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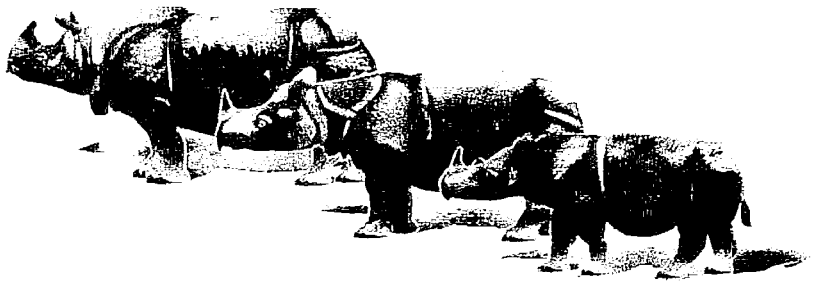

ASIAN RHINOS

Newsletter of the IUCN SSC Asian Rhino Specialist Group
NUMBER 3 March 2000

Editors: Tom Foose, Nico van Strien & Kees Rookmaaker

CONTENTS

CHAIRMAN'S REPORT

This Newsletter reveals the many AsRSG activities of the past and present and the future plans for our determined efforts to protect and conserve all species of Asian Rhinos. Needless to say a great many people are involved from various Governments of Range States, NGO's and even politicians. The membership list is a good indication though there are also a great many who are not members.

The greater one-horned Rhinoceros is doing very well compared to the Javan and the Sumatran Rhincceroses. Our Indian and Nepali partners have achieved immense success and they deserve our admiration and congratulations.

Admittedly, the situation in SE Asia is somewhat different though the problems are similar. The rhinos are in fact a lot more accessible and easier to find and there are many more rhinos per sq. km. in India and Nepal than in SE Asia. Amazingly, the rhinos are successfully protected and populations have increased greatly. We know that rhinos in the Sub-continent and Nepal are confined to smaller, intensively protected areas. The personnel are also much more: almost one forest guard per sq. km. It is impossible to do the same in Malaysia and Indonesia because the protected areas are too large. It was found that poachers have stayed away when RPU's were rotated and stayed continuous in protected areas. It is very hard work but wildlife rangers are willing to do the work with dedication and enthusiasm, provided that they are adequately rewarded. There is really no alternative in saving rhinos from the guns, traps and even poisons of unscrupulous poachers than to have adequate staff and funds.

The populations of the Javan and Sumatran rhinoceroses have been drastically reduced and there is little margin left for error. The existing system of law

enforcement needs to be evaluated to further improve its effectiveness. Success must be supported by an increase in rhino populations.

Captive breeding was initiated as a second component to support in-situ conservation. Much progress has been made by truly interested and dedicated people. Success has somehow eluded us but we are hopeful that with the specific talents and knowledge that have accumulated our continued efforts will produce the much needed result.

We have been very fortunate to have the support both moral and in monetary terms of many organizations and individuals to carry on this often difficult but very challenging conservation work. We extend our sincere gratitude and thanks to everyone.

Mohd Khan Momin Khan, Chairman AsRSG

EDITORIAL

Asian Rhinos 1995 to 2000

AsRSG decided to initiate a regular Newsletter to report on AsRSG activities and to provide updates on current developments in Asian rhino conservation was agreed in December 1993 during the AsRSG plenary meeting at Jaldapara Sanctuary, India. Accordingly, two issues of the Newsletter of the IUCN SSC Asian Rhino Specialist Group were published in January and October 1995 with *Asian Rhinos* as its title. The AsRSG program officers, Dr. Thomas J. Foose and Dr. Nico J. van Strien, served as editors. The need for the continuation of this newsletter was endorsed in the new edition of the *Asian Rhino Action Plan* of 1997. However, due to various circumstances, no further issues have been produced.

With this third issue of *Asian Rhinos*, the AsRSG is reactivating its commitment. The editorial team has been enlarged to include Dr. Kees Rookmaaker, currently residing in South Africa. He has a long-standing interest in rhinoceros studies in all its manifold facets, and many of our readers will be familiar with his papers and especially his books on the subject, the *Bibliography of the Rhinoceros* (1983) and *The Rhinoceros in Captivity* (1998).

Publication Schedule

Asian Rhinos henceforth intends to publish two issues per annum, to appear in March and in September. We invite contributions from AsRSG members as well as non-members. The deadline for the next issue is 31 May 2000. Material should be submitted to:

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Editorial Policy

Asian Rhinos intends to serve primarily as a source of information about new developments in the conservation efforts for the three species of Asian rhinos, both *in situ* and *ex situ*. We will include: reports about the activities of the AsRSG and about its meetings; announcements of future events; notification of funding opportunities; information on trade issues; news about rhino populations and programs in the range states and in captivity; and selected items about African rhinos that we consider particularly pertinent to Asian rhino conservation. *Asian Rhinos* will provide updates on population and distribution figures for the three species of Asian rhinoceros, as well as summaries of African rhino status, as new results become available.

Asian Rhinos does not publish original research papers or reports and all material submitted may be edited and summarized by the editors, with reference to the source of information. The editors recommend that quotations from *Asian Rhinos* refer to the original paper or publication indicated as the source, or when no specific source is given refer to '*Asian Rhinos*, No 3, 2000'.

ASIAN RHINO SPECIALIST GROUP ACTIVITIES

NEW AsRSG ACTION PLAN

The first Action Plan for Asian Rhinos was published in 1989 edited by Mohd Khan Momin Khan who has served as Chair of the Asian Rhino Specialist Group (AsRSG) since 1984. This action plan was revised and improved in a number of workshops convened by the AsRSG between 1989 and 1995. In 1997, the New Edition of *Asian Rhinos: Status Survey and Conservation Action Plan* was published, edited by Dr. Thomas J. Foose and Dr. Nico van Strien, on behalf of Mr. Mohd Khan Momin Khan, Mr. S.C. Dey and Drs. Effendi Sumardja. The action plan is an important and well illustrated document of 112 pages guiding the conservation of the three species of Asian rhinos.

It is available from IUCN Publications Services Unit, 219c Huntingdon Road, Cambridge CB3 0DL, UK (Tel. 44 1223 277894, fax 44 1223 277175, e-mail iucn-psu @wcmc.org.uk). Price $ 20 or £13.50 plus postage/packing.

The new Action Plan indicates that poaching for the horn and habitat degradation remain the major threats to the survival of the three Asian species of rhinoceros, all on the verge of extinction. Four major requirements for rhino conservation are identified:

- cessation of the illegal trade in rhino horn and products;
- stabilization, extension, and improvement of rhino habitat;
- recovery of rhino populations to viable levels;
- support of local communities for and hence benefit to local communities from rhino conservation.

Significant funds are required if Asian rhinos are to be conserved from extinction. The AsRSG in this new action plan estimates that for the period 1996-2000 approximately US $ 33 Million is needed for a rigorously defined set of priority projects.

NEW AsRSG STRUCTURE & POLICY

The AsRSG reorganized during 1999. There continues to be a Chair as well as two Deputy Chairs, one for South-East Asia and one for South Asia (India/Nepal). In addition, there is an Executive Committee comprising the chairs, the two program officers and principal representatives from the six significant range states for Asian rhinos, i.e. India, Nepal, Indonesia, Peninsular Malaysia, Sabah and Vietnam. A full list of the current members of the AsRSG with their addresses appears later in this issue. For the period 1998-2000, Mohd Khan continues as the Chair, Mr S.C. Dey as the Deputy Chair for South Asia and Drs Effendi A. Sumardja as Deputy Chair for South-East Asia. Dr Thomas J. Foose and Dr Nico J. van Strien continue their activities as Program Officers of the AsRSG. Finally, AsRSG has decided to conduct only regional rather than plenary meetings in order to increase cost-effectiveness and to reflect the very different needs of the two major regions for Asian rhinos.

GOLDEN ARK AWARDS

The Golden Ark award, provided by Prince Bernhard of The Netherlands, is conferred upon persons who have contributed significantly to wildlife conservation. AsRSG Chair Mr. Mohd. Khan bin Momin Khan and AsRSG member Widodo Ramono have been earlier recipients of this award.

On 28 November 1996, Dr. Nico J. van Strien, one of the AsRSG Executive Officers, was distinguished as a "Knight" in the Order of the Golden Ark. This was in recognition of his "persistence, determination and commitment to the protection of rainforest habitat and in particular the conservation of the Sumatran Rhino."

A year later, on 29 November 1997, AsRSG Deputy Chair Drs. Effendi A. Sumardja was honoured to become an "Officer" in the Order of the Golden Ark, in tribute of his "contribution to conservation and environmental protection in Indonesia."

The AsRSG members congratulate both Dr. van Strien and Drs. Sumardja with this honour bestowed upon them by Prince Bernhard.

INTERACTIONS WITH THE AFRICAN RHINO SPECIALIST GROUP (AfRSG)

The AsRSG continues to have very constructive relationships with its counterpart, the African Rhino Specialist Group (AfRSG), in an effort to increase interactions on common interests and problems. Dr Richard Emslie, the Scientific Officer of the AfRSG is a member of the AsRSG, while Dr Thomas J. Foose represents the AsRSG program office on AfRSG. Dr Esmond Bradley Martin continues to be a member of both specialist groups. Both Dr Emslie and Dr Bradley Martin attended the AsRSG meeting in Kaziranga National Park in February 1999. The two Specialist Groups also both contribute to the publication of *Pachyderm*, published bi-annually from Nairobi, Kenya, as the journal of the IUCN SSC African Elephant, African Rhino and Asian Rhino Specialist Groups. Dr Nico van Strien serves on the editorial board of *Pachyderm*, and the journal includes a regular Chairman's Report outlining the new developments in the AsRSG.

All correspondence concerning *Pachyderm*, including enquiries about subscription, should be sent to: The Editor, *Pachyderm*, WWF Regional Office, P.O.Box 62440, Nairobi, Kenya (tel. 254-2-331543 / 249049; fax. 254-2-332878; E-mail. afesg@wwfnet.org).

RPU PROGRAM IN INDONESIA AND MALAYSIA

Foose and van Strien have discussed the Rhino Protection Unit (RPU) Program for *in situ* rhino conservation strategies in Indonesia and Malaysia (*Pachyderm*, No. 26, 1998, pp. 103-104), including the various funding sources that have supported this effort. What ensues is a summary of those sources providing recognition to the various donors.

GEF Funding 1995-1998

Asian Rhinos Number 1 (page 7) reported about the finalization of the approval process of a Global Environment Facility (G.E.F.) Biodiversity Project through the United Nations Development Programme (UNDP) which injected US $ 2 Million over a period of three years. The GEF project was coordinated and facilitated by AsRSG in conjunction with the International Rhino Foundation (IRF). Under this AsRSG/IRF-initiated program, Rhino Protection Units (RPUs) have been formed in all areas where Sumatran rhinos exist, except in Gunung Leuser

National Park where a similar program has been organized by the European Union. There are now 28 RPUs operating under the auspices of IRF/AsRSG in Indonesia and Malaysia. The GEF was crucial in catalyzing the establishment of RPUs needed to protect the Sumatran and Javan rhinos in their native habitat. As expected, the GEF project concluded in December 1998, but as one of the major objectives achieved, the RPU program has continued with support from other donors under AsRSG auspices as described below.

International Rhino Foundation (IRF)

During the later stages of and particularly since the conclusion of the GEF project, the International Rhino Foundation (IRF) has provided and recruited funds to permit continuation of the RPU program. AsRSG and IRF have jointly facilitated and assisted implementation and coordination of the RPU programs since its inception. IRF serves as the financial and administrative agent for AsRSG under an M.O.U. between IRF and IUCN. The IRF funds for the RPU program are derived largely from contributions from two major IRF members and donors, **the Howard Gilman Foundation** through **White Oak Conservation Center** and the **Disney Wildlife Conservation Awards**. The recruitment of additional funds has entailed the formation of a number of new funding partnerships with other organizations. Notable new funding partners are discussed below.

United States Fish & Wildlife Service (USFWS)
Rhinoceros & Tiger Conservation Fund (RTCF)

The USFWS RTCF is a unique program by a non-range state to provide annual support for worthy projects in rhino and tiger conservation. Since its inception in 1996, the RTCF has provided about $ 620,000 for Asian rhino conservation.

AsRSG and IRF have been the recipient of 10 grants so far to support Sumatran and Javan rhino conservation programs in South East Asia. These grants include:

- two grants for Sumatran Rhino RPUs in Way Kambas National Park, Sumatra, Indonesia
- a grant for Javan Rhino RPUs in Ujung Kulon National Park, Java, Indonesia.
- two grants for Sumatran Rhino RPUs in Peninsula Malaysia
- a grant for Sumatran Rhino Community Outreach Work in Sabah, Malaysia
- a grant for a Javan Rhino Colloquium conducted in Indonesia, primarily for the Ujung Kulon population but with participation for the species in Vietnam as well.
- two grants for technical assistance to rhino conservation in Vietnam.
- a grant to help support the SRS, the Sumatran Rhino Managed Breeding Center in Way Kambas National Park, Sumatra, Indonesia.

The RTCF has also provided other organizations with grants for Asian rhino conservation:

- four for rhino conservation in Vietnam
- eight for conservation of *Rhinoceros unicornis* in India and Nepal.

A full list of projects funded by the RTCF and further information on possible funding from the RTCF is available from Mr. Fred Bagley, Fax: 1\703\ 358-2849; Tel: 1\703\358-1760; E-Mail: fred_bagley@mail.fws.gov.

AAZK Bowling for Rhino Program

Since 1998, the AAZK Bowling for Rhino Program has been supporting RPUs in Bukit Barisan Selatan National Park through an annual grant to the IRF. From an even earlier date, AAZK has been providing support to Ujung Kulon and its Javan Rhino through the Adopt-A-Park Program of the Minnesota Zoological Garden.

WWF-Indonesia

Commencing in late 1998, WWF-Indonesia (WWF-I) entered into a partnership with IRF/AsRSG to provide co-financing of the RPU program in Indonesia. Other WWF national organizations (Netherlands, U.K., Switzerland, and U.S.) have provided funds to WWF-I for this purpose.

European Union (EU)

The Gunung Leuser Project supported by the European Union has been providing funds for RPUs in Gunung Leuser, the site of what is believed still to be the largest single population of Sumatran rhino in the wild.

Anna Merz Trust and The Rhino Trust

Mrs. Anna Merz, legendary rhino conservationist from Africa, has been supporting Sumatran and rhino conservation in Indonesia since 1997 with annual contributions to support RPUs in Way Kambas and Ujung Kulon National Parks. From the United States, the Rhino Trust, an organization founded by Anna Merz is also supporting RPUs in these two Park.

In Memoriam Sanjoy Deb Roy

Sanjoy Deb Roy passed away on 16th August 1999, leaving behind a large group of his admirers stunned in disbelief. Born in 1934 in Shillong (Meghalaya), India, educated in Silchar (Assam) he took a degree in Science, later adding to it a Masters of Science in Forestry from the Indian Forest College, Dehra Dun during the year 1959 and became a member of the Indian Forest Service to serve in Assam with distinction.

He was the first Field Director of the famed Manas Tiger Reserve in 1973. He was destined to manage, at one time or the other, this spectacular wilderness area for a total period of 18 years. In 1980, under his able stewardship, Manas was designated as a World Heritage Site. He also was the Director of Kaziranga National Park for a period of 3 years. Mr. Deb Roy later became the Chief Conservator of Forests (Wildlife) and the Chief Wildlife Warden of the state of Assam, subsequently to join the Ministry of Environment and Forests, Government of India as the Additional Inspector General of Forests for Wildlife during 1989. He retired in 1992 from government service and continued to serve the cause he had espoused thereafter. One may say that he never retired but simply changed his job!

He was a sportsman, excelling particularly in football, a first rate angler and an expert marksman. Throughout his life, the great qualities of a sportsman were easy to see in his attitude. A true outdoors person, he was happiest amidst the wilderness and made a very significant contribution for conservation of wildlife in India, especially the challenging species such as the elephant, tiger, rhino and the pygmy hog to mention a few.

In 1982, the Manas Tiger Reserve was adjudged the best managed wildlife reserve, attracting a national award under the leadership of Mr. Deb Roy.

He was an internationally acclaimed wildlife conservationist and was a member among many others, of the National Environmental Council, the Indian Board for Wildlife, Project Elephant, the Tiger Crisis Cell, also likewise a member of the IUCN's Species Survival Commission and Specialist Groups on Cats, Rhino, and wild pigs. He continued to be associated with a number of other organisations as an expert consultant. He was Director of the Corbett Foundation and closely worked with the Ranthambhor Foundation.

In 1990, he received Norman Borolough Award for his outstanding contribution to the field of conservation.

He was upright, humble and a gentleman's gentleman. He was a role model for many aspiring wildlife managers. Sanjoy Deb Roy lives through such men who embellish today the cause that was pivotal to his life. Only a few are granted such tribute.

[Dr. S.P. Sinha]

AsRSG MEETINGS

The Asian Rhino Specialist Group has convened and facilitated a number of important meetings and workshops to assist conservation efforts for the Indian (Great One-Horned) Rhinoceros, the Javan (Lesser One-Horned) Rhinoceros and the Sumatran Rhinoceros.

Asian Rhino Specialist Group (AsRSG) Meetings

1979		Bangkok, Thailand	AsRSG Meeting Chair: Prof.Dr. Rüdi Schenkel
1982		Frazer's Hills, Malaysia	AsRSG Meeting Chair: Prof.Dr. Rüdi Schenkel
1986	July	Jakarta, Indonesia	AsRSG Meeting Chair: Mohd Khan bin Momin Khan
1987	October	Kuala Lumpur, Malaysia	AsRSG Meeting Chair: Mohd Khan bin Momin Khan

1989 First AsRSG Asian Rhino Action Plan

1989	June 5-7	Bogor, Indonesia	Javan Rhino Workshop
1991	September	Bogor, Indonesia	Rhino Conservation Strategy and Action Plan
1993	November	Bandarlampung, Indonesia	Sumatran Rhino Population and Habitat Viability (PHVA) Analysis Workshop
1993	May	Kuala Lumpur, Malaysia	Malaysian Rhino Conservation Action Plan
1993	September	Bogor, Indonesia	Indonesian Rhino Conservation Action Plan
1993	Dec. 6-11	Jaldapara, India	Indian Rhino Population & Habitat Viability Analysis (PHVA) Workshop
1993	Dec. 6-11	Jaldapara, India	AsRSG Meeting Chair: Mohd Khan bin Momin Khan
1995	Nov 27-28	Sandakan, Sabah, Malaysia	Malaysian Rhino Population & Habitat Viability (PHVA) Analysis Workshop
1995	Nov 29-Dec 1	Sandakan, Sabah, Malaysia	AsRSG Meeting Chair: Mohd Khan bin Momin Khan

1995 Second AsRSG Asian Rhino Action Plan

1997	Jul. 1-3	Bogor, Indonesia	Javan Rhino Colloquium

REPORTS ON RECENT MEETINGS

In *Asian Rhinos* Number 2, the meetings to be conducted in Sabah in November 1995 were announced. The results of these meetings are extensively integrated in the text of the new edition of *Asian Rhinos: Status Survey and Conservation Action Plan* (1997). The Javan Rhino Colloquium conducted in Bogor in January 1997 was preceded by an *Agenda & Briefing Book*, and followed by a 50 page document with its *Report & Recommendations*. A summary is provided below. The first official regional meeting of AsRSG under its reorganized structure and operational policy was conducted in Kaziranga National Park February 1999 for South Asian rhino range states, i.e. India and Nepal. A fuller report on this meeting will be published as a separate report by the AsRSG and will be discussed further in the next issue of Asian Rhinos. However, in the interest of timeliness, the points of agreement and recommendations are also presented below.

JAVAN RHINO COLLOQUIUM, Bogor, Indonesia, July 1997

This Colloquium was conducted in Bogor, Indonesia from 1-3 July 1997. The goal was to assemble all the principle parties involved or interested in conservation efforts for the Javan Rhino in Ujung Kulon National Park, Java, as well as those working with the species in Vietnam. The participants had an intensive program consisting of both plenary sessions and working groups. These working groups considered five aspects of the situation of the rhino in Ujung Kulon, i.e. Census and Survey Methods; Intensive Protection and Institutional Aspects; Habitat Research and Management; Population and Habitat Viability Analysis (PHVA) Considerations; and Community Interactions. The *Report & Recommendations* was published in 1997, compiled by an editorial committee co-chaired by Dr. Tom Foose and Dr. Nico van Strien. Copies are available from Dr. Tom Foose.

There are about 50-60 Javan Rhino in Ujung Kulon National Park. Despite considerable activity and investment during the past years, the workshop observed that there was still incomplete information on the size and structure of the rhino population, rhinos continued to be lost to poachers, anti-poaching patrols were insufficiently intensive, and the rhino population had not increased for at least a decade. Furthermore, major habitat changes seemed to be occurring in the park, and the rhino population continues to be subject to risks which can imperil small, isolated and unique populations.

The meeting agreed on three major recommendations concerning the Javan Rhino in Ujung Kulon National Park, Indonesia.

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;
3. To initiate habitat management experiments, endeavoring to expand carrying capacity in order to attain a target population of 100 Javan Rhinos.

For the Vietnamese Rhino in Cat Loc Wildlife Reserve and Cat Tien National Park, it was recommended to conduct a track count of rhino, to initiate habitat analysis work, and to encourage the large WWF project in the park to provide for specific rhino action, including an increase of the number of guards in Cat Loc from 8 to 40. It should be noted that all of these recommendations have been or are being implemented.

REGIONAL MEETING OF AsRSG - Kaziranga N.P. , Assam, India - February 1999

The Points of Agreement and Recommendations

1. The primary priority of funding of Rhino conservation is *in situ* activities, especially anti-poaching and habitat management combined with eco-development.
2. Conservation success achieved in India and Nepal in the case of the rhino has been possible due to the extraordinary dedication and commitment of the field staff. The service conditions of these field staff, who are the guardians of this species as part of the world's wildlife heritage, needs to be adequately upgraded commensurate with their selfless struggle.
3. The intelligence gathering systems for rhino conservation in India and Nepal are inadequate. External funds should be used to support this intelligence gathering until an effective government-support system can be developed.
4. The Meeting reaffirmed that there should be a viable population of minimally 2,500 *Rhinoceros unicornis* in the wild in at least 10 populations of minimally 100 rhino each, with an ultimate optimal objective of a total wild population of 5,000 individuals.
5. To develop more recognition and support for rhino conservation, the AsRSG recommends that the

Government of India establish a PROJECT RHINO, similar to Project Tiger and Project Elephant.

6. The Government of India and Nepal are already providing considerable funds to conserve the rhino and their habitat. These government efforts have been very successful for *in situ* rhino conservation. However, because of the human demographic pressures in both of these countries, to carry this success forward into the next millennium, the efforts of the Governments of India and Nepal should be augmented with significant funds from international (external) sources.
7. The AsRSG should have more interface with the *Rhinoceros unicornis* range state governments, so that rhino conservation receives continuing and increasing support.
8. Toward this objective, the AsRSG will sponsor a technical management advisory group comprising representatives from all major rhino areas in India and Nepal.

Financial support for the meeting was provided by the International Rhino Foundation (IRF), WWF-Netherlands, WWF-U.S., and WWF-UK. Some funds from the meeting budget that were not used for the session due to the frugality of the organizers were applied to support census in March/April 1999 of the rhino in Kaziranga, Orang, and Pabitora where full counts have not been conducted since 1993.

FORTHCOMING EVENTS

The AsRSG is planning to have a Regional Meeting for South-East Asia in 2000 or 2001. It has been proposed to convene this meeting in Vietnam. The actual dates and place will be announced as soon as the details are available.

DEVELOPMENTS IN RHINO RANGE STATES

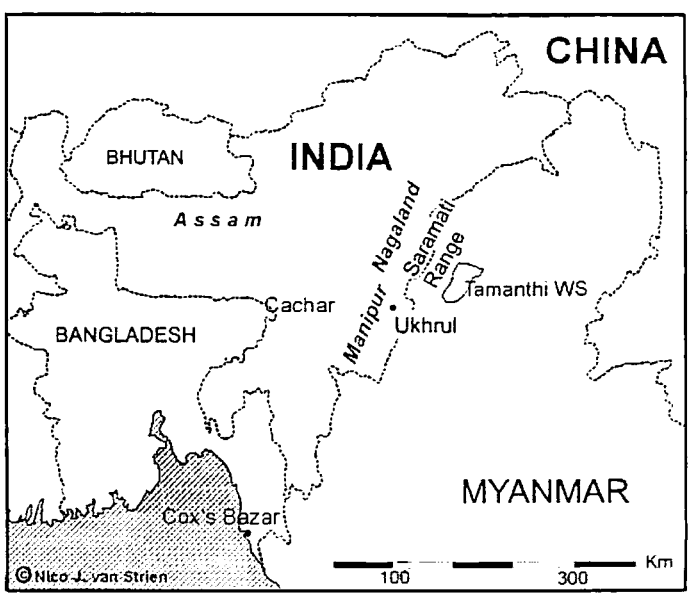
INDIA

Sumatran Rhino Sightings in N. E. India

There are still occasional reports about the presence of rhinos in the mountainous parts of North-East India, possibly referring to the Sumatran Rhino (*Dicerorhinus sumatrensis*). In 1967, a rhinoceros was killed near Cox's Bazar in Bangladesh. An animal was sighted by locals in Punikhal of Sonai Reserved Forest, Cachar District, Assam, India.

In January 1996, Anwaruddin Choudhury visited the Anko Range in the Ukhrul District of the state of Manipur. He learned that villagers at Konkan (88 km SE of Ukhrul town) had observed signs of rhinos in the area in the early 1990's. In the 1970's a rhino was shot near Khamsong vilage, N.E. of Ukhrul town. In Nagaland, where he visited in June 1996, he received reports of rhinos in the Saramati range on the Myanmar border dating from 1967-68, as was also recorded by the 1994 survey around Tamanthi Wildlife Sanctuary in Northern Myanmar (see *Asian Rhinos*, No.1, p.10 and *Oryx* 29 (2): 123-128, 1995). The two areas in Manipur and on the Nagaland-Myanmar border are still virtually inaccessible and covered with mature forests. Further investigation and protection is recommended.

Source: A. Choudhury, The status of the Sumatran rhinoceros in north-eastern India. *Oryx*, 31 (2): 151-152, 1997; and A. Choudhury, Sumatran rhinoceros rediscovered in India, *Newsletter of the Rhino Foundation for Nature in NE India*, vol. 2 no.1, June 1998.



THAILAND

Recent patrols and surveys by Penisula Malaysia RPUs and by wildlife officials from Thailand on their repective sides of the border between these two countries has suggested that Sumatran rhino do still indeed survive in Halabala National park, Thailand. Halabala is part of an ecosystem that still encompasses forest habitat on both sides of the border. On the Malaysian side, it is know that appreciable numbers of Sumatran rhino still inhabit the Belum region.

PENINSULA MALAYSIA

In 1999, the RPU program in Peninsula Malaysia was reorganized to operate on a more semi-autonomous basis as has been the case in Indonesia since the outset of the GEF project there. The RPUs in Peninsula are now being coordinated by AsRSG Chair Mohd Khan working closely with the Dept. of Wildlife & National Parks and through the State Wildlife Directors in the highly federalized Malaysian system of government. The increased patrols occurring under this reorganized program are detecting new and often encouraging information about rhino distribution. More details on this information will be published in future issues of *Asian Rhinos*.

SABAH

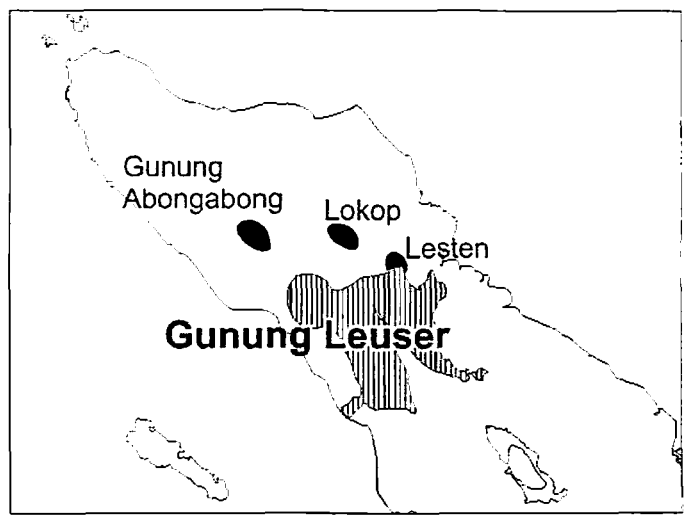
Since the conclusion of the GEF Project, there has not been as much outside support for the RPU program in Sabah as there has been in both Peninsula Malaysia and Indonesia. IRF is exploring with SOS-Rhino and other organizations, including the USFWS RTCF, how additional support may be provided.

INDONESIA

Sharp Rise in Poaching and Encroachment

The current political and economic situation in Indonesia has resulted in a sharp rise in poaching, extraction of timber and forest products, and illegal occupation and encroachment in all conservation areas. So far, the Rhino Protection Units (RPUs) have not reported an increase in rhino poaching in the areas where they operate, but the number of cases of other illegal activities is increasing. It appears that the rhino populations in the areas where RPUs operate have not yet been effected, but if this situation continues the rhinos will certainly suffer from loss of living space, increasing disturbance and possibly increased poaching. There also appears to be a trend among rhino poachers to use firearms instead of the traditional falls and snares, because this enables them to operate more quickly and avoid detection by the patrol units. If firearms become more easily availabe in the future, the patrol system will have to be intensified and the risk for the personnel will increase dramatically. (Source: Dr Nico J. van Strien)

Extinction of Rhino in Northern Aceh, Sumatra



From 20 July to 26 October 1997, field surveys were undertaken by the members of a University of Bristol Expedition in the Beutong forests of Aceh, Sumatra. The study area includes the Gunung Abongabong region where a remnant population potentially might have survived. Although the project was specifically designed to determine if any rhinos existed in the area, no fresh signs could be recorded. A few trails, rubs and wallows were found, some of which were approximately two years old, while the majority was at least five years old. The report concludes that the data collected would indicate, but not conclusively prove, that rhino have been eradicated from the study area.

The latest AsRSG Action Plan also mentioned the possibility of Sumatran rhino surviving in the areas of Lokop and Lesten (Serbodjadi). Recent information

provided by the EU Leuser Project team indicated that there is very little hope of any survivors in these regions of Aceh.

Source: Catherine R. Bloxham, James A. Burton, Ir Kuswandono, James McPerson and Barney Long, University of Bristol Expedition Report Series No. 3: Faunal and Floral Survey of Beutiong, Aceh, Sumatra 1997. University of Bristol, 1999; and personal communications by the staff of EU Leuser Project.

Ujung Kulon now has Rhino Protection Units

On the Javan Rhino Colloquium the Head of the Ujung Kulon National Park expressed the need for the establishment of Rhino Protection Units to supplement the regular park staff. Although Ujung Kulon has the highest budget and largest guard force of any National Park in Indonesia, the Park staff does not feel confident that they can provide maximum security to the 50 odd Javan rhinos (Refer also to page 8). Consequently the Indonesian Rhino Conservation Program was requested to include Ujung Kulon in the area of operation.

In the second half of 1998 the IRCP started recruitment and training and in January 1999 three new Units were established in Ujung Kulon, with funds from IRF, WWF Indonesia and the USFWS RTCF. A base camp was established at Tanjong Lama near the Park boundary. The RPUs in Ujung Kulon consist of 2 regular Park Rangers and three patrollers recruited from the local community.

In addition to the land patrols by the RPUs two teams of Park rangers are formed to patrol the eastern coastline of the Park, to prevent poachers from landing on the Peninsula.

TRADE ISSUES

Recent Prices of Rhino Parts in Sumatra

Some prices of rhinoceros horn and hoofs in the Southern part of Sumatra have been investigated.

Value of Sumatran Rhino Horn in Southern Sumatra, per 100 grams (in Rupia)

1990	1997	1999
($ = Rp 2000)	($ = Rp 2500)	($ = Rp 7000)
Hunter's sale price		
1-1.5 million	2-2.5 million	3.5-4 million
Intermediary's sale price		
2.5-3 million	4-5 million	no data

Value of Sumatran Rhino Hoofs in Southern Sumatra, per piece (in Rupia)

Hunter's sale price		
20.000	25.000	40.000

Source: Personal Communication from Arief Rubianto, RPU Regional Coordinator, Bukit Baritan Selatan, Sumatra, Indonesia.

CITES: in Need of Standardized Indicators of Success

All five species of rhinoceros have been included in Appendix I of CITES since 1977. At the Ninth Conference Of Parties (COP) held in 1994, the southern white rhinoceros was transferred to Appendix II for the exclusive purpose of allowing international trade in hunting trophies and live animals to appropriate and acceptable destinations. At the same COP, a review of the conservation status of rhinoceroses and the impact of conservation measures resulted in the adoption of Resolution Conf. 9.14 (Conservation of Rhinoceros in Asia and Africa). This resolution directed the CITES Standing Committee to pursue actions aimed at reducing illegal trade, while ensuring that (i) all such activities are accompanied by evaluations of their effectiveness; (ii) standardized indicators of success are developed to measure changes in levels of illegal hunting and of the status of rhinoceros populations in the range states; and (iii) the policies guiding interventions are responsive to the outcome of evaluations and are modified accordingly.

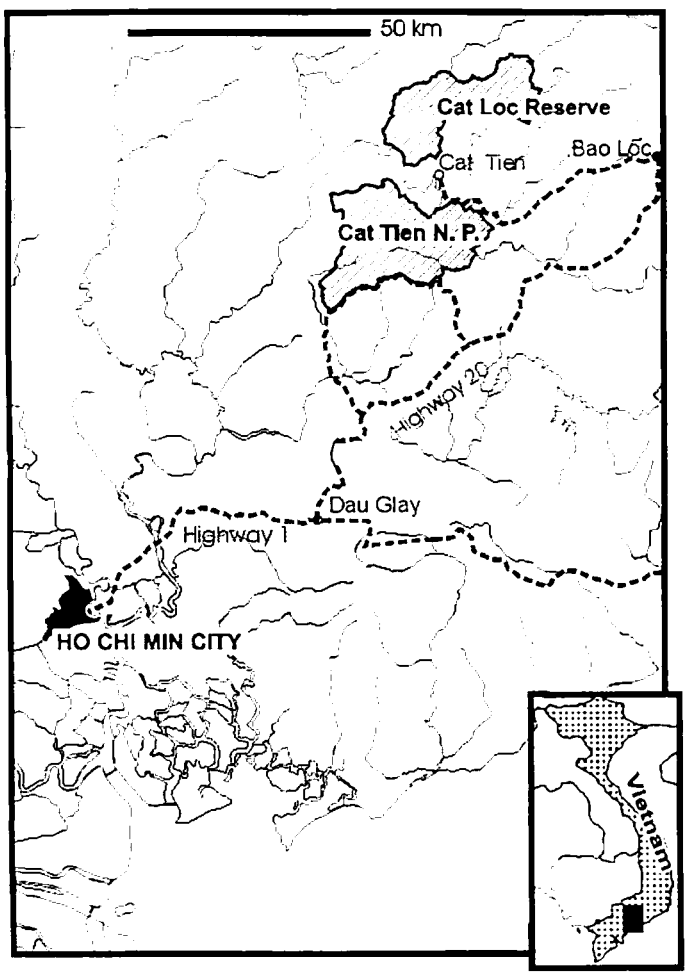
In search of these main indicators of success, a workshop was held in Cambridge on 9-11 December 1998. A large number of possibilities was discussed and evaluated. The workshop participants recommended a two-component indicator system, based primarily upon range-state indicators at the site level, which include: level of illegal killing (carcass detection, illegal activity/site data, adjusted for effort) and population status (rhino numbers, trends and number of populations). This *can be* strengthened by some trade or trafficking indicators,

like level and routes of trade linked to explanatory variables (e.g. supply from non-wild sources, consumer demand trends, and measures of effort, resources, and effectiveness of enforcement).

Source: Interim Report on developing indicators of success for evaluating rhinoceros conservation initiatives. compiled by TRAFFIC International, January 1999.

THE VIETNAMESE RHINOCEROS

THE 1998 CAT LOC RHINO CENSUS



As recommended by the 1997 Javan Rhino Colloquium convened under AsRSG auspices, three teams surveyed the Cat Loc Wildlife Reserve east of 107° 30' E during three periods of a few days each in May 1998. A standard track analysis method was used to obtain the results. All rhino signs were recorded. From all clear footprints both the width and the length were noted and plaster casts were produced.

During the survey, rhino footprints were recorded at 29 locations. Track measurements were recorded from 16 locations, 13 casts of full prints and 32 casts of front hooves only were made. Among all the casts, 4 different types could be identified, each clearly different in size and/or form from the others. A further 19 casts were not clear enough to be identified with any of these four types, nor were they distinct enough to indicate another type. All 4 rhinos identified from the plaster casts have a narrow foot, less than 20 cm width. Measurements of considerably larger prints, about 23 cm wide, were recorded in three locations, while several prints measuring around 21 cm were also seen. The larger prints must belong to an individual different from the 4 individuals identified from the casts. Therefore, the minimum number of rhinos in Cat Loc can be set at 5.

The chosen survey area covered about 95% of the rhino area. Although the census was timed to coincide with the start of the rainy season, a late start of the rains meant that the soils were still hard and tracks difficult to find. One cannot expect to encounter good clear tracks of all individuals in a short time. Therefore, the number of identified individuals will always be an underestimate of the true number, but how much under is impossible to determine. For these reasons, and considering that the rhinos only occur in a very small area, it is considered safe to assume that probably not more than 1-2 rhinos were left unrecorded, or were not recognized as being distinct. The maximum number of rhinos in Cat Loc WR can be set at 7.

The total area currently available to rhinos in Cat Loc, about 5100 ha, is too small to support a viable population of rhino and the area is under rapid encroachment. The quality of the habitat is sub-optimal, dominated by bamboo and rattan, while good food resources are scarce and widely scattered. The poor quality of the habitat is partly caused by the heavy use of defoliants during the war. The area is rapidly being opened for agriculture. Already 35 % of the eastern part of the reserve is lost to encroachment. All of the best rhino habitat, the flat alluvial areas, has been converted into rice fields. The few remaining areas of broadleaf forest are being converted into cashew nut plantations. Access to a vital saltlick has been blocked by the advancing encroachment. If the observed rate of encroachment continues, it can be expected that all the current rhino

habitat will have disappeared in 3-5 years time.

At the time of the survey, there was very little actual protection of the rhino population. Only restriction of the availability of firearms in the area has been implemented. There were only two guard posts with four guards for the whole area. The rhinos have already lost 85% of their habitat. There has been no protection of the rhino habitat. In fact, settlement inside the reserve has been stimulated by the construction of roads and other facilities for the Cat Loc Wildlife Reserve. There appeared to be no plan to curtail the current levels of encroachment and habitat destruction.

The survey was technically assisted by AsRSG and Fauna and Flora International (FFI) with financial support from the U.S. Fish and Wildlife Service Rhinoceros and Tiger Conservation Fund (USFWS RTCF) and the International Rhino Foundation (IRF).

THE 1999 CAT LOC RHINO CENSUS

In January 1999, a second census was carried out, just after the rainy season, using the same methods as in 1998. Over a period of one month, two teams of six persons surveyed the rhino area, covering 218 km of survey lines and collecting 144 plaster casts of rhino footprints. From the tracks a minimum number of 7 rhinos could be identified. Considering the possibility that some rhinos were not encountered the maximum number was estimated to be at least 8. A detailed report on the Park and the rhino population is published in *Pachyderm*.

Source: Polet, G., et al, 1999: The Javan Rhinoceros, *Rhinoceros sondaicus annamiticus*, of Cat Tien National Park, Vietnam: Current Status and Management Implications. *Pachyderm* 27, 34-48.

A PROTECTION STRATEGY FOR THE RHINO IN CAT TIEN NATIONAL PARK

Since 1998, the WWF Cat Tien National Park Conservation project, an integrated conservation and development project, has been fully operational. Cat Loc was included as part of the Park in January 1999. There are an estimated 6000 people living inside the park. Permanent and shifting agriculture represents a major part of their livelihood, together with hunting, fishing, logging and harvesting. The area occupied by the rhinos is entirely surrounded by farmland. Within the National Park, there are 18 guard posts and a park headquarters. Transport is provided by a number of vehicles, motor bikes and boats. Despite the good management, good infrastructure, reasonable equipment of the guards and their hard work, there seems to be very little success, as the number of known offenses has not declined over the last four years, there is a significant number of repeat offenders and some communities continue to depend almost entirely on the park's natural resources. Some new measures need to be taken to remedy the situation, and specific recommendations have been suggested. However, the success of any future strategy will to a large extent rely on the rapid resolution of the problem of people living inside the park.

Source: Report by Philip Wells, IRF Field Operations Consultant, 1999.

THE NAMING OF THE VIETNAMESE RHINOCEROS

The French missionary, Father P.M. Heude (1836-1902) published some excellent works on Chinese natural history, including one on the conchyliology of the Nankin Province between 1875 and 1885. He continued to write about his observations on the mammals, describing many new species of deer, in a work entitled *Mémoires concernant l'Histoire Naturelle de l'Empire Chinois, par des Pères de la Compagnie de Jésus*. This work was published in a series of installments to be bound in different volumes, mostly printed in Shanghai. The rhinoceros appears as part of a study of dentition in mammals, in the second installment of the second volume, dated 1892 (pp.65-84: "Etudes odontologiques, première partie: Herbivores trizygodontes et dizygodontes"), accompanied by four plates (numbered XIXA, XX, XXa, XXb). On page 74, Heude described a lower molar from an Indochinese Rhinoceros, and in a footnote on p.75 he referred to an illustration on pl. XIXa showing the third deciduous premolar of "*Rh. annamiticus*." The same name appeared in the explanation to the plate on p.113.

The Indochinese specimens of *Rhinoceros sondaicus* were again critically examined and studied by C.P. Groves and C. Guérin in 1980 (*Geobios*, Lyon, no.13 (2), 1980). They concluded that these specimens differed in various craniological and odontological features from the other populations. Using Heude's long-forgotten name, they established that the rhinoceros known from the different countries in Indo-China constituted a separate subspecies, *Rhinoceros sondaicus annamiticus* Heude, 1892. (Dr Kees Rookmaaker).

TAXONOMIC STATUS OF THE VIETNAMESE RHINOCEROS

The footprints of the rhinos in Cat Loc are very small compared to those of the Javan Rhinos in Ujung Kulon. The width of the hindfoot in rhinos from Ujung Kulon is 25-28 cm, while those measured in Cat Loc were 20-23 cm. Rhinos with footprints less than 23 cm wide would be considered subadults in Ujung Kulon. It is incomprehensible that there would be subadults only in Cat Loc, especially as the same small sizes were found during the 1993 survey. From the form of the footprints (comparatively wide front hoof and short side hoofs), there is no doubt that all footprint casts from Cat Loc represent *Rhinoceros sondaicus*.

The small size of the footprints of the Cat Loc rhino population, about 75-80 % of those from Ujung Kulon, indicates that the other dimensions of the body must be similarly smaller. The shoulder heights of rhinos in Ujung Kulon are about 135 cm in females and 150 cm in males. The Cat Loc rhinos then should be 110-120 cm high, and weigh 50-60 % of the weight of the rhinos in Ujung Kulon. The skeleton of the Cat Loc rhino preserved in the collection at the Institute of Ecology and Biological Resources in Hanoi lacks the feet, but judging from the size of the mounted specimen it was probably about 120-130 cm high at the shoulder.

The previously established morphological differences and the diminutive size of the rhinos in Cat Loc are sufficient grounds to treat the two remaining species as clearly distinct gene pools, each uniquely adapted to the particular habitat that they are occupying. The climate, topography and vegetation in Cat Loc and in Ujung Kulon are clearly distinct.

AsRSG proposes that it is preferable to use the vernacular **Vietnamese Rhinoceros** for the Cat Loc population, and no longer call them "Javan Rhinoceros in Vietnam." They belong to the subspecies called *Rhinoceros sondaicus annamiticus* Heude, 1892. (Dr. Nico van Strien and Dr. Nguyen Xuan Dang).

FIRST PHOTOS OF THE VIETNAMESE RHINOCEROS

In April 1999, a team of WWF Specialists collaborated with the staff of Cat Tien National Park and, guided by information from local people, placed ten infrared-triggered cameras at various locations throughout the park. This resulted in a unique set of color pictures, first released on 15 July 1999 and afterwards widely distributed through press and internet. Some of the pictures can be found on websites of rhino organizations likes IRF and SOS Rhino. These photos remove any doubt that the rhinos at Cat Tien are in fact specimens of *Rhinoceros sondaicus*, confirmed by the clearly visible special skin-fold pattern on the nape of the neck characteristic of this species. We are thankful to WWF for permission to reproduce two of the photos in this newsletter.

CAPTIVE PROGRAMS

MANAGED BREEDING (CAPTIVE) PROGRAMS FOR SUMATRAN RHINO

Since the mid-1980's, there has been a diversified and integrated strategy to conserve the Sumatran rhino. The strategy comprises two major components (1) to protect the species in the wild using anti-poaching teams known as rhino protection units (RPUs) and (2) to breed the species in captivity or at least under managed conditions. Further discussion of these programs is provided by Foose and van Strien (1998).

The best place to conserve the Sumatran rhino or any species is in its natural habitat. However, many factors render *in situ* conservation of this species very difficult and uncertain. Therefore, it was decided in the early 1980s to develop captive breeding as a second component in the conservation strategy for Sumatran rhino. Three other species of rhino (the Indian, the black and the white) do reproduce reasonably well in captivity, as well as do many other endangered species, including large tropical forest mammals (like the okapi and the gorilla). Moreover, Sumatran rhino had been in captivity sporadically from the early days of zoos. Indeed, the second rhino known to be born in captivity was a Sumatran at the Calcutta Zoo in 1889. Were they just lucky or has the art been lost?

At the time the recent concerted captive program commenced in the 1980s, there were probably 800-1,000 Sumatran rhino still in the wild and at least

25% of them were "doomed", i.e. could not be protected in the wild because their habitat was being destroyed or they could not be protected from poachers with feasible resources. Hence, it was decided that there should be an attempt to rescue and breed these rhino while trying to conserve in the wild the rhino that were protectable there.

Capture programs commenced in Peninsula Malaysia, Sumatra, and Sabah. From 1984 to 1994, over 40 rhino were captured in Indonesia and Malaysia. Rhinos were placed in zoos in countries of origin as well as England, and the United States because these two places had been so successful with breeding other rhino species (Foose 1999).

However, the captive programs have not prospered (***Captive Table 1***) . Many (23) of the rhinos have died from a variety of causes, many of them suspected to be nutritional. None of the captive rhino have fully reproduced in captivity, although one female that had been captured pregnant did deliver a calf at the Malacca Zoo. Of the 40 captured plus the calf born to the female pregnant at capture, only 17 survive today. Zoos have intensified their efforts to keep rhinos alive and get them to breed, for example, by transporting browse over great distances at considerable expense. Moreover, the research that has been conducted in zoos has provided information and insight into why this species is so difficult.

Captive Table 1

Summary of Captive (Managed Breeding) Programs for Sumatran Rhino - 1984-1999

Country	Captured (♂♂/♀♀)	Born	Imported	Exported	Released/ Escaped	Died	Alive
Peninsula Malaysia	3/9	0/1	1/0	0/2	0/0	2/2	2/6
Sabah	8/2	0/0	0/0	0/0	1/0	6/0	1/2
Indonesia	7/11	0/0	1/1	4/7	0/0	3/3	1/2
Thailand	0/0	0/0	0/1	0/0	0/0	0/1	0/0
U.K.	0/0	0/0	1/2	1/0	0/0	0/2	0/0
U.S.A.	0/0	0/0	2/5	0/0	0/0	1/3	1/2
Total	18/22 = 40	0	5/9	5/9	36159	12/11 = 23	5/12 = 17

The reproductive biology of the species causes it to be one of the most difficult that captive managers have ever tried to reproduce. For one thing, males are very, sometimes fatally, aggressive to females, except when the females are in estrus (heat). So there is reluctance to place males with females until the female is in heat. But it is difficult to know when the female is receptive without placing her with a males. Thus, there is a real dilemma. Moreover, recently it has been revealed that females may be induced ovulators, that is they won't produce eggs that can be fertilized by male sperm until or unless copulation occurs (Roth et al, 1998). But then, if the female becomes pregnant, there is speculation that it is important to immediately separate her from the male or she may loose her pregnancy, as occurred 5 known times at Cincinnati Zoo and perhaps another half dozen times at other locations in captivity (Jakarta Zoo, Sepilok, maybe Port Lympne).

A major conclusion from the trials and tribulations of the traditional captive program is that the species needs more space and natural conditions. Hence, there has been an attempt to adaptively modify the captive program by moving most of the 17 rhinos that survive in captivity from zoos back to larger managed breeding centers in native habitat at Way Kambas in Sumatra, Indonesia; Sungai Dusun in Peninsula Malaysia; and Sepilok in Sabah on the island of Borneo. These Sumatran Rhino sanctuaries have been developed by partnerships:

- In Indonesia involving the Directorate General of Nature Conservation (PKA), Taman Safari Indonesia , the International Rhino Foundation (IRF - the major funder through donations from its members Howard Gilman Foundation/White Oak Conservation Center, Disney Wildlife Awards, and Zoological Parks Board of New South Wales), the USFWS Rhino & Tiger Conservation Fund, the Adelaide Zoo, the Melbourne and Werribee Zoos of the Zoological Board of Victoria, and AsRSG

- In Peninsula Malaysia involving Dept. of Wildlife and National Parks (DWLNP), IRF, AsRSG, SOS-Rhino, and the Cincinnati Zoo;
- In Sabah involving the Wildlife Dept., SOS-Rhino, IRF, and AsRSG.

The Suaka Rhino Sumatera (SRS) in Way Kambas was completed in 1997. The SRS is the largest of the sanctuaries encompassing 100 hectares (250 acres) of native habitat enclosed by electric fence. Rhino were repatriated from zoos in January 1998. These rhino have readapted well to the native environment and mountings and partial intromissions have occurred. The Sumatran Rhino Conservation Center Sungai Dusun originated in 1987 but initially was a rather traditional captive facility, albeit at the edge of a Wildlife Reserve comprising native habitat. The expanded enclosures in native habitat were not occupied until 1997 and do seem to be stimulating more matings. Sepilok Rhino Center also originated in the late 1980s but was not expanded into native habitat until the mid 1990s when matings commenced (Bosi 1996). However, there has been a hiatus due to the death of one of their males and the debilitation for a period of the other male. The hope expectation are that more matings will occur soon.

All parties interested in saving the Sumatran rhino are now coordinating and collaborating more closely and intensely than ever. Managers and scientists from all facilities and countries with the rhino are visiting one another, exchanging information, and assisting each other as much as they can. AsRSG and IRF organized and funded a meeting in February 1999 at Sungai Dusun of managers from the four facilities with Sumatran rhino in managed breeding situations: Sungai Dusun (Peninsula Malaysia), the SRS at Way Kambas (Indonesia), Sepilok Rhino Breeding Center (Sabah), and the Cincinnati Zoo (USA). In conjunction with this session, a team of reproductive specialists from the United States, Canada, Malaysia, and Indonesia conducted an assessment of the programs and an examination of many individual rhino at the Sumatran rhino managed breeding centers at Way Kambas and Sungai Dusun. Participants in the meetings and assessments were: Mohd Khan Momin Khan (AsRSG Chairman); Dr. Tom Foose and Dr. Nico van Strien (AsRSG program Officers and IRF); Musa Nordin (Dir. Gen. DWLNP), Dr. Zainal Zahari Zainuddin (Sungai Dusun), Dr. Aidi Mohd (Sungai Dusun); Dr. Terri Roth and Steve Romo (Cincinnati Zoo); Dr. Edwin Bosi (Sepilok). Subsequently, during the assessments in Indonesia, Dr. Mohd Agil and Dr. Bambang (Bogor Agricultural University), and Mr. Tony Sumampau (Taman Safari Indonesia) also participated.

Based on the collective information and knowledge available, the group that convened at Sungai Dusun summarized the status and formulated new recommendation for each of the 17 Sumatran rhino (5 males and 12 females) in managed breeding situations in an effort to maximize the probability of reproduction. ***Captive Table 2*** presents a summary of the status and the recommendations based on the work of all who participated. Published work on the reproductive biology of the Sumatran rhino is provided by Bosi (1996), Heistermann et al (1998), Roth et al. (1998), and Schaffer et al (1994). Reproductive research and management continues and includes work by Dr. Terri Roth et al at the Cincinnati Zoo (funded by IRF), work by Dr. Mohd Agil and Keith Hodges on rhino in Indonesia and Sabah (funded by IRF and SOS-Rhino), and by Dr. Aidi Mohd, Dr. Wahid, and Dr. Zainal in Peninsula Malaysia (funded by IRF).

Seven of the 12 females in captivity are copulating. Unfortunately, many individuals in the captive population appear to be reproductively compromised. Dr. Nan Schaffer, President of SOS-Rhino and a member of AsRSG, has been the leader in diagnosing reproductive pathologies in the Sumatran rhino. Dr. Schaffer first demonstrated the effectiveness of ultrasonography in this species in the early 90's, but it was not used extensively until recently (Schaffer, et al. 1994). She has observed through direct ultrasonography or through reports from postmortems that of 15 of the 22 animals entering captivity since 1984, at least 50% exhibited uterine pathology. Dr. Schaffer reports that such pathology appears to begin after 10 years of age, and becomes quite prevalent in animals over 15 years. Distressingly, most remaining captive animals are representatives of this older age group. Only three of the females which are copulating appear to have no pathology; the other four have mild to significant pathology. Dr. Schaffer believes these animals will have increased difficulty conceiving though they are still cycling. Another female, who did copulate in the early 1990s but not thereafter, seems to be chronically lactating for reasons yet undetermined although nothing seems lodged in her uterus. Treating these apparently chronic conditions will be challenging. It is encouraging to note that female domestic horses that continue to cycle are able to tolerate mild uterine pathology and still reproduce if other conditions are optimal .

Dr. Schaffer has also been very involved in reproductive assessment of males. Only one of four breeding males has produced pregnancies, four of the five captive males examined by Dr. Schaffer are all producing sperm. One male is experiencing problems with intromission, probably due to capture at a young age. Another male is persistently violent toward female rhino, which may also be due to age at capture. These problems may be resolved by enhancing breeding opportunities.

Captive Table 2

REPRODUCTIVE STATUS OF SUMATRAN RHINOS IN BREEDING CENTRES

Facility	Sex	Name	Captured/[born]	Estimated age	Cycling	Pathology	Copulation	Pregnancy NOW	Pregnancy PAST	RECOMMENDATIONS
Dicerorhinus sumatrensis sumatrensis - Malaysia										For all females start faecal hormone analysis, and vaginal smear analysis if trial successful.
Sungei Dusun & Melaka, MALAYSIA										All animals X-ray dentition for age assessment. Cincinn. to develop.
	♀	MINAH (Born in facility)	[1987]	12	Y	N	Y(12/98)	?	N	Confirm pregnancy Bloodplasma-April. Isolate from male when confirmed
	♀	PANJANG	1987	17	Y	?	N	N	?	Introduce to male soonest.
	♀	SEPUTIH	1988	20	Y	Y	Y(2/99)	?	?	With male, continue till copulation.
	♀	MAS MERAH	1987	20	Y	Y	N	N	?	Evaluate estrous state for 3 months before pairing with Shah. Ultrasound.
	♀	RIMA	1986	20+	Y	?Y	Y(9/98)	?	Y	Confirm pregnancy. Bloodplasma-Feb.
	♀	JERAM (Melaka)	1984	25+	N	Y	N	N	?	Keep for exhibit
	♂	ARA	1994	10+			Y		?	Evaluate sperm if pregnancies do not occur
	♂	SHAH	1988	14			N		N	Evaluate sperm
Dicerorhinus sumatrensis sumatrensis - Indonesia										
SRS -Way Kambas, INDONESIA										
	♀	BINA	1991	15+	Y	N	?	?	?	Continue current protocol till pregnant. Ultrasound Feb.
	♀	DUSUN (from Malaysia)	1986	17+	?	Y	N	N	?	Ultrasound Feb. Possibly develop hormonal stimulation strategy
	♂	TORGAMBA	1985	20			?		?	Evaluate sperm
Cincinnati Zoo, USA										
	♀	EMI	1991	8	Y	N	Y	N	Y	Continue current protocol. Move male after conception. Progesteron suppl.
	♀	RAPUNZEL	1989	20+	N	Y	N	N	?	Biopsy on uterine 'mass'. Possibly hormonal stimulation.
	♂	IPUH	1990	20+			Y		Y	
Dicerorhinus sumatrensis harrissoni - Borneo										
Sepilok & Tabin, SABAH										
	♀	LUNPARAI (Tabin)	1989	13	Y	Y	Y	N	?	Move to breeding situation as soon as possible
	♀	GOLOGOB	1994	18	Y	Y	Y	N	?	Resume breeding as soon as male healthy
	♂	TANJUNG	1993	15			Y		?	Evaluate sperm

AsRSG will continue with the assistance of the IRF, SOS-Rhino, and other organizations to facilitate and optimize conditions for managed breeding of Sumatran rhino. Toward this end, another expanded meeting of Sumatran rhino managers and researchers will convene under AsRSG auspices in Indonesia and Malaysia in March 2000. Hopefully, in the new millennium successful reproduction of Sumatran rhino under managed conditions will be achieved and this tool can truly be added to the options available to conserve this precariously endangered species.

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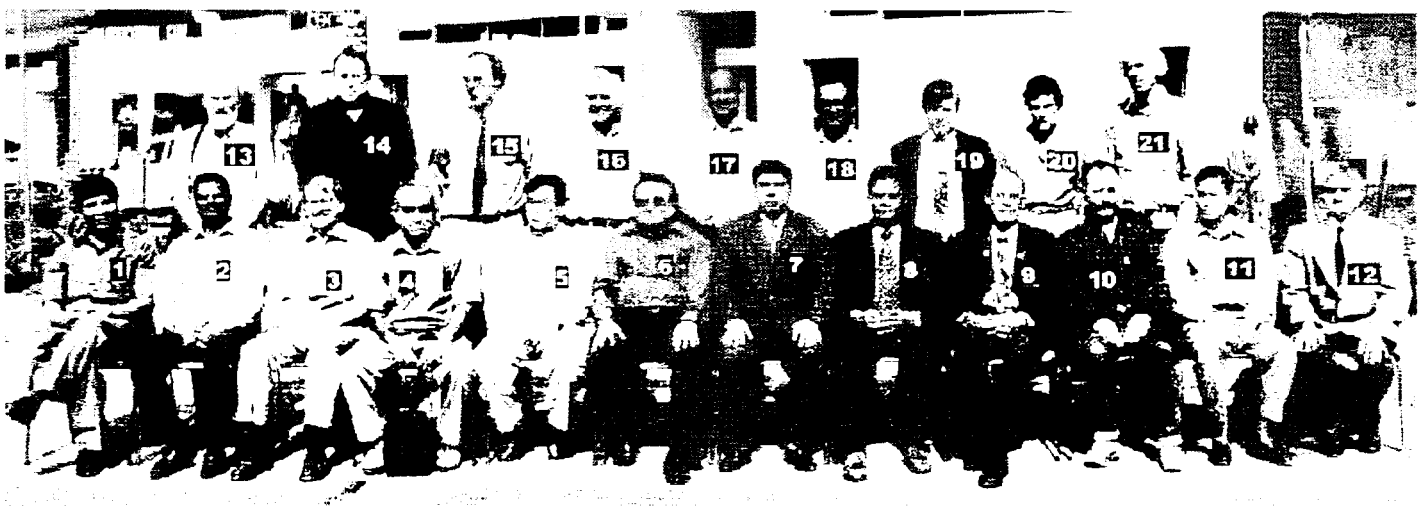
NEW STUDBOOK FOR *RHINOCEROS UNICORNIS*

The tenth edition of the *International Studbook for the Greater One-Horned Rhinoceros*, with records updated to 31 December 1998, was issued in 1999 under the auspices of the Zoo in Basel, Switzerland, and edited by Dr. Gabriele Wirz-Hlavacek (International Studbook Keeper), Dr. Samuel Zschokke (Scientific Adviser) and Dr. Peter Studer (EEP Species Coordinator). At the end of 1998, the studbook recorded 136 (73/63) Indian rhinos in 51 collections in Asia, North America and Europe. Out of these, 92 (53/39) or 68% were born in captivity. There are 40 (26/14) Indian rhinos kept in 14 zoos in India. The age structure of thecaptive population is reasonably healthy. Two animals were captured in Nepal in 1998 and transported to Whipsnade Wild Animal Park (UK).

LATEST STUDBOOK FOR *DICERORHINUS SUMATRENSIS*

A new edition of the *International Studbook for the Sumatran Rhino* was published in October 1999. It documents the history of this species in captivity or under intensive management since the modern captive program was initiated in 1984. Copies are available form the International Studbook Keeper, Dr. Tom Foose.

AsRSG Members and Officials at the Regional Meeting for India and Nepal in Kaziranga National Park, 22-25 February 1999.



1 B.S. Bonal
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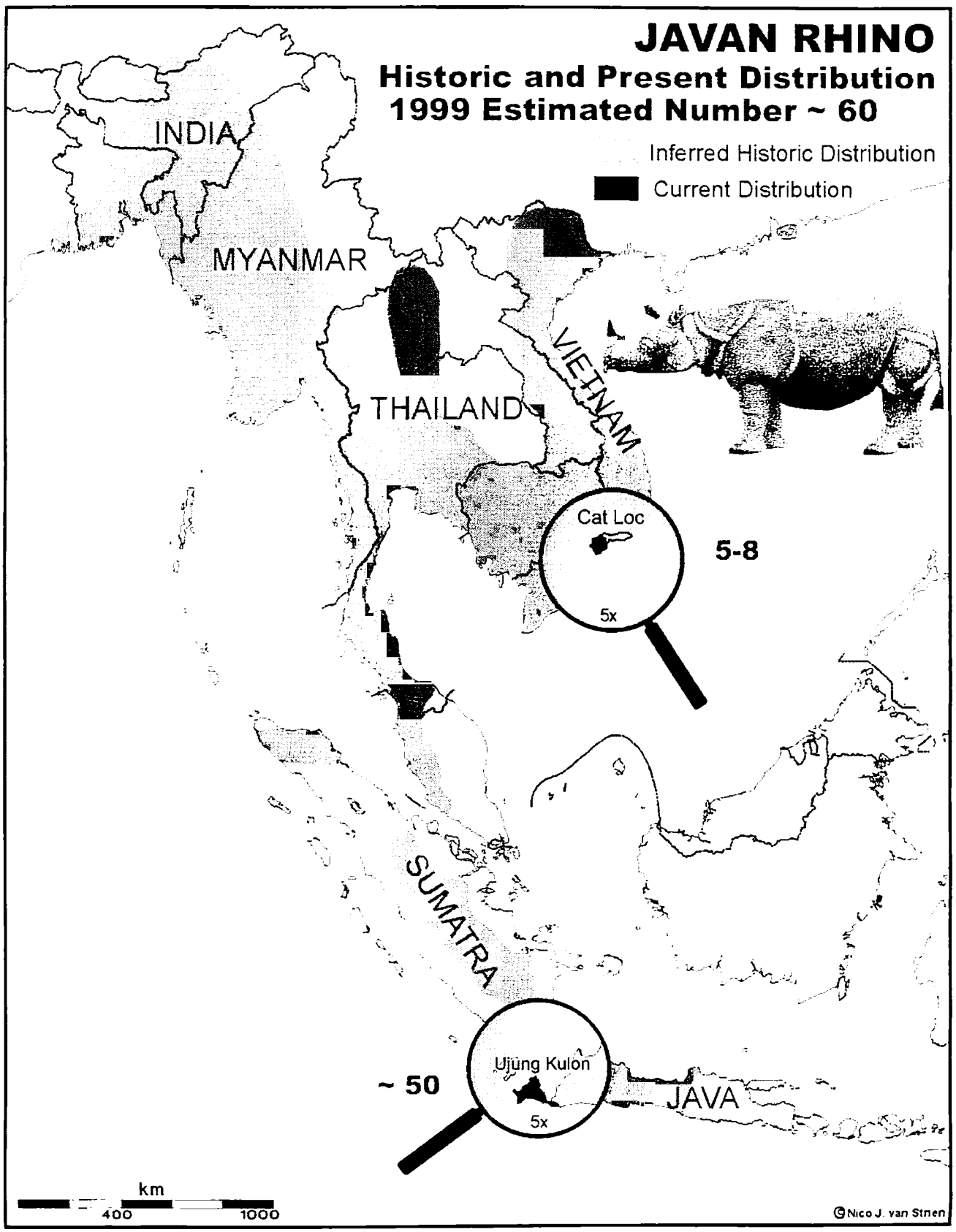
JAVAN RHINO
Historic and Present Distribution
1999 Estimated Number ~ 60
Inferred Historic Distribution
Current Distribution
INDIA
MYANMAR
THAILAND
VIETNAM
Cat Loc
5x
5-8
SUMATRA
Ujung Kulon
5x
~ 50
JAVA
km
400
1000
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ASIAN RHINO AREAS AND ESTIMATES

Population Estimates for Indian Rhinoceros (*Rhinoceros unicornis*)

Locality	Year	Numbers	Source
INDIA			
Kaziranga	1999	1649	[3]
Orang	1999	46	[3]
Manas	1999	5	[3]
Jaldapara	1999	53	[3]
Gorumara	1999	19	[3]
Pobitora	1999	76	[3]
Dudwa	1999	16	[3]
Karteniaghat	1999	4	[3]
INDIA - TOTAL		1868	
NEPAL			
Royal Chitwan	1999	600	[3]
Royal Bardia	1999	51	[3]
Suklaphanta	1999	1	[3]
NEPAL - TOTAL		652	
PAKISTAN			
Lal Sohanra	1995	2	[1]
CAPTIVE COLLECTIONS			
In Range States	1998	40	[2]
Outside Range States	1998	98	[2]
CAPTIVE COLLECTIONS		138	
WILD POPULATIONS -		2522	
TOTAL INDIAN RHINO		2658	

Population Estimates for Javan Rhinoceros (*Rhinoceros sondaicus*)

Locality	Year	Numbers	Source
INDONESIA			
Ujung Kulon, Java	1995	54-60	[4]
VIETNAM			
Nam Cat Tien	1999	7-8	[5]
CAPTIVE COLLECTIONS		0	
TOTAL JAVAN RHINO		61-68	

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Population Estimates for Sumatran Rhinoceros (*Dicerorhinus sumatrensis*)

Locality	Year	Numbers	Source
MYANMAR			
Tamanthi	1995	?	[1]
MYANMAR - TOTAL		?	
LAOS			
Nam-Theun-Nakai	1995	?	[1]
LAOS - TOTAL		?	
THAILAND			
Hala Bala	1995	5+	[9]
Khao Soi Dao Res.	1995	?	[1]
Phu Khieo	1995	1	[1]
THAILAND - TOTAL		6+	
INDONESIA			
KALIMANTAN, BORNEO			
Kayan Mentarang	1995	?	[1]
Sabah Border	1995	?	[1]
Gunung Belayon	1995	?	[1]
Bentuang Karimun	1995	?	[1]
Gunung Meratus	1995	?	[1]
Borneo (*harrissoni*) TOTAL		?	
SUMATRA			
Gunung Leuser	1999	40-80	[4, 9]
Gunung Patah	1999	?	[9]
Kerinci Seblat	1999	~ 10	[4, 9]
Berbak	1999	3-4	[9]
Torgamba	1999	?	[9]
Barisan Selatan	1999	20-30	[4, 9]
Bukit Hitam	1999	?	[9]
Bukit Tapan	1999	?	[9]
Rokan Hilir	1999	?	[9]
Way Kambas	1999	~ 30	[4, 9]
Sumatra (*sumatrensis*) TOTAL		103-154	
INDONESIA - TOTAL		103-154	

Locality	Year	Numbers	Source
MALAYSIA			
PENINSULA			
Endau Rompin	1999	4-8	[4, 8]
Taman Negara	1999	40-60	[4, 8]
Gunung Belumut	1999	?	[4, 8]
Mersing Coast	1999	?	[4, 8]
Sungai Depak	1999	?	[4, 8]
Sungai Yong	1999	?	[4, 8]
Kuala Balah	1999	?	[4, 8]
Bukit Gebok	1999	?	[4, 8]
Sungai Ara	1999	1	[4, 8]
Selama	1999	4-6	[4, 8]
Gunung Inas	1999	2-3	[4, 8]
Belum	1999	6-10	[4, 8]
Jeli	1999	2-3	[4, 8]
Besut	1999	?	[4, 8]
Malaysia (*sumatrensis*)TOTAL		68-100+	
SABAH, BORNEO			
Tabin & Environs	1999	20-35	[4]
Kretam	1999	?	[4]
Danum Valley	1995	20-25	[4]
Maliau Basin	1995	?	[4]
Ulu Segama, Malua	1995	?	[4]
Damarakot-Tangkulap	1995	?	[4]
Lower Kinabatangan	1995	?	[4]
Lamag	1995	?	[4]
Borneo (*harrissoni*) TOTAL		40-60+	
MALAYSIA - TOTAL		108-170+	
CAPTIVE COLLECTIONS			
In Range States	1998	14	[7]
Outside Range States	1998	3	[7]
CAPTIVE COLLECTIONS		17	
WILD POPULATIONS -		217-330	
TOTAL SUMATRAN RHINO		234-330	

NEW PUBLICATIONS

This new section will direct attention to any new publications dealing with aspects of the biology and conservation of the three species of Asian rhinoceros. Include below are some of the titles published in 1998. Any reader who would advise of other publications should contact Kees Rookmaaker at maaker @mweb.co.za.

Recent Literature on Asian Rhinos - 1998

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RHINOS ON THE WEB

This section presents a list of names and Internet and e-mail addresses of rhino conservation organizations and web-sites devoted to Rhinos and Rhinos Conservation. This listing is based on the editors' archives and on a search on the web, and we are aware that there are omissions and errors. The Net is developing very fast and the editors would appreciate receiving up-dated information on these and other sites. Please contact us through the Guestbook on the IRF website or by e-mail.

Links to rhino websites are provided by:

International Rhino Foundation	*www.rhinos-irf.org*
RhinoCity	*www.open.org/~mikesell/links.html*
Rhino Conservation Organizations	*conant.viamall.com/conant/rhino.html*
Dragon Ridge, Refuge of the Rhinos	*home.earthlink.net/~dragonridge/index.htm*
Planet Rhino	*planetpets.simplenet.com/plntrhno.htm*
Diceros' Rhino Page	*members.aol.com/rhin0/rhino.html*

	Internet address	E-mail address
African Rhino Specialist Group (AfRSG)		mbrooks@kznncs.org.za
African Rhino Owners Association (AROA)	www.aroa.org.za/index.html	rhino@aroa.org.za
Asian Rhino Specialist Group (AsRSG)	page on IRF site: www.rhinos-irf.org	
Black Rhino Foundation	brf.sosrhino.org	brfinc@aol.com
Bowling for Rhinos	www.aazk.org/Committees/bowlingRhinos.htm & bfr.aazk.org	ppear3@aazk.org
Indonesian Rhino Conservation Program		ircp@indo.net.id
International Rhino Foundation	www.rhinos-irf.org	IRhinoF@aol.com
Khama Rhino Sanctuary Trust	www.wildnetafrica.co.za//wildlifeorgs/khama/index.html	
Neushoorn Stichting Nederland	unknown	
Really, Rhinos!		RinophyI@rtd.com
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Rhino Foundation of Northeast India		badru@gw1.vsnl.net.in
Rhino Help International	unknown	
Rhino Management Group		mbrooks@kznncs.org.za
Rhino Museum	www ref.org.za/rhinomuseum	
Rhino & Tiger Conservation Fund, US Fish & Wildlife Service	www.fws.gov	fred_bagley@ mail.fws.gov
Rhino Net	http://rhinonet.iscool.net	rhinonet@email.cz
Rhino Trust	www.rhino-trust.crg.na	srt@rhino-trust.org.a
Save The Rhino International	www.kingsley.co.za/clients/rhino	
Save the Rhino Trust		Srtrhino@ iafrica.com.na
Sebakwe Black Rhino Trust	www.blackrhino.org/index.html	sebakwe@netcomuk.co.uk
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POPULATION ESTIMATES FOR ALL RHINOCEROS SPECIES

SPECIES	*Year*	*Source*	*WILD*	*CAPTIVE*	*TOTAL*	*%*
INDIAN	1999	[1]	2,522	138	2,660	*17.7*
JAVAN	1999	[1]	~ 63	0	~ 63	*0.4*
SUMATRAN	1999	[1]	~ 300	17	~ 317	*2.1*
ASIAN - TOTALS			2,885	155	3,040	*18.5*
BLACK	1998	[2]	2,600	235	2,835	*18.8*
SOUTHERN WHITE	1998	[2]	8,440	~ 700	9,140	*60.8*
NORTHERN WHITE	1998	[2]	~ 20	9	~ 29	*0.2*
AFRICAN - TOTALS			11,060	~944	12,004	*81.5*
TOTAL ALL RHINO SPECIES			13,945	~ 1,099	15,045	
Percentage			*92.7*	*7.3*		

Source:

1. Emslie. 1999. *Proceedings of 1998 IUCN/SSC African Rhino Specialist Group Meeting.*
2. Asian Rhinos 3 (*this paper*)

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