occurring. So rhinos must be dying.

Need to Know are:

- Population Structure and Dynamics;
- Population Size;
- Age & Sex Classes;
- Births & Deaths per Year;
- Ranges of Males & Females;
- Proportion of Males Breeding.

Earlier PHVAs on Rhino have generated a number of major and common conclusions concerning the size, distribution, and growth of rhino populations to avoid the demographic, genetic, stochastic and other environmental risks that confront small and fragmented populations and ensure long-term survival. Since the biological parameters and to some extent the risks are similar for all rhinoceros species, these previous PHVA analyses provide good foundation for conservation recommendations on the Javan rhino- It is also the case that not much has changed in terms of information on Javan Rhino needed for further PHVA Analysis.

Recommendations from Previous Rhino PHVAs:

1. Any rhino population under 10 individuals is at high risk of extinction even under ideal conditions.
2. Populations in the range of 10 - 75 individuals may also be at significant risk if threats such as poaching or habitat constraints are operating.
3. To maximize probability of survival under all kinds of risks, individual populations of 100 or more or populations that can be expanded rapidly to 100 or more individuals are advisable.
4. Growth rates of 5%/year seem desirable for population to be able to sustain itself or recover from periodic losses.
5. To avoid the risks of having "all the eggs in one basket", at least 5, or better more, populations of 100 or more individuals are recommended for rhino species or subspecies.
6. For long-term viability, a total metapopulation (i.e., the individual populations that are managed or interact collectively) of 2,000 - 3,000 individuals is highly desirable.

Some PHVA Conclusions & Recommendations for Javan Rhino

1. The current size and distribution of both the Indonesian (*Rhinoceros sondaicus sondaicus*) and the Vietnamese Javan Rhino (*Rhinoceros sondaicus annamiticus*) are far from the target goal recommendations of other rhino PHVA's.

2. Current populations of Javan Rhino should be protected and managed to enable them to grow to a **Target Population Size = 100** individuals as rapidly as possible (5-7% / year).
3. A secondary (satellite) population should be established by translocation from the primary (source) population in Ujung Kulon as soon as possible.
4. Previous PHVA analyses on the Javan and other rhinos indicate:
 - A. 2-3 males and 3-5 females would constitute an acceptable initial founder group for a new population.
 - B. It is important that the area selected for a secondary population have an ultimate carrying capacity of 100 individuals.
 - C. removal of this number of rhinos will probably affect the source population only by a temporary reduction in its growth rate, as long as poaching is controlled.
 - D. PHVA analysis can indicate accurately the consequences of removal of rhino from the primary (source) population as soon as the population structure and growth rates are better known through improved census and survey efforts.
5. Secondary populations should be initiated only in areas where appropriate habitat and adequate security can be ensured.

Other General Recommendations for Javan Rhino:

1. intensive monitoring on population size and structure over 3-5 years to provide data by developing (To Do)
 - A. A good standardized method (track & transect) that can feasibly be used by Park guards and RPUs
 - B. Photo-trapping
 - C. DNA Analysis
1. No more population modeling until have better population information is available from the improved census methods. (Not to Do)

I. TARGET POPULATION SIZE

Based on previous PHVA analysis the Colloquium adopted a Target Population Size of 100 for Javan Rhino in Ujung Kulon.

1. Need to do

- A. Current populations of Javan Rhino should be protected and managed to enable them to grow to a Target Population Size = 100 (or more) individuals as rapidly as possible (5-7% / year).
- B. Manage habitat, both vegetation (esp langkap) & animals (esp banteng), to maximize carrying capacity for rhino.
- C. Conduct management experimentation in Ujung Kulon
- D. Initiate experiments immediately.
 - Experimental Removal of Langkap
 - Cut two 25 ha plots of Langkap by end of this dry season and measure effect on vegetation regeneration and utilization by rhino and other herbivores by end of next rainy season.
 - Experimental Removal of Herbivores:
 - There is a need to know number of Banteng
 - There is also a need to do immediate Rapid Assessment of Banteng.
 - Once numbers known, remove (culling or translocation) 20-30 % of forest-dwelling Banteng.
 - Conducted by professional hunters
 - Consult with IUCN/SSC Wild Cattle Specialist Group prior to removal experiments.
 - Extensive public education efforts about culling.
 - Part of meat or profits to local communities

II. SECOND POPULATION

A second population should be established by translocation from the primary (source) population in Ujung Kulon as soon as possible.

As a first step:

Identify and prepare an appropriate translocation area on Sumatra that can accommodate 100 + rhinos and can be secured. Need to identify Who, When, How. (To do) Private areas a possibility.

- Ground surveys
- Selection of 2/3 likely sites
- Detailed feasibility study

III. Create a SANCTUARY on isthmus in Ujung Kulon

A. Advantages of a Sanctuary

- Adds Protection and Security
 - Fence for better control of traffic in Park. Hence: Control people
 - More presence of staff around these areas
- Expands habitat because this area not well utilized by rhinos
- Excludes banteng
- Places rhinos under better surveillance so know more about population
- Provides study opportunities
 - Ecology, Reproduction, Competition
- Creates transitional/acclimatization/production area for possible translocation to site in Sumatra.
- Generates eco-tourism income (divided between conservation programs and local people)

B. Disadvantages:

- Impedes natural migration.

C. To Do

1. Conduct a Feasibility Study
 - Habitat Suitability
 - Design
 - Access
2. Erect eastern fence for security as soon as feasibility study is completed
 - Concern: The fence will become the de-facto eastern boundary of the NP, and impair reclamation of NP areas in the Gunung Honje area.
3. Avoid Village Conflicts

POPULATION AND HABITAT VIABILITY ANALYSIS WORKING GROUP (4) PROGRAMS

4.1 SECOND POPULATION & SANCTUARY

KNOWN	Small isolated populations are at a great risk.	
NEED TO KNOW		
BEING DONE	Previous plan for second population in Way Kambas has become infeasible.	
NEED TO DO	<ol style="list-style-type: none"> 1. Identify and prepare translocation sites 2. Feasibility studies of Sanctuary in UKNP 3. Outer fence 	
WHEN	<ol style="list-style-type: none"> 1. 1998 2. 1998 3. If recommended in Feasibility Study 	
WHO	<ol style="list-style-type: none"> 1. PHPA, AsRSG, Universities, YMR, WWF 2. PHPA, AsRSG, Universities, YMR, WWF 3. PHPA, IRF, YMR, WWF 	
COST	<ol style="list-style-type: none"> 1. Identify translocation sites 2. Feasibility Study of Sanctuary 3. Outer fence 	& 15,000 \$ 7,000 ? <hr/> Total US\$ 22,000 +
FUNDER	?	
PRIORITY	<ol style="list-style-type: none"> 1: FIRST 2: FIRST 3: THIRD 	

4.2 HERBIVORE REMOVAL

KNOWN	There are many banteng and there appear to be more all the time.	
NEED TO KNOW	<ol style="list-style-type: none"> 1. Number of banteng. 2. Ecological impact on rhino. 	
BEING DONE	IPB research programs	
NEED TO DO	<ol style="list-style-type: none"> 1. Rapid assesement of banteng. 2. Experimental removal (by culling or translocation of 20-30% of forest dwelling banteng). 3. Monitoring of effect 	
WHEN	<ol style="list-style-type: none"> 1. Early 1998 2. Later 1998 3. 1999-2001 	
Who	<ol style="list-style-type: none"> 1. PHPAMPB 2. PHPA 3. PHPAMPB 	
COST	Not budgeted	
FUNDER	Total US\$	
PRIORITY	GOI	
	FIRST	

4.3 EXPERIMENTAL LANGKAP REMOVAL

KNOWN	Langkap not usable by rhino. Langkap widespread & increasing (?).
NEED TO KNOW	If removal of langkap is effective to create more rhino habitat.
BEING DONE	IPB research programs
NEED TO DO	Experimental removal of langkap
WHEN	Next dry season.
WHO	PHPAMPB.
COST	See Program 3.8
	Total US\$
FUNDER	GOI
PRIORITY	FIRST

COMMUNITY INTERACTIONS WORKING GROUP (5) REPORT

Members:

*Daniel W. Sinaga, Tedi Sutedi, Sarifudin, Mal Clarbrough, Catherine Bloxam, Gary Westby,
Douglas Sandstrom, Chairul Saleh, Tri Nugroho.*

BACKGROUND

Use:

- Indonesian Rhino Conservation Strategy:
- Development Gunung Honje as an Extension of the Javan Rhino Habitat

PROBLEM

- Unharmonious interaction between people & the park

POSSIBILITIES FOR INTERACTION		
PEOPLE	<=>	PARK
-		-
-		+
+		-
+		+ !
0		0 !

- Interaction activities: Poaching, Shifting Cultivation, Cultivated Land, Grazing, Forest Extraction, Settlement
- Others: low income, low education, understanding of conservation, limited capability of park staff in community development, limited support from local & regional government.

OBJECTIVES

- To harmonize interaction between people and the park
- To develop integration of Gn. Honje area management

STRATEGY

General : PULL-PUSH Mechanism & INSTITUTIONALIZATION (stabilization)
 Specific : Should be develop for specific problem (such as for settlement)
 Approach : Participatory & law enforcement

ACTIVITIES

1. PULL MECHANISM ACTIVITIES: integrated farming system, fisheries, ecotourism, handicraft development, husbandry, market, irrigation, home stay, training, internship, sea culture, "student help/adopt student" (pre agreement of Minnesota, ALAMI, PHPA).
 - **PRIORITY I: need for activity replication to other villages [currently develop in 8 villages and suggested to replicate and intensify to other 11 villages near the boundary]**
2. PUSH MECHANISM ACTIVITIES: law enforcement, RPUs, consistency of park management (policies & practices), management support, training, "transmigration"(please not to quote this issue under the scheme of Javan Rhino Conservation Strategy!).
 - **this Is Recommendation to PHPA and Other Working Groups**

3. INSTITUTIONALIZATION (for stabilization and systemic approach for long-term):
- development BUFFER-ZONE MANAGEMENT
 - development TRADITIONAL USE ZONE (i.e. community-base patrolling system)
 - development RE-BOUNDARY PROGRAM (especially for issue of cultivated land area)
 - enrichment (revise) MANAGEMENT PLAN
 - strengthen COORDINATION MECHANISM
 - between PARK - LOCAL GOVERNMENT
 - among US !
- **PRIORITY II: develop or create a forum/colloquium for discuss this Institutionalization issues.**

COMMUNITY INTERACTIONS WORKING GROUP (5) PROGRAMS

5.1 LAND USAGE AND CARRYING CAPACITY FOR HUMAN POPULATION

KNOWN	Land encroachment in some part of Ujung Kulon has occurred and is still occurring
NEED TO KNOW	Carrying capacity of existing land for human population
BEING DONE	
NEED TO DO	Identify the possibility of human population control through migration program for new households
WHEN	1998
WHO	LATIN, ALAMI, UKNP
COST	
	Total US\$ 25,000
FUNDER	
PRIORITY	THIRD

5.2 UTILIZATION OF LANGKAP SUGAR AS AN UNIQUE SOUVENIR FROM UKNP

KNOWN	Langkap produces a good quality sugar and it is harvested by local people in Nias Island
NEED TO KNOW	Feasibility of utilization program
BEING DONE	
NEED TO DO	Adoption of utilization technique and training for local people
WHEN	1999
WHO	BCL, UKNP, IPB, WWF
COST	
	Total US\$ 20,000
FUNDER	WWF, included in community program
PRIORITY	FIRST

5.3 RHINO EDUCATION PROGRAM

KNOWN	Interpretation objects and its potential utilization
NEED TO KNOW	
BEING DONE	
NEED TO DO	Develop Rhino-based Conservation Education Program and Environmental Interpretation
WHEN	1999-2000
WHO	Conservation Education Network
COST	Per trail 25,000
	Multi-media package 25,000
	Total US\$ 50,000
FUNDER	
PRIORITY	SECOND

5.4 FEASIBILITY STUDY ON RE-ARRANGEMENT OF VISITOR ROUTES IN UKNP

KNOWN	Existing visitor routes may create an artificial barrier for rhino movement	
NEED TO KNOW	Other feasible routes in terms of disturbance to Javan Rhino population	
BEING DONE		
NEED TO DO	Feasibility Study on re-arrangement programs	
WHEN	1999	
WHO	UKNP and Wanawisata	
COST		
	Total US\$	20,000
FUNDER	Wanawisata	
PRIORITY	THIRD	

5.5 HUMAN POPULATION CONTROL THROUGH MIGRATION PROGRAM

KNOWN	Land encroachment	
NEED TO KNOW		
BEING DONE		
NEED TO DO	Human population control through migration of new households	
WHEN	1999	
WHO	UKNP	
COST		
	Total US\$	
FUNDER	GOI	
PRIORITY	FIRST	

5.6 COMMUNITY DEVELOPMENT (19 VILLAGES)

KNOWN		
NEED TO KNOW		
BEING DONE	Continuing program	
NEED TO DO		
WHEN		
WHO	WWF, ALAMI, LATIN	
COST		
	Total US\$	63,000
FUNDER	WWF \$ 33,000	
PRIORITY	THIRD	

VIETNAM RHINO CONSERVATION WORKING GROUP (6) REPORT

Cat Loc Nature Reserve:

The Javan Rhinos in Vietnam are in Cat Loc Nature Reserve, an area of 30,000 ha, not much of which is flat so not all of the habitat is suitable.

Cat Tien National Park:

The Park is nearby to Cat Loc. The land is lower in elevation. There were more rhinos here in the past because there are more rivers. However, there has been much human disturbance and occupation so now rhinos survive only in Cat Loc.

Cat Loc and Cat Tien will be combined into a new National Park of about 100,000 ha, as soon as budget (Vietnam and donor) permits (maybe this year?). But it is not clear if there is an ecological corridor now or in near future between the two areas. The distance between Cat Loc and Cat Tien is 6-7 km. There are many people (about 100,000) in the area between Cat Loc and Cat Tien. A corridor is critical.

Cat Tien is better habitat for rhino in the dry season; Cat Loc is better in the wet season.

The number of rhinos in Cat Loc is estimated to be 15-20, based on 9 tracks + extrapolation in a 1993 survey.

Last known incident of rhino poaching in 1988. (The culprit was in jail for only 1 month of a 1-year sentence because of an ethnic minority issue).

But habitat encroachment is continuing.

Cat Loc has: 8 permanent rangers + 30 contract rangers + 10 locals = 48 staff total. There are 2 guard posts. No other facilities.

Cat Tien has: 100 rangers with good facilities and infrastructure.

The species identification of the rhino is based on about 1 rhino killed per year in recent times; rhinos had only one horn.

Programs in Progress:

- Netherlands/Denmark. Government and WWF will execute; funds from WWF-Netherlands.
 - Mainly Management for Cat Tien
 - Nothing specific on Cat Loc or rhino.
 - Need Recommendations from Colloquium to include rhino component.

Priorities:

- Need More Information:
 - Census: Photo & Track Count
 - Habitat Study
- Need to do in 1997 and 1998.
 - Rhino Protection Units.
 - Training for Rangers
 - Community Education of Rhino.

RECOMMENDATIONS:

1. Protection:

- Cat Loc needs 40 total rangers, so permanent staff must increase by 32. There is Government money, maybe after 1997.
- The staff needs training, facilities/accommodations, guard posts, equipment.
- Need recommendation from Colloquium that there be a focus on Javan Rhino in the larger Cat Tien Project.

2. Census

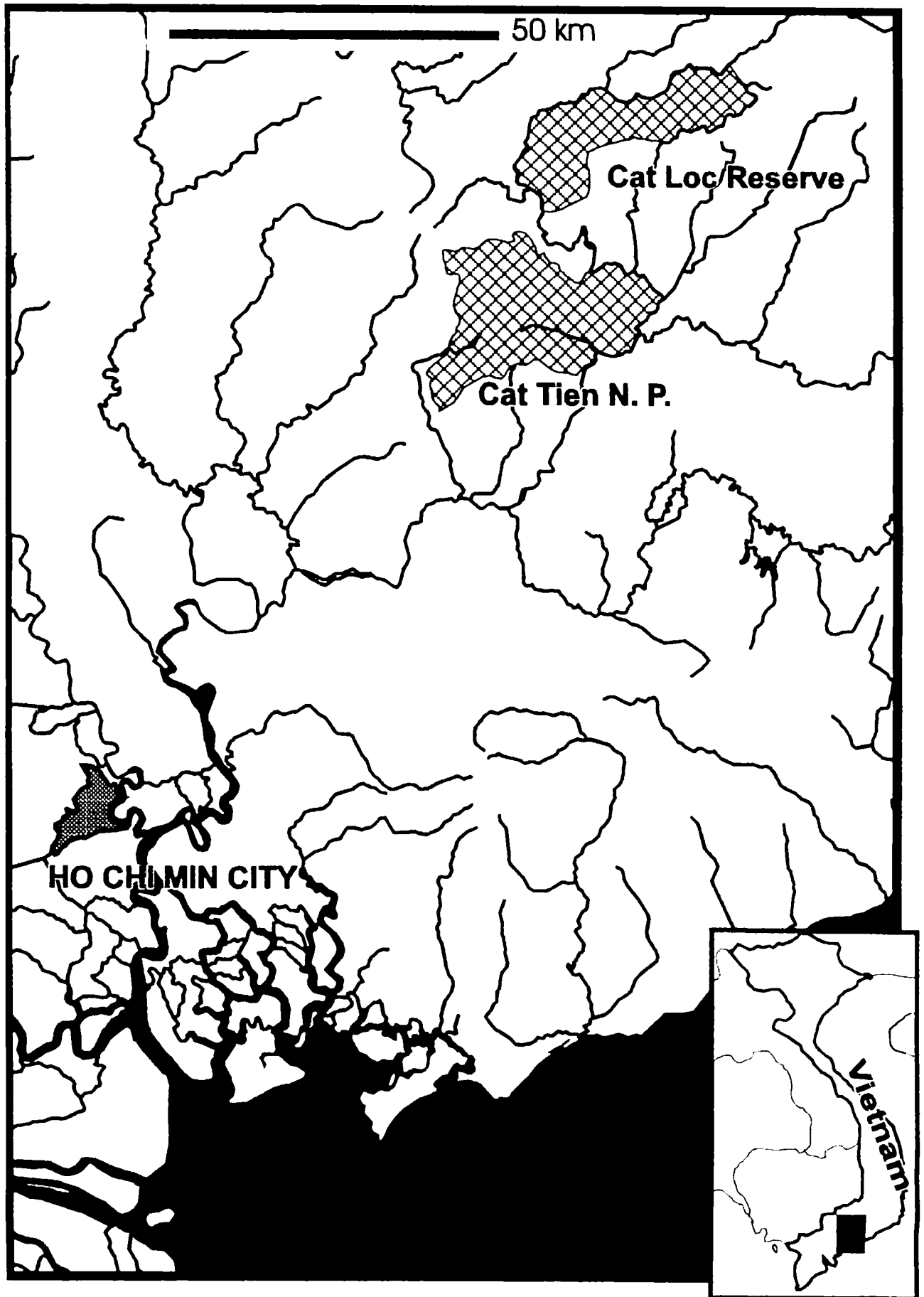
- Do good track count first
- Correlated track and photo census later.

- Conduct December 1997 to April-May.
- Need 2-3 experts/advisers from Indonesia for 2-3 weeks. For design, training, evaluation. Entire census may need 2 months.
- Three step process:
 - (1) Design & training (2 people for 2-3 weeks);
 - (2) Census (guidance desirable but not essential).
 - (3) Evaluation (1 person/month)

3. Habitat Analysis

- Preliminary immediate assessment of Cat Loc and Cat Tien in 1998.
- 3-year study of all potential Rhino Habitat in Vietnam.

RHINO AREAS IN VIETNAM



SUMMARY for ACTION PLANS for JAVAN RHINO in VIETNAM

6.1 CENSUS IN CAT LOC

KNOWN	1993 CENSUS: 15-20 RHINOS																																		
NEED TO KNOW	More precise numbers, ages, spatial distribution																																		
BEING DONE	-																																		
NEED TO DO	a. Good census (track count): design, training & evaluation b. Photo-trap census (later)																																		
WHEN	December 1997 (end of rains) - April/May 1998 (begin of rains)																																		
WHO	IFPD, IEBR, Javan Rhino track specialists (2-3 persons) - Design & training 2 p/m - Looking for corridor ? - Census guidance Optional - Evaluation 1 p/m																																		
COST	<table border="0"> <tr> <td colspan="2">a. Vietnamese Rangers/Scientist:</td> <td></td> </tr> <tr> <td>- Allowances</td> <td>16,000</td> <td></td> </tr> <tr> <td>- Equipment</td> <td>6,000</td> <td></td> </tr> <tr> <td>- Transportation</td> <td>3,000</td> <td></td> </tr> <tr> <td>- Reporting/presentation</td> <td>2,000</td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">27,000</td> </tr> <tr> <td colspan="2">b. Training/Evaluation</td> <td></td> </tr> <tr> <td>- Travel International</td> <td>3,000</td> <td></td> </tr> <tr> <td>- Travel local</td> <td>600</td> <td></td> </tr> <tr> <td>- DSA</td> <td>7,000</td> <td>10,600</td> </tr> <tr> <td></td> <td style="border-top: 1px solid black;">Total US\$</td> <td style="border-top: 1px solid black;">37,600</td> </tr> </table>		a. Vietnamese Rangers/Scientist:			- Allowances	16,000		- Equipment	6,000		- Transportation	3,000		- Reporting/presentation	2,000				27,000	b. Training/Evaluation			- Travel International	3,000		- Travel local	600		- DSA	7,000	10,600		Total US\$	37,600
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- Travel International	3,000																																		
- Travel local	600																																		
- DSA	7,000	10,600																																	
	Total US\$	37,600																																	
FUNDER	a. USFWS (\$ 27,000 for in country expenses) b. USFWS and consultant fees by IRF/FFI(\$ 10,600 for International component)																																		
PRIORITY	FIRST																																		

6.2 PRELIMINARY HABITAT ANALYSIS IN CAT LOC AND CAT TIEN

KNOWN																							
NEED TO KNOW																							
BEING DONE	-																						
NEED TO DO	a. Suitability habitat for rhino in Cat Loc b. Suitability habitat for rhino in Cat Tien c. Looking for corridor																						
WHEN	February/March 1998																						
WHO	IFPD, IEBR, IPB (Indonesia)																						
COST	<table border="0"> <tr> <td>a. 3 years project for Vietnam scientist</td> <td></td> <td>75,000</td> </tr> <tr> <td colspan="3">b. Indonesian experts</td> </tr> <tr> <td>- Travel International</td> <td>600</td> <td></td> </tr> <tr> <td>- Travel local</td> <td>200</td> <td></td> </tr> <tr> <td>- DSA</td> <td>2,500</td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">3,300</td> </tr> <tr> <td></td> <td style="border-top: 1px solid black;">Total US\$</td> <td style="border-top: 1px solid black;">78,300</td> </tr> </table>		a. 3 years project for Vietnam scientist		75,000	b. Indonesian experts			- Travel International	600		- Travel local	200		- DSA	2,500				3,300		Total US\$	78,300
a. 3 years project for Vietnam scientist		75,000																					
b. Indonesian experts																							
- Travel International	600																						
- Travel local	200																						
- DSA	2,500																						
		3,300																					
	Total US\$	78,300																					
FUNDER	a. USFWS (?) for \$ 75,000 Vietnam 3 years project b. WWF (?) for IPB(Indonesia)																						
PRIORITY	FIRST																						

6.3 EXTENDED STUDY ON JAVAN RHINO HABITAT IN VIETNAM

KNOWN	
NEED TO KNOW	Habitat suitability for the remaining Javan Rhino population in Vietnam
BEING DONE	
NEED TO DO	Habitat analysis and evaluation
WHEN	1998 - 2000 (3 years)
WHO	Institute of Ecology and Biological resources, Vietnam
COST	
	Total US\$ 225,000
FUNDER	
PRIORITY	FIRST

JAVAN RHINO (*Rhinoceros sondaicus*)

Historic and Present Distribution

