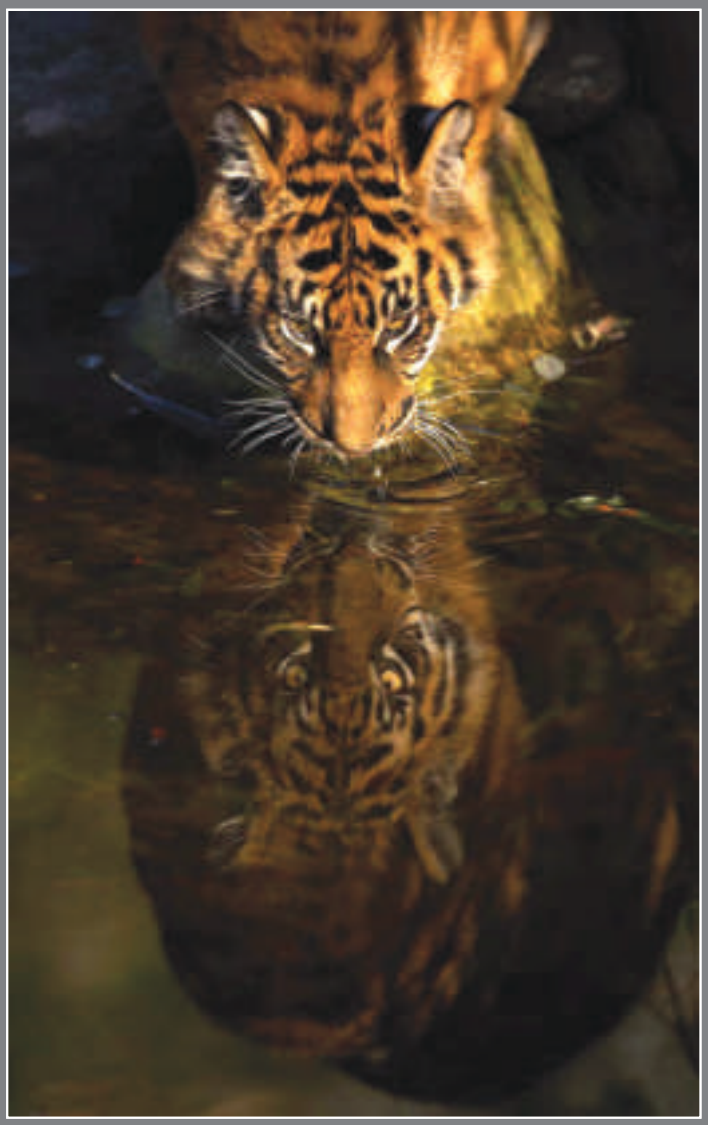
CONSERVATION STRATEGY AND ACTION PLAN FOR THE SUMATRAN TIGER

(PANTHERA TIGRIS SUMATRAE)

INDONESIA 2007 - 2017



Ministry of Forestry
2007

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Government of the Province:

MAIN SPONSORS:
(Coat of Arms)

MINISTER OF FORESTRY

THE REPUBLIC OF INDONESIA

REGULATION OF MINISTER OF FORESTRY

No.: P.42/Menhut-II/2007

On

CONSERVATION STRATEGY AND ACTION PLAN FOR THE SUMATRAN TIGER

(Panthera tigris sumatrae) 2007-2017

MINISTER OF FORESTRY

Having considered :

a. that to advance the conservation of the Sumatran tiger (Panthera tigris sumatrae) in its habitat, it is deemed necessary to have a conservation strategy and action plan that includes priorities, an integrated management approach and involves all parties and stakeholders;

b. that for the conservation of the tiger as specified in item a, it is deemed necessary to have a strategy and action plan;

c. that based on aforementioned items a and b, it is deemed necessary to enact a Regulation of the Minister of Forestry on the strategy and action plan for conservation of the Sumatran tiger (Panthera tigris sumatrae) of 2007 – 2017;

In view of :

1. Law No. 5 of 1990 on the Conservation of Natural Resources and their Ecosystems;
2. Law No. 5 of 1997 on Environmental Management;
3. Law No. 41 of 1999 on Forestry as amended by Law No. 19 of 2004 on the Enactment of Government Regulation in lieu of Law No. 1 of 2004 on the Amendment to Law No. 41 of 1999 on Forestry;
4. Law No. 32 of 2004 on Local Government;
5. Government Regulation No. 68 of 1998 on Wildlife Reserve Areas and Natural Conservation Areas;
6. Government Regulation No. 7 of 1999 on Preserved Plants and Animals;
7. Government Regulation No. 8 of 1999 on the Use of Wild Animals and Plants;
8. Presidential Decree No. 187/M of 2004 as amended by Presidential Decree No. 8/M of 2004 on the Composition of the Unity Indonesia Cabinet;
9. Decree of Minister of Forestry No. 355/Kpts-II/2003 on the Identification

of Wild Animal and Plant Specimens;

10. Decree of Minister of Forestry No. 447/Kpts-II/2003 on the Administration of Collecting, Catching and Distribution of Wild Animal and Plant Specimens;
11. Regulation of Minister of Forestry No. P.13/Menhut-II/2005 as has been amended several times, the most recently by Regulation of Minister of Forestry No. P.17/Menhut-II/2007 on the Organization and Working Procedures of the Ministry of Forestry;

DECIDE:

To enact : THE MINISTER OF FORESTRY'S REGULATION ON THE STRATEGY AND ACTION PLAN FOR CONSERVATION OF THE SUMATRAN TIGER (Panthera tigris sumatrae) 2007-2017.

FIRSTLY : To endorse and enact the strategy and action plan for the conservation of the Sumatran tiger 2007-2017, as described in the appendix integrated into this regulation.

SECONDLY : The strategy as specified in the FIRST decision is a framework for certain conservation programs and activities of the Sumatran tiger that are endorsed based on this regulation, and will serve a guidelines/guidance for the conservation of the Sumatran tiger.

THIRDLY : The documents of the Strategy and Action Plan for the conservation of The Sumatran tiger 2007-2017 contain the Strategy and Action Plan, and are subject to evaluation and update every 5 (five) years.

FOURTHLY : This regulation takes effect as of the enactment date.

Enacted in : Jakarta
On: 24th October 2007

Duly copied
Head of the Bureau of Law and
(Signed & Sealed)

SUPARNO
NIP. 080068472

MINISTER OF FORESTRY, Organization,
(Signed)

H. MS KABAN

C.c.:
1. The State Minister of Environment;
2. All Governors in Indonesia;
3. The Secretary General of Ministry of Forestry;
4. The Inspector General of Ministry of Forestry;
5. The Director Generals/Chairmen of Agencies within Ministry of Forestry;
6. The Chairman of the Indonesian Institute of Science;
7. The Deputy of Natural Science – the Indonesian Institute of Science;
8. The Head of Biology Research Center of the Indonesian Institute of Science;
9. The Heads of Technical Implementing Offices within the Directorate General of PHKA throughout Indonesia.

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LIST OF ABBREVIATIONS

ASEAN WEN	:	Association of Southeast Asian Nations – Wildlife Law Enforcement Network
BAPEDALDA	:	Badan Pengendalian Dampak Lingkungan (Regional Environment Impact Management Agency)
BAPPEDA	:	Badan Perencanaan dan Pembangunan Daerah (Regional Development Planning Board)
BAPPENAS	:	Badan Perencanaan dan Pembangunan Nasional (National Development Planning Agency)
BKSDA	:	Balai Konservasi Sumber Daya Alam (Natural Resources Conservation Bureau)
CI	:	Conservation International
CITES	:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DICE	:	Durrell Institute of Conservation and Ecology, University of Kent at Canterbury, UK
DNS	:	Debt for Nature Swap
FFI	:	Flora and Fauna International
FKKHS	:	Forum Komunikasi Konservasi Harimau Sumatera (Communication Forum for the Sumatran tiger Conservation)
HPH	:	Hak Pengusahaan Hutan (Natural Forest Concessions)
HTI	:	Hutan Tanaman Industri (Industrial Forest Area)
IUCN	:	International Union for the Conservation of Nature and Natural Resources / World Conservation Union
KKH	:	Konservasi Keanekaragaman Hayati (Biodiversity Conservation, Name of a directorate within PHKA)
LIPI	:	Lembaga Ilmu Pengetahuan Indonesia (Indonesian Science Agency)
LSM	:	Lembaga Swadaya Masyarakat (Non Government Organization)
PHKA	:	Perlindungan Hutan dan Konservasi Alam (Forest Protection and Natural Conservation, Name of a directorate general within Ministry of Forestry)
POLRI	:	Kepolisian Negara Republik Indonesia (Indonesian Police Force)
SECP	:	Sumatran Elephant Conservation Project
SM	:	Suaka Margasatwa (Wildlife Reserve)
SOP	:	Standard Operating Procedure
SPU	:	Species Protection Unit
STTCP	:	The Sumatran tiger Trust Conservation Programme
TCL	:	Tiger Conservation Landscape
TNB	:	Taman Nasional Berbak (Berbak National Park)
TNBBS	:	Taman Nasional Bukit Barisan Selatan (South Bukit Barisan National Park)
TNBD	:	Taman Nasional Bukit Duabelas (Bukit Duabelas National Park)
TNBG	:	Taman Nasional Batang Gadis (Batang Gadis National Park)
TNGL	:	Taman Nasional Gunung Leuser (Gunung Leuser National Park)
TNKS	:	Taman Nasional Kerinci Seblat (Kerinci Seblat National Park)
TNS	:	Taman Nasional Sembilang (Sembilang National Park)
TNTN	:	Taman Nasional Tesso Nilo (Tesso Nilo National Park)
TNWK	:	Taman Nasional Way Kambas (Way Kambas National Park)
TRAFFIC	:	Wildlife Trade Monitoring Network
UPT	:	Unit Pelaksana Teknis (Technical Executive Unit)
WCS-IP	:	Wildlife Conservation Society - Indonesia Program
WWF	:	Word Wildlife Fund
YLI	:	Yayasan Leuser International (The International Leuser Foundation)
YPKHS	:	Yayasan Penyelamatan dan Konservasi Harimau Sumatera (The Sumatran tiger Preservation and Conservation Foundation)
ZSL	:	Zoological Society of London

FOREWORD

The Sumatran tiger (Panthera tigris sumatrae) is a rare animal found only in Sumatra. This animal, posed at the top of the ecological pyramid of Sumatra's forests, has been protected by the Indonesian government and categorized by IUCN (The International Union for the Conservation of Nature and Natural Resources / The World Conservation Union) as an endangered species. Further, CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) prohibits trading and hunting of this animal.

The Indonesian government and other parties within and outside Indonesia have engaged in a long-standing effort to conserve the Sumatran tiger. However, the effort has been less than effective, mostly because it has not been coordinated with Sumatra's economic development. Currently there are only 300 Sumatran tigers spread over forests that have been fragmented due to logging and forest conversion.

The Sumatran tiger is a valued part of Indonesia's existing natural resources heritage. It is the last remaining tiger subspecies in Indonesia. The Bali tiger (Panthera tigris balica) and Javan tiger (Panthera tigris sondaica) have become extinct,and exist only as part of the history of Indonesian wild animals. Therefore, conservation of The Sumatran tiger is crucial and I welcome the establishment of the Strategy and Action Plan for Conservation of the Sumatran tiger 2007-2017.

I hope that the strategy and action plan contained in this document serve as guidelines for protecting the Sumatran tiger and a reference for concordant development to conserve this animal and its habitat in Sumatra. It is a challenge for economic development and wildlife conservation to co-exit harmoniously. But it is expected that all parties involved in the development of Sumatra, including the central government, the provincial government, the district government as well as national and local private enterprises, make their commitment to carrying out conservation of the Sumatran tiger as outlined in this document.

Finally, I express my gratitude to all parties who actively involved themselves to prepare this document. Hopefully, God Almighty will bless our efforts in implementing the Strategy and Action Plan for Conservation of the Sumatran tiger 2007-2017 for our mutual benefit.

Minister of Forestry
(Signed)
H. MS Kaban

ACKNOWLEDGMENT

We welcome the Strategy and Action Plan for the Conservation of the Sumatran tiger 2007-2017. This document signifies the concern, efforts and cooperation of relevant parties to conserve the endangered The Sumatran tiger. Serious conservation measures are critically required now, to avoid the extinction of this animal in the near future.

This plan was mutually prepared by several relevant parties. Therefore, it is expected that this document serves as a reference for conservation of the Sumatran tiger in its habitat. All parties, including the central government, provincial governments, district governments, and private sector, are expected to synchronize all initiatives and plans, in order to reach an optimal achievement to conserve the Sumatran tiger.

It is expected that all agents actively involved in the efforts to conserve the Sumatran tiger can uphold their commitment as specified in the aims and objectives herein, especially the decision about the conservation of habitat of this rare animal. It is expected that, by 2017, the population of the Sumatran tiger will have recovered and will be in accord with the economic development of Sumatra regions.

Finally, on behalf of the Directorate General of Forest Protection and Nature Conservation and the Ministry of Forestry of the Republic of Indonesia, we hereby express our gratitude for all contributions to the preparation of this document made by the Local Government of Nanggroe Aceh Darussalam Province, Jambi Province, South Sumatra Provice, Bengkulu Province, Riau Province, and Non-Governmental Organizations such as Wildlife Conservation Society – Indonesia Program, World Wildlife Fund Indonesia, Zoological Society of London, Flora & Fauna International, Yayasan Pelestarian dan Konservasi Harimau Sumatra, Taman Safari Indonesia, and businesses such as ConocoPhillips, Sinarmas Forestry, the Indonesian Forest Entrepreneurs Association, the Indonesian Palm Oil Entrepreneur Federation, Roundtable on Sustainable Palm Oil and Riau Pulp. Similar thanks go out to the Government of West Sumatra Province for hosting the National Workshop for the Conservation of The Sumatran tiger, Sumatran Elephant and Kalimantan Elephant on August 29 – 31, 2007.

We also express our gratitude and appreciation to the national and international speakers, donors and Aksenta as the facilitator for group discussions I, II and the national workshop in West Sumatra, and to all parties that helped prepare this document. Hopefully, this document will bring maximum benefits for all of us.

Director General of Forest Protection and Nature Conservation, Acting Executive,

I Made Subadia G.

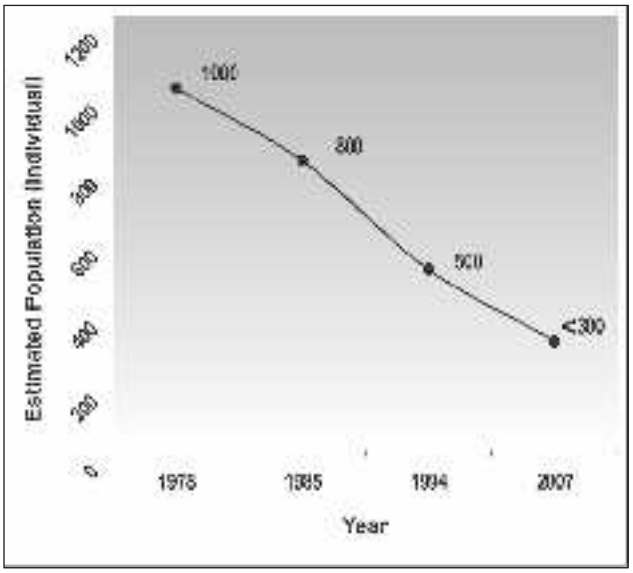
1. INTRODUCTION

1.1. BACKGROUND

Indonesia once boasted three of eight tiger subspecies in the world. Two of those subspecies, the Javan tiger (*Panthera tigris sondaica*) and the Bali tiger (*Panthera tigris balica*) were declared extinct in the 1940s and 1980s respectively (Seidensticker etc. 1999). Only the Sumatran tiger remains, living in fragmented and isolated habitats exclusively on the island of Sumatra. Measuring the smallest among all existing tiger subspecies (Kitchener 1999), the male Sumatran tiger is 240 centimeters long in average from head to tail and weighs 120 kilograms, whereas the female is 220 centimeters long head to tail, weighing 90 kilograms. (Picture 1; Save the Tiger Fund 2007).

The Sumatran tiger has been categorized as critically endangered by IUCN since 1996 (Cat Specialist Group 2002). In 1992, the tiger population was recorded at just 400, scattered throughout five national parks (Gunung Leuser, Kerinci Seblat, Way Kambas, Berbak and South Bukit Barisan) and two wildlife reserves (Kerumutan and Rimbang), while 100 tigers were said to roam elsewhere outside the seven conservation areas (PHPA 1994). That number is expected to continue decreasing (Picture 2; The Workshop on Tiger and Elephant 2007). The most up-to-date population estimate was based on a survey of conservation areas only.

Picture 1. A Sumatran tiger caught by hidden camera in Riau Province



In 8 out of at least 18 areas where the Sumatran tiger is found several organizations estimated a minimum population of 250 mature individuals. The remaining 10 areas have not been surveyed (Table 1). As each agency used different survey approaches, the conclusion requires careful consideration and cannot simply be compared to the 1992 estimation.

Increasing human encroachment into tiger habitats is the major threat to the Sumatran tiger, especially as humans continue to use forests for economic development purposes such as agriculture and mining, as well as for other infrastructure development as a result of settlement and transmigration. Besides causing habitat fragmentation, such activitiesoften lead to conflict between humans and tigers, resulting in victims on both sides, and finally driving the tiger from its habitat Human poverty and high overseas demand of illegal tiger body parts such as pelts, bones, teeth and meat has increased illegal hunting and trading of tiger body parts and derivative products. To save the Sumatran tiger from extinction, in 1994 the Indonesian government and other concerned parties issued the first action plan for the conservation of the Sumatran tiger. Action plan recommendations were to:

- Develop a management strategy to conserve the Sumatran tiger population;
- Preserve and protect the existing the Sumatran tiger population in its natural

habitat;
- Institute breeding initiatives to help the tiger population recover in its natural habitat;
- Develop a working network to support Sumatran tiger conservation in Indonesia.

To implement the action plan, the government increased measures to preserve and manage the Sumatran tiger in selected wildlife reserves such as Gunung Leuser National Park (TNGL), Kerinci Seblat National Park (TNKS), South Bukit Barisan National Park (TNBBS), Way Kambas National Park (TNWK), Tesso Nilo National Park (TNTN), Sembilang National Park (TNS) and Batang Gadis National Park (TNBG)

In response to Sumatra's rapid development during the last decade, the government, in cooperation with concerned parties, agreed to revise the 1994 Action Plan for the Conservation of Indonesian Tiger.

1.2. VISION, OBJECTIVE AND TARGETS

1.2.1. Vision

Conserve the Sumatran tiger while fostering harmonious tiger coexistence with development activities on Sumatra island.

1.2.2. Objective

To provide direction for the development and conservation management of the Sumatran tiger, especially in areas adjoined to Sumatran tiger habitat.

1.2.3. Targets
- At the very least, a stable population and landscape of the Sumatran tiger maintained until 2017.
- Public support for the conservation of the Sumatran tiger conservation and its landscapes increased.

Table 1. The Tiger Conservation Landscape in Sumatra, most recent survey data for the period of 1998-2007

TIGER CONSERVATION LANDSCAPE[a]								ESTIMATED POPULATION			
No.	Landscape	Location Code on Map	Priority	Size	Size of Habitat	Size of Habitat to TCL	Location for Survey on Population	Size of Area (ha.)	Estimated Population	Estimated Density (/100km2)	Source
1	Kerinci Seblat	5	I	2,816,200	1,965,300	69.79	Kerinci Seblat NP	1,399,320	136	0.05 -11.25	Linkie 2005
2	Bukit Tiga Puluh	7	I	710,600	541,700	76.23	Bukit Tiga Puluh	144,223	n/a[b]	n/a	ZSL Indonesia 2007
3	Kuala Kampar - Kerumutan	9	II	983,500	489,500	49.77	Kerumutan	n/a	n/a	1.27 - 5.5	WWF, PHKA, VA Tech (Sunarto et al.)
4	Bukit Balai Rejang Selatan	4	II	388,400	267,000	68.74	Bukit Balai Rejang Selatan Forest Complex	388,400	n/a[b]	n/a	WCSIP 2007
5	South of Bukit Barisan Selatan	3	III	210,700	111,500	52.92	Bukit Barisan Selatan NP	365,000	40-43	1.6	O'Brien et al. 2003
6	West of Rimbo Panti Batang Gadis	11	III	148,600	88,900	59.83	Batang Gadis NP	108,000	18-62	1.1 - 3.9	Wibisono et al. 2007
7	East of Rimbo Panti Batang Gadis	12	III	289,000	171,300	59.27	n/a	n/a	n/a	n/a	
8	Tesso Nilo	8	III	233,200	112,100	48.07	Tesso Nilo Forest Complex	233,200	n/a	0.64 -1.4	WWF, PHKA, VA Tech (Sunarto et al. 2006)
9	Bukit Rimbang Baling	6	III	439,500	229,800	52.29	Rimbang Baling Landscape	n/a	n/a	0.92 - 4.03	WWF, PHKA, VA Tech (Sunarto et al. 2006)
10	Berbak	10	IV	254,300	160,400	63.08	Berbak NP	162,700	n/a	n/a	
11	Leuser Ecosystem	14	IV	2,231,900	1,600,000	71.69	Gunung Leuser NP	1,094,692	n/a[b]	n/a	WCSIP 2007
12	Sibolga	18	IV	129,200	85,600	66.25	n/a	n/a	n/a	n/a	
13							Bukit Duabelas NP	60,500	1[c]	n/a	ZSL Indonesia 2007
14							Way Kambas NP	125,621	36	1.6 - 4,3	Franklin et al. 1999
15							Dangku NR	21,752	3[c]	n/a	ZSL Indonesia 2007
16							Ulu Masen Ecosystem	750,000	n/a[b]	n/a	WCSIP 2007
17							Meranti river- Kapas river Forest Complex	67,000	2[c]	n/a	ZSL Indonesia 2006, 2007
18							Senepis - Buluhala	106,000	21 - 42	2 - 4	Wells 2007

[a] *Sanderson 2006*

[b] *Tiger existence was found, but estimation on the population not conducted yet*

[c] *Estimated population is a minimum number of individual species identifie through hidden camera*

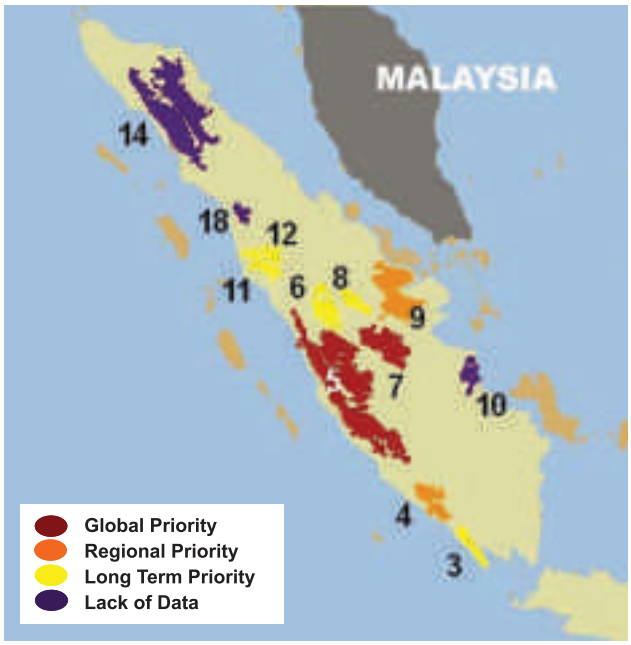
n/a *data is non existing*

2. CURRENT SITUATION

2.1. IN-SITU

2.1.1. Population and Distribution

The most up-to-date analysis on the global status of the Sumatran tiger designated 12 tiger conservation landscapes in Sumatra. While only two of those landscapes are categorized as a global priority – namely Kerinci Seblat Landscape and Bukit Tigapuluh Landscape – two others rank as a regional priority, namely: Bukit Balai Rejang Selatan and Kuala Kampar – Kerumutan (Picture 3; Box 1; Sanderson etc. 2006). According to recent studies, Sumatran tiger populations currently exist in at least 18 conservation areas and in both protected forests and production forests that are physically separate from one another (see Table 1). Based on the population trend described above, the Sumatran tiger population is decreasing over years (see Picture 2). Without an effective management intervention, Indonesia's last remaining tiger subspecies will be extinct in the near future. Picture 3. Tiger conservation landscapes that critically need conservation management priority (Sanderson etc. 2006).



Picture 3. Tiger conservation landscapes that critically need conservation management priority (Sanderson etc. 2006).

The Indonesian government in cooperation with national and international NGOs (Table 2) has conducted studies and management initiatives to save the Sumatran tiger. NGO contributions have helped significantly in conducting censuses as well as offering guidance to communities whose proximity to tiger habitat has resulted in conflicts between humans and tigers.

Table 2. The Sumatran tiger Conservation Areas and Organization Partners

No.	Location	Organization
1	TN Bukit Barisan Selatan	WCS
2	TN Way Kambas	STTCP
3	Bukit Balai Rejang Selatan	WCS
4	TN Kerinci Seblat	FFI/DICE
5	Riau (Lansekap Tesso Nilo Bukit Tigapuluh)	WWF
6	Senepis - Buluhala	YPKHS
7	Jambi (PT. Asiatic Persada)	ZSL
8	Sumatera Barat	Universitas Andalas
9	TN Bntag Gadis	CI, WCS
10	Ekosistem Leuser	WCS, YLI

2.1.2. Habitat and Prey

Similar to other tiger subspecies, the Sumatran tiger is adaptive to a wide range of environments as long as sufficient prey and water is available (Schaller 1967; Sunquist 1981; Seidensticker *et al*. 1999), and as long as there are no potential threats. In Sumatra, the tiger can be found in areas ranging from the lowland rain forest to mountainous areas, from zero to 3,000 meters above sea level. Tigers are found in several types of habitat such as primary forests, secondary forest, coastal forests, peat swamp forests, logging forests,

(Cervus unicolor) and wild boar (Sus scrofa) (Wibisono 2006). Occasionally, the Sumatran Tiger also hunts various alternative prey, such as kijang (barking deer / Muntiacus muntjac), kancil (mouse deer / Tragulus sp.), trenggiling (pangolin / Manis javanica), beruang madu (sunbear (Helarctos malayanus)) and kuau raja (great argus / Argusianus argus). The Bengal Tiger (Panthera tigris bengalis) in Nepal is known to take prey every 5-6 days. After taking prey the tiger normally remains in the prey area for 1-4 days, beginning its next hunt an average of 3 days later. (Seidensticker 1976). In India, the Bengal

Box 1. Tiger Conservation Landscape

Like all endangered wildlife, tigers need balanced human protection as well as appropriate management. They need protection from being hunted, access to sufficient prey and ample hunting territory. There are two approaches to ensure the conservation of tigers in their natural environment. Firstly, the protection of several tiger populations by creating several isolated conservation areas away from human activities. However, studies reveal that as apex predators, tigers require an extensive range of territory. Thus, it is difficult for tigers to coexist with humans, especially in heavily populated areas. A recent study in one wildlife reserve in India revealed that simply protecting tigersin several isolated areas is not sufficient (Dinerstein et al. 2006).

Secondly, an appropriate tiger conservation landscape should integrate tiger population core areas with natural corridors to enable tigers to roam freely from one core protected area to another. This approach requires full support from humans living in the surrounding area. A successful example of tiger population conservation is the Terai Arc Landscape Project in Nepal and South West India, an area recognized as having the highest human population density in South Asia. The Tiger conservation activities in the area implement a landscape concept which integrates core sites using corridors. The success of the project has encouraged the development of ecosystem services and improved the economy and welfare of the local people. The successful experience in the last ten years of conservation efforts in the region proves that wildlife conservation in the future will depend highly on spatial planning and ecological zoning which include development, human settlements, wildlife core areas, buffer zones and corridors as an integrated landscape to support the harmonious coexistence of humans and wildlife (Dinerstein et al. 2006).

Tiger eats an average of 50 ungulates per annum (Karanth et al. 2004). A female tiger regularly consumes 5-6 kilograms of meat per day (Sunquist 1981) and is well able to kill a barking deer weighing 20 kilograms every 3 days or a deer weighing up to 200 kilograms every several weeks (Sunquist et al. 1999).

A study in Malaysia confirmed that a female Indochina Tiger (Panthera tigris corbetti) consumes 1,613 – 2,041 kilograms annually, while the male consumes 1,936 2004). The biomass of tiger prey in Asia is no more than 500 kilograms per square kilometer (Seidensticker 1986). Known primary prey of the Sumatran Tiger include wild boar deer and forest goat which weigh, 32, 134, 21 and 120 kilograms respectively, on average (Karanth & Sunquist 1992). However, studies show that tigers prefer prey weighing approximately 107 – 114 kilograms (Bachi *et al.* 2003; Carbone *et al.* 1999).

2.1.3. Range Area and Density

A study conducted by Franklin et al. (1999) revealed that the home range of an adult female Sumatran tiger range between 40 – 70 square kilometers, while Griffith (1994 in Tilson et al. 1994) suggests that the home range of an adult male of Sumatran tiger varies from around 180 km2 at 100 – 600 meters asl. (above sea level), 274 km2 at 600 – 1,700 meters asl., and 380 km2at over 1,700 meters

asl. The home range of an adult male tiger can be twice as wide as the female (Franklin *et al.* 1999).

The home range is largely determined by prey availability. For example, a study

Table 3. Number of Sumatran tigers in National Conservation Institutions (Tumbelaka 2007)

No.	Location	Male	Female	Tootal	Note
1	KB (Zoo Park Raguram	13	10	23	August-06
2	Taman Safari (Safari Park) Indonesia, Cisarua	11	25	38	2 not identified yet their sexs, 13-Apr-07
3	Taman Safari Indonesia, Prigen		2	2	13-Apr-07
4	KB Bandung	9	3	12	August-06
5	KB Gembira Loka-Yoga	4	4	8	August-06
6	KB Semarang	1	1	2	August-06
7	KB Solo	2	5	7	August-06
8	KB Surabaya	3	14	17	August-06
9	KB Medan			5	5 not identified yet their sexs, August-06
10	KB Pematang Siantar	3	6	9	August-06
11	KB Bukittinggi	1	1	2	August-06
12	KB Jambi	1	1	2	August-06
	Total	48	72	127	

conducted by Santiapillai and Ramono (1985) estimates that the average density of Sumatran tiger may reach 1 adult individual/100 km2 in highland forests, increasing to 3 adult individuals per 100 km2 in the lowland forests. Other studies suggest that the average density of Sumatran tiger in highland forests is 1.1 adult individuals/100 km2 (Borner 1978) sharply increasing to between 2.3 – 3 adult individuals/100km2 in lowland forests (Nash & Nash 1985). Griffith (1994) suggests that there may be less prey at higher elevation, accounting for why a larger area is required to sustain a smaller tiger population.

2.2. EX-SITU

The Indonesian government only permits capture of the Sumatran tiger for raising and captive-breeding purposes by ex-situ conservation agencies, such as zoos and safari parks in Indonesia and overseas. In 2007, 127 Sumatran tigers were held in ex-situ conservation agencies in Indonesia (Table 3). Meanwhile some 244 Sumatran tigers were borrowed by or exchanged with other ex-situ conservation agencies overseas, as shown in Table 4. The ex-situ Sumatran tiger population is meant to preserve selective breeding stock for the worst case scenario, should the species become extinct in its natural habitat.

2.3. THREATS

2.3.1. Deforestation and Degradation

Deforestation and forest degradation in Sumatra are

Table 4. Number of Sumatran tigers in International Conservation Institutions (Tumbelaka 2007)

No.	Region	Number	Male	Number Female	Total
1	Africa	1	0	1	1
2	Sout America	1	0	1	1
3	USA	25	36	27	63
4	Asia	6	5	8	13
5	Austraila	10	14	9	23
6	Europe	47	48	48	69
7	Canada	1	1	1	2
8	New Zeland	3	2	4	6
9	Circus	5	20	19	39
	Total	99	126	118	244

Edited by Ligaya Tumbelaka from Muller (1999-2006

significant threats to the conservation of biodiversity on the island, especially that of large mammals requiring a wide ranging area such as the tiger (Picture 5). Wide swaths of forest have been cleared at an alarming rate over the last decade, shrinking and fragmenting the Sumatran tiger habitat into small pockets that are isolated from one another. Holmes (2003) estimates that almost 6,700,000 hectares of covered forest have been cleared in Sumatra between 1985 and 1997 (see Table 5). Meanwhile from 2000 to 2005, the Ministry of Forestry estimates that deforestation has claimed 1,345,500 hectares on Sumatra, at an annual average of 269,100 hectares.

Picture 5. Slashed and burned forest; settlements in TNTN and Bukit Balai Rejang Selatan areas.

Table 5. Estimate of lowland forest cover in Sumatra in 1985 – 1997 (Holmes 2003)

Estimate of Forest Cover in 1990 (ha)	Forest Cover in 1995 (ha)	Forest Cover in 1997 (ha)	Estimate of Deforestation in 1985 - 1997 (ha)	Estimate of Deforestation in 1985 - 1997 (%)
16,000,000	5,559,700	2,168,300	3,391,400	61

2.3.2. Hunting and Trading

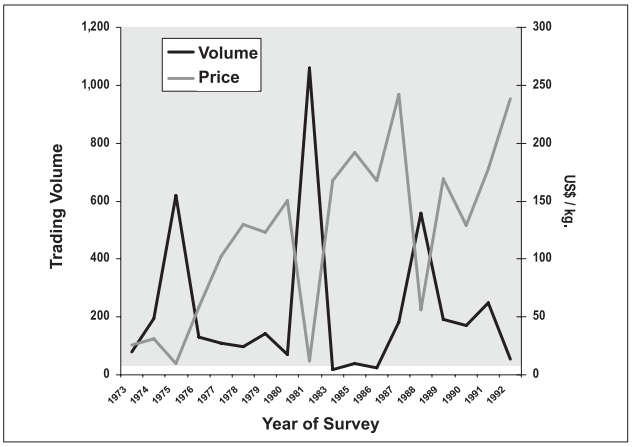
Illegal hunting is a significant threat to the existence and conservation of the Sumatran tiger (Picture 6) affecting not only the tiger, but also its prey. Illegal tiger hunting probably began in the early 1990s, in order to supply the black market with natural tiger body parts, especially its hide and bones. The tiger and its products are traded for several reasons. There is a strong market for tiger products in Asian traditional medicine for their perceived supernatural powers. In addition, tigers are traded for use as pets and status symbols (TRAFFIC SEA 2007; Table 6). Over 3,990 kilograms of Sumatran tiger bones were exported illegally from Indonesia to South Korea between 1970 and 1993 (Mills & Jackson 1994; Box 2). The price of tiger bones generally increases over time. In addition, as Picture 7 illustrates, tiger bone prices tend to increase on the international market when supply is down. In the South Korean market, tiger bone was sold at US $ 26 per kilogram in 1973, and US $ 238 per kilogram in 1992 (Mills & Jackson 1994). Historically, the hide and pelt are the most precious parts of a tiger. One mature Sumatran tiger pelt was valued at 150 – 350 gulden in the 1930s (Treep 1973) compared to more than US $ 2,000 in 2002 (Sheppard & Magnus 2004). Meanwhile profit for trading in other parts of the tiger reached US $ 1,000 in the 1970s, and more than tripled that amount by 2002. Studies estimate 253 tigers were removed from their natural habitat between 1998 – 2002 (Borner 1978; Table 7; Sheppard & Magnus 2004).

Table 6. Investigation of trading in Sumatran tiger parts in 22 big cities on Sumatra (TRAFFIC SEA 2007, unpubl.).

Items	2002	2006
Claw	175 +	43
Tooth	102 +	84
Beard	80 +	2
Complete pelt	24 +	1
Cut of pelt	20	37
Bone	8	32 kg
Offset	5	0

(+ equals more than)

Picture 6. Evidence of Sumatran tiger hide and bones in TNGL; a TNKS officer holds a Sumatran tiger pelt.



Picture 7. Comparison of tiger body part volume and price per kilogram exported from Sumatra to South Korea from 1978 to 1992 (reconstruction by Mills & Jackson 1993).

2.3.3. Conflict

Rapid human population growth and economic development within and around Sumatran tiger habitat limits the animal's ability to roam freely and in turn has increased humantiger conflicts. In recent years, humantiger conflicts have become the primary threat to Sumatran tiger conservation efforts (Picture 8). Records show that 48, 36 and 34 conflicts occurred in West Sumatra, Riau and Aceh respectively from 1978 to 1997 (Box 3). During that period, 146 persons were killed, 30 persons were injured and 870 cattle were killed in tiger confrontations (Nyhus and Tilson 2004).

Furthermore, records show that 40 persons were killed between 2000 and 2004 (PHKA). A study by TRAFFIC in 2002 found that at least 35 Sumatran tigers were killed in human-tiger conflict from 1998 to 2002.

Box 2. Poaching and Illegal Trading

Poaching is a real threat that directly decreasess wildlife populations. Illegal hunters often use traps with ropes or cables, pitfalls, poison and firearms to trap wild game such as bear (highly prized in Asian traditional medicine) and ungulates, common tiger prey. This sometimes results in unintentionally trapping and killing tigers. Paradoxically, though tigers serve a natural role in controlling pests such as wild boar, the tigers themselves are occasionally killed by traps set around agricultural areas to reduce those pests.

Based on data provided by the South Korea Customs Office, the TRAFFIC Species in Danger Report noted that 8,981 kilograms of tiger bones were smuggled into South Korea from 1970 to 1993, among them 3,994 kilograms, or 44%, from Indonesia. It is ironic that at least 2,619 kilograms were smuggled after Indonesia ratified the CITIES convention in 1979. Other data shows that Indonesia exported tiger bones to Taiwan in 1984 and imported tiger-content medicines from China in 1991 and 1992 (Mills & Jackson 1994).

In 2002, TRAFFIC surveyed 484 souvenir shops, gold and precious stone dealers, practitioners of Asian traditional medicine and bird shops in 24 large and small cities in 8 provinces in Sumatra, finding that tiger products are traded in all but 7 of the 24 cities. TRAFFIC conducted another survey in 2006, this time in only 22 large and small cities in 7 provinces in Sumatra except Nanggore Aceh Darussalam. The survey confirmed that tiger body parts are still openly traded throughout the region, in all but 9 of the 22 surveyed cities and towns.

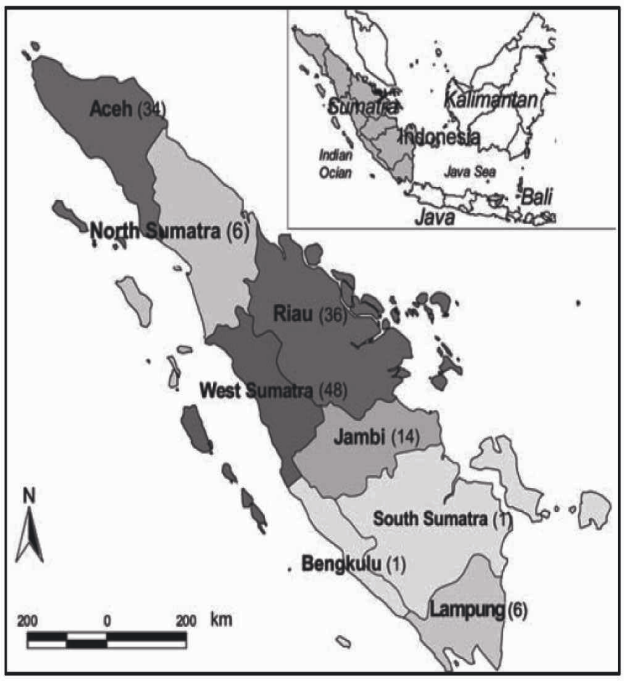
Table 7. Estimated number of total individual Sumatran tigers removed from their natural habitat in eight provinces in Sumatra from 1998 to 2002 (Sheppard & Magnus 2004).

Province	1998	1999	2000	2001	2002	TotalAverageSource
North Sumatra	1	1	4	n/a	n/a	62.4FFI-SECP 2002,
Aceh	n/a	2	2	1	n/a	51TRAFFIC 2002
Riau	19	17	9	12	10	6713.4FFI-SECP 2002, TRAFFIC 2002
West Sumatra	2	14	35	12	3	6513WWW 2002 STCP 2003
Jambi	2	9	1	5	22	397.8FFI 2001, FFI 2003
South Sumatra	2	4	1	2	n/a	91.8FFI 2002, WWF 2002
Lampung	19	8	12	6	12	5711.4WWW 2002
Bengkulu	n/a	2	1	n/a	1	40.8WWW 2002, WCS 2003
Total	45	57	65	38	48	253*51FFI 2002

Box 3. Human-Tiger Conflict in Sumatra

In general, human-tiger conflict on Sumatra follows three scenarios. In the first scenario, human and tiger activities do not significantly overlap and potential conflict is low. In this scenario there are clear borders between human and tiger activities; tigers do not have to venture out of the forest and human access into that forest is very limited. In interviews with inhabitants of 20 villages in TNWK, at least six persons were killed in human-tiger confrontations over more than forty years, from 1953 to 1996. Although the forest area borders on 27 villages with 590,000 inhabitants and the tiger population density is relatively high, human and tiger habitats are clearly divided by a river bordering almost two thirds of the park boundary. The second scenario producers more conflict, as humans have more resources, while those resorces are also required to adequately support the tigers. As a result, human and tiger activities overlap relatively often. resulting in more potential human-tiger conflict. This scenario is commonly found in protection forests where conservation activities are low, and also in agroforestry areas and multiple-use forest areas, where the density of both humans and tiger prey is high. In the third scenario, isolated human settlements have developed in the heart of forest with high tiger density. The rapid growth of transmigration settlements, roads and plantations in primary forests at the end of the 1970s and the early 1980s throughout Sumatra has increased human-tiger conflict on the island. Three provinces suffered from fatal tiger attacks during the period, namely West Sumatra, Riau and Aceh (respectively 46.8%, 52.5 and 63.7% attacks ending in fatalities). These three provinces also have the lowest rate of deforestation compared to other provinces in Sumatra (Whitten 1987, Collins *et al*. 1991). However, as the level of human-tiger conflict is quite high due to accelerated destruction of forest habitats, these threeconflict scenarios call for further examination (Unofficial translation from Nyhus & Tilson 2004).

Picture 8. Sumatran tiger killed in human-tiger conflict in Aceh.



2.3.4. Poverty

Sumatran people whose livelihoods depend on forest resources often hunt and eat tiger prey, which provides an animal protein source used to meet subsistence basic needs. However, due to poverty and limited employment opportunities some Sumatrans have turned to hunting wildlife to sell in local markets for increased economic gain rather than simply to meet subsistence needs. According to 2006 Statistic Bureau records, families living in Sumatra forests earn about Rp. 300,000 – Rp. 400,000 per month, an amount lower than the monthly minimum labor wage in each province in Indonesia.

Hunting tiger prey profoundly decreases the possibility for conservation of the Sumatran tiger, since the tigers' survival largely depends upon the availability of sufficient prey. Surprisingly, it is possible to openly and freely hunt tiger prey on Sumatra without provoking serious concern on the part of the authorities or the Sumatran tigerconservation activists. The situation worsens as local people continue to exhibit low awareness or knowledge of the importance of conserving natural resources for their own lives in the long run. Many people living in or near the forests
engage in illegal logging and deforestation for agriculture purposes, even though such activities not only cause destruction and fragmentation of the Sumatran tiger habitat but lower the quality of the forest ecosystem.

3. EXPECTED CONDITIONS, RECOMMENDATIONS AND ACTION PLANS

Based on discussions during the preparation of the Strategy and Action Plan for the Conservation of The Sumatran tiger, in general there are 5 expected conditions to be achieved in the next 10 years (2008 – 2017) including recommendations and actions to be carried in order to reach the expected conditions. The summary of targets is presented in Table 8.

3.1. THROUGHOUT SUMATRA, WITH THE SUPPORT OF THE RELEVANT PARTIES, SUMATRAN TIGER LANDSCAPES AND THE POPULATIONS THEY SUPPORT CAN BE RECOVERED, MAINTAINED OR EXPANDED.

The increasing need to convert land to forestry and non-forestry development throughout Sumatra is another effect of the rapid economic growth and human population in this area and has initiated most human wildlife conflicts including human-tiger conflicts. The situation worsens as forest residents demonstrate little awareness and concern about the importance of wildlife conservation, and local law enforcement on the matter is undeniably weak, particularly in the case of the Sumatran tiger. In addition to conservation areas, the Sumatran tiger is found in other areas such as conversion forests or production forests within the Industrial Forest Area (HTI) areas and Natural Forest Concessions (HPH) areas. The most recent study indicates that the Sumatran tiger populations living outside of conservation forests are relatively large but these tigers are not under protection of forest police, and will face greater threats from hunting activities and possibly more human-tiger conflict.

3.1.1. Recommendation

- Strengthen anti-poaching and illegal trade laws and increase the capacity of Ministry of Forestry and relevant law enforcement authorities to enforce laws against Sumatran tiger hunting and illegal trade.
- Develop the infrastructure aimed at preventing hunting and trading of the Sumatran tiger in order to improve the Ministry of Forestry's capacity to reduce the rate of the Sumatran tiger population decrease.
- Develop and increase connectivity of the Sumatran tiger's main habitats by creating corridors that expand the range area of the Sumatran tiger, and advance the legal status of such areas.
- Develop a long term monitoring program to be updated every three years that includes the Sumatran tiger's population status and ecology, habitat availability and the prevalence of threats facing the species both inside and outside of conservation areas throughout Sumatra.
- Develop range of conflict mitigation and management techniques that is acceptable to all stakeholders, including relocation, translocation and choosing areas for release into natural wild habitats.
- Develop and use tiger population restocking and translocation techniques to conserve the genetic diversity of Sumatran tiger populations located in critical habitats, in order to avoid the loss of genetic variation caused by genetic drift and inbreeding.
- Develop tiger shelters managed by communities, Non Government Organizations (NGO) and land owners to protect tiger populations living outside conservation areas.

3.1.2. Action Plan

- Perform surveys tiger conservation landscapes throughout Sumatra every three years to assess the status and distribution of the Sumatran tiger populations they contain. Employ an agreed common methodology for all of these surveys.

- Identify, research and monitor Sumatran tiger population, distribution, range area and habitat carrying capacity for tiger and prey outside tiger conservation areas, especially in forestry industry and mining concessions. Perform this activity periodically to evaluate how effectively the conservation management infrastructure is working. This activity will provide

inputs for the conservation priority for the Tiger Conservation Landscape (TCL) document.

- Identify and choose at least two sanctuaries that represent two types of Sumatran tiger habitats. These natural wildlife sanctuaries shall be developed to accommodate and receive live tigers that have been confiscated as a result of illegal possession, conflict or illegal hunting. This will prevent mature wild tigers from being delivered to ex-situ conservation agencies.

- Improve cooperation with POLRI and LIPI forensic laboratories in investigatory activities and/or in support of legal actions regarding protected species, wildlife, crime, and especially with respect to the Sumatran tiger.

- Improve the habitat protection and connectivity of the Sumatran tiger populations living outside conservation forests via: 1) the central government issuing protection status to a relatively large area that has high conservation value for the Sumatran tiger; 2) the local government issuing special protection status to a relatively narrow but essential area, or 3) land lease/purchase.
- Establish and replicate Species Protection Unit (SPU) teams in each Sumatran province, regency, and municipality where Sumatran tigers occur. The SPU members include Forest Police, LSM and community members. In addition, police liaison officers from every province and regency throughout Sumatra will be required.

- Establish a commission for illegal trading at the central government level that can be activated at any time whenever required to investigate and follow up special law enforcement operations that cannot be handled by the local authorities, especially large-scale trading syndicates and national distributors, buyers and exporters.

- Establish an ad-hoc conflict solution task force at the provincial level to assist and facilitate human-tiger conflict mitigation, especially in areas with high historically human-tiger conflict history (Jambi, Riau, West Sumatra, Nanggroe Aceh Darussalam).

3.2. Infrastructure Established And The Ministry Of Forestry's Capacity To Monitor And Evaluate The Conservation Of The Sumatran Tiger And Its Prey Increased.

The most intensive studies of population status and threats facing Sumatran large mammals are carried out mostly in conservation areas, with less attentions given to other land uses outside of these areas. With only partial and incomprehensive information available on the status and threats facing Sumatran large mammals, the capacity of government, conservation activists and donors to evaluate conservation intervention effects and manage decisions is weak. It is crucial that the government have adequate capacity to thoroughly evaluate the outcome of conservation efforts so that it can effectively meet its obligation to conserve resources.

However, capacity to provide comprehensive information on population status and threat level to large mammals throughout Sumatra is not currently available. Technical and institutional capacities are inconsistent; human and financial resources are unevenly distributed; conservation priorities vary among the Sumatran tiger conservation activists. It will therefore be necessary to synchronize our technical and financial resources and also our priorities.

3.2.1. Recommendation

- Improve capacity and strengthen the infrastructure local management authorities to monitor the population status and distribution of the Sumatran tiger in their region.

- Develop infrastructure and capacity by organizing training modules and an exchange program between tiger conservation teams. These mechanisms shall be managed by each conservation agency, NGO and community group.

- Develop an integrated center of information on the status of the Sumatran tiger that is accessible to all Sumatran tiger

conservation communities. The information center shall be managed by PHKA and will provide updated information on the status of Sumatran tiger conservation in a timeseries database.

- Prepare Sumatran tiger conservation management plans for each of the Sumatran tiger landscapes based on the national conservation strategy and action plan.

3.2.2. Action Plan

- Develop standardized survey methodological design and protocols for surveys of the Sumatran tiger and prey species populations and distribution. The protocol should include guidelines for survey design, basic data collection and data reporting.

- Map the concession areas and comprehensively review the status of the Sumatran tiger population occupying them as well as the corresponding ecological factors in order to identify possible areas of connectivity vital for conservation of the Sumatran tiger. Then, decide on the priority areas of Sumatran tiger conservation outside the concession areas.

- Develop a map of Sumatran tigers and large mammals that will be updated every three years, based on periodic surveys on the populations, their distribution and availability of habitats for tigers and other large mammals on Sumatra. The map shall serve as a national living document to evaluate conservation intervention performance.

- Perform periodic technical trainings on Sumatran tiger conservation and monitoring methods, comparison studies for PHKA officers in the Technical Executive Units (UPT), and provide apprentice programs in international conservation agencies and exchange/comparison studies for officers within UPTs. The training programs may be assigned to international agencies and other competent organizations.

- Improve staff capacity of PHKA and relevant institutions through special and integrated training/education programs, especially related to investigation methods, identification of wild animals and their body parts, as well as strategies for capture, patrol and the handling of legal cases.

- Establish a standard operating procedure (SOP) at the national level that investigates and provides intelligence in accordance with legal standards that follow the standards of the police department.

- Prepare and disseminate conflict mitigation protocols to each regency/municipality, conduct trainings in human-tiger conflict mitigation techniques for UPT PHKA officers and other relevant institutions, and develop conflict mitigation infrastructure in each UPT PHKA with a history of high human-tiger conflict.

- Establish protocols of best management practices for tiger conservation specifically designed for major industrial land uses, such as oil palm, Industrial Forest Areas, Natural Forest Concessions, oil and gas, and coffee and rubber.

- Develop training modules for Sumatran tiger conservation and conduct periodic trainings and exchanges between Sumatran tiger conservation practitioners from Sumatra's conservation organizations.

- Conduct a workshop and establish a national database that monitors the status and distribution of the Sumatran tiger and its prey. The database shall be online and realtime and will also accommodate an offline database.

3.3. Sumatran Tiger Management Outside Conservation Areas Reinforced With Support From Relevant Parties In Order To Encourage The Conservation Of The Sumatran Tiger And Its Habitat At Both Regional And National Levels

In general, many regional governments, communities, and forestry and mining concession holders share the opinion that conservation areas and wildlife hinder economic development and business opportunities. Conversely, many conservation activists are concerned that business-oriented regional policies cause the destruction of forests and the loss of natural diversity. In this era of democratization and decentralization, conservation and

development must strive to strike a win-win balance. Sumatran tiger conservation should accommodate stakeholder aspirations in order to exist in accord with development agendas, especially at the regional level.

3.3.1. Recommendation

- Develop mutual visions and missions and encourage stakeholders to align strategies and action plans for Sumatran tiger conservation with the regional development plan, especially in relation to forestry and non-forestry industry practices.

- Establish regional partnerships and encourage active participation of forestry and non-forestry businesses in the management of Sumatran tiger populations, especially in concession areas that overlap with tiger habitats.

- Develop intersectoral cooperation at the national level along with inter-regional involvement from Government and larger enterprises that operate in Sumatra in order to help conserve the Sumatran tiger.

3.3.2. Action Plan

- Establish common visions, missions and interests among Sumatran tiger conservation activists, regional governments and concession holders, particularly in the forestry and agricultural sectors.

- Perform workshops on Sumatran tiger conservation management and prepare action plans at the regional level. The purpose of the workshops is to translate and integrate the strategic plan into the regional development agendas and vice versa. The workshops can be assigned to operating agencies in relevant regions.

- Develop partnership programs for Sumatran tiger conservation among businesses, government, NGOs, and academic institutions at regional levels and provide appropriate supervision by regional steering committees .
- Reinforce the regulation framework and applicable laws through: 1) strengthening regulation reinforcement and law enforcement for certain industries, 2) integrating the Sumatran tiger conservation into the national development planning (BAPPENAS), 3) integrating conservation of the Sumatran tiger into regional development planning (BAPPEDA) and 4) integrating the ecological aspects of Sumatran tiger conservation into the criteria of environment impact analysis (BAPEDALDA).

- Strengthen law enforcement outside conservation areas through improving BKSDA efficiency as the single authority responsible for Sumatran tiger conservation in these areas. It may also be beneficial to involve industry security forces in some instances .

3.4. Working Network And Communication Infrastructure Established; Community Groups Committed To The Conservation Of The Sumatran Tiger Established

Since the issuance of the Indonesian Tiger Strategic and Action Plan in 1994, various organizations have worked on their own or jointly to save the Sumatran tiger. However, these groups have not been as effective as they could have been as they lacked an integrated vision and did not have guidelines to maximize the impact of their outputs. Further consolidation and coordination is required to achieve our conservation objectives.

Limited national financial resources pose a common obstacle to wildlife conservation, especially that of the Sumatran tiger. International support, both financial and technical, is definitely required to conserve the Sumatran tiger.

3.4.1. Recommendation

- Develop a powerful communication and partnership network, both at national and international levels that is able to improve cooperation in the exchange of information and the empowerment of local and national groups striving to conserve the Sumatran tiger.

- Develop an integrated and effective

surveillance mechanism that involves the regional government, PHKA, businesses and the community in order to track the performance of forestry and nonforestry industries in their exploitation and management of concession areas that overlap with Sumatran tiger habitats.

- Develop a sustainable funding mechanism to support short term and long term priority activites for Sumatran tiger conservation.

- Develop integrated, sustainable, and measurable education and community awareness programs.

3.4.2. Action Plan

- Establish a Communication Forum for Sumatran tiger Conservation (FKKHS), or Cats Specialist Group Indonesia. The forum shall act for and represent the Sumatran tiger conservation community in Indonesia and develop regional and international networks. Membership will include experts and tiger observers in Indonesia and overseas. The Forum shall cooperate with and provide recommendations to the Ministry of Forestry to ensure high quality, appropriate implementation of conservation strategies and action plans.

- Establish a Consortium for the Conservation of The Sumatran tiger. The Consortium shall cooperate with FKKHS to develop a funding mechanism and fund raising at national and international levels to support a long term the Sumatran tiger conservation program.

- Campaign for tiger conservation in all provinces in Sumatra and other regions, including Java and Bali, particularly with respect to law enforcement. Disseminate relevant laws and regulations on wildlife to the regional government apparatus, and law enforcement apparatus such as the courts, police, attorney's offices, quarantine, customs offices and the Indonesian National Armed Forces.

- Develop an effective and comprehensive education and awareness program. Conservation program field executives shall have the skill to train and interact with communities to translate the tiger conservation strategies.

- Establish a watch dog supervisory body of Sumatran tiger conservation in industry areas that functions, in general, to:
  1) identify and publicize industries that violate laws and regulations; and
  2) identify and publicize industries that promote environment friendly practices and actively participate in the Sumatran tiger conservation partnership.

- Establish independent funding to ensure the sustainability of regular forest patrols and rapid reaction units for conflict response by including the operational expenses in the government budget. The funding could be sourced from the private sector or from alternative funding mechanisms such as avoided deforestation schemes and/or via DNS.

- Develop international collaborations to stop transnational trade of wildlife, body parts and derivative products, especially aimed at intelligence sector, law enforcement campaigns and operations that involve PHKA, Interpol, ASEAN WEN and national and international NGOs.

3.5. A Useful And Sustainable Ex-situ Conservation Program Established In Accord With In-situ Sumatran Tiger Preservation Efforts

Tigers that attack humans and livestock are killed or captured and taken to zoos nearby without consideration for how such a response impacts the Sumatran tiger population in the wild. In addition, exsitu conservation policies made in the past are not adequate to resolve the problems of in-situ conservation that we face today. One of the strategic issues is that stakeholders do not adhere to the ex-situ conservation action plan as stipulated in the Strategy and Action Plan for Sumatran Tiger Conservation 1994 (Tilson et al. 1994) and the Indonesian Sumatran Tiger Masterplan (Darjadi et al. 1998). On the other hand, the breeding programs at institutions dealing with exsitu conservation can be said to be quite successful. To date, there are approximately 371 Sumatran tigers in captivity both domestically and abroad. One problem conservationists face today is the absence of policies that specifically regulate the use of breeding results for the recovery of Sumatran

tigers in the wild. In addition, there is a lack of communication among activists of ex-situ conservation. Furthermore, management of breeding techniques and treatment of tigers in many institutions that specialize in ex-situ conservation are still inadequate.

3.5.1.Recommendations

Align the action plan of ex-situ conservation as stipulated in the Strategy and Action Plan for Sumatran Tiger Conservation 1994 (Tilson *et al*. 1994) and the Indonesian Sumatran Tiger Masterplan (Darjadi *et al*. 1998) documents with the updated Strategy and Action Plan for Sumatran Tiger Conservation 2007 - 2017.

3.5.2. Action Plan

- Review and revise the action plan of exsitu conservation as stipulated in the Strategy and Action Plan for Sumatran Tiger Conservation 1994 (Tilson *et al.* 1994) and Indonesian Sumatran Tiger Masterplan (Darjadi *et al*. 1998) with the updated Strategy and Action Plan for Sumatran Tiger Conservation 2007 to 2017

- Implement the revised action plan of conservation ex-situ as stipulated in the Strategy document and Action Plan for Sumatran Tiger Conservation 1994 (Tilson et al. 1994) and Indonesian Sumatran tiger Masterplan, (Darjadi et al. 1998) in all institutions specializing in ex-situ conservation of the Sumatran tiger.

- Seek funding and technical management support, especially in the conservation institutions which do not meet minimum standards yet.

- Scientifically assess possibilities for the implementation of conservation loan/ breeding loan, and reintroduction programs.

Table 8. Stages of evaluation of the expected results of action plan.

EXPECTED CONDITIONS	SUCCESS INDICATORS	EXPECTED TARGET		
		2011	2014	2017
3.1. Sumatran tiger population and all of its landscapes in Sumatra are recovered and can be maintained or increased with the support of all stakeholders.	Biological and ecological population size of Sumatran tiger is in ideal number and its habitat and roaming areas are not reduced, but possibly even increased.	- Population and distribution of Sumatran tigers across its landscapes in Sumatra are identified and mapped accurately. - Two special protection areas for Sumatran tiger (sanctuaries) are identified. - Memorandum of cooperation with the forensic laboratory of LIPI and police. - At least two SPUs (Special Protection Unit) are formed in the main habitat of Sumatran tigers. - Commissions on anti-illegal wildlife trade are formed and work effectively. - The task force of human - Sumatran tiger conflict mitigation is formed and supported by adequate infrastructure.	- Population and distribution of Sumatran tigers across its landscapes in Sumatra are identified, accurately mapped and updated. - Cooperation on forensic with LIPI and Police operates effectively. - Strengthen the protection of Sumatran tiger habitat and corridors connecting its landscapes and ecological functions and get full support from stakeholders. - Two Species Protection Units (SPU) are newly formed in the main habitat of Sumatran tiger and work effectively with support from stakeholders. - Commission on anti-illegal wildlife trade works effectively. - Task force on Conflict mitigation works effectively.	- Population and distribution of Sumatran tigers across its landscapes in Sumatra are identified, accurately mapped and updated. - The Sumateran tiger population and all of its landscapes in Sumatra are recovered and can be maintained and increased with support of all stakeholders. - Cooperation on forensics with LIPI and Police run effectively. - Strengthen the protection of Sumatran tiger habitat and connectivity areas having high conservation value that connect main areas for Sumatran tiger conservation. - Two new SPUs formed in all Sumatran tiger habitats. - Commissions on anti-illegal wildlife trade are formed and work effectively. - Task force on Conflict mitigation works effectively.

Table 8. Continuation...

EXPECTED CONDITIONS	SUCCESS INDICATORS	EXPECTED TARGET		
		2011	2014	2017
3.2. Infrastructure is built and capacity for the Forestry Department to monitor and evaluate Sumatran tiger species conservation efforts is increased.	Forestry Department and its partners are able to conduct performance monitoring of Sumatran tiger conservation effectively.	- Document of standardized survey methods and protocol on population survey and distribution of Sumatran tigers are available and used by stakeholders. - Map of adjacent or overlapping forest concession and non-forest areas with Sumatran tiger landscapes is available in adequate scale and used by stakeholders. - Atlas of Sumatran tigers and their preys is available in adequate scale and in the form of spatial and non-spatial database and can be accessed online. - Document of training modules on Sumatran tiger conservation is available and used effectively in three provinces in Sumatra. - Capacity building program on Sumatran tiger conservation for PHKA staff and partners is established and run effectively. - Document of SOP on investigation and intelligence of violations or illegal use of Sumatran tiger is available and in use. - Protocol of human-tiger conflict mitigation is socialized and used effectively throughout all districts in Sumatra where Sumatran tigers live.	- Map of adjacent or overlapping forest concession and non-forest areas with Sumatran tiger landscapes is available in adequate scale and used by stakeholders. - Atlas of Sumatran tiger and its prey as well as online database work effectively and are updated regularly to improve the effectiveness of law enforcement efforts. - Capacity building program on Sumatran tiger conservation for PHKA staff and partners works effectively. - Protocol on best management practices is implemented by industries. - Document of training modules on Sumatran tiger conservation is available and used effectively in six provinces in Sumatra. - Document of protocol on Sumatran tiger breeding program is available and used effectively by ex-situ conservation institutions.	- Map of adjacent or overlapping forest concession and non-forest areas with Sumatran tiger landscapes is available in adequate scale and used by stakeholders. - Atlas of Sumatran tiger and its prey as well as online database work effectively and are updated regularly to improve the effectiveness of law enforcement efforts. - Capacity building program on Sumatran tiger conservation for PHKA staff and partners work effectively. - Protocol on best management practices is implemented by industries. - Document of training modules on Sumatran Tiger conservation is available and used effectively in all provinces in Sumatra. - Document of protocol on Sumatran tiger breeding program is available and used effectively by ex-situ conservation institutions.

Table 8. Continuation...

EXPECTED CONDITIONS	SUCCESS INDICATORS	EXPECTED TARGET		
		2011	2014	2017
		- Documents of protocol on best management practices for each type of industry is available. - Document of protocol on Sumatran tiger breeding program is available and used effectively by ex-situ conservation institutions.		
3.3. There is strengthened Sumatran tiger management outside conservation areas and involvement of parties to support Sumatran tiger conservation and its habitat both at regional and national levels.	Sumatran tiger conservation outside conservation areas receives full support from all stakeholders.	- Sumatran tiger conservation agenda is integrated into the regional development agenda in three provinces in Sumatra. - Partnership program on Sumatran tiger conservation in its landscapes both in forest concession and non-forestry areas is established in three provinces in Sumatra. - The parties responsible for the Sumatran tiger population outside conservation areas work effectively.	- Sumatran tiger conservation agenda is integrated into the regional development agenda in at least three provinces in Sumatra. - Partnership program on Sumatran tiger conservation in its landscapes both in forest concession and non - forestry areas is established in six provinces in Sumatra. - The parties responsible for the Sumatran tiger population outside conservation areas work effectively.	- Sumatran tiger conservation agenda is integrated into the regional development agenda in at least eight provinces in Sumatra. - Partnership program on Sumatran tiger conservation in its landscapes both in forest concession and non - forestry areas is established in eight provinces in Sumatra. - The parties responsible for the Sumatran tiger population outside conservation areas work effectively.
3.4. Network and communication infrastructure as well as community groups concerned about and responsible for the sustainability of Sumatran tiger are established.	Indonesian Sumatran tiger conservation community runs well and is affiliated with the global tiger conservation network.	- Sumatran tiger Conservation Communication Forum (FKKHS) and Sumatran tiger national network are established as effective artners of the government. - The Sumatran tiger conservation consortium is established and functioning. - The Sumatran tiger conservation, education and community awareness program is implemented and socialized.	- FKHHS functions properly and becomes an effective government partner. - The Sumatran tiger conservation, education and community awareness program is implemented and socialized. - Sumatran tiger conservation supervisory agencies in industrial estates work effectively. - Tiger fundraising starts to work.	- FKHHS functions properly and becomes an effective government partner. - The Sumatran tiger conservation, education and community awareness program is implemented and socialized. - Sumatran tiger conservation supervisory agencies in industrial estates work effectively.

Table 8. Continuation...

EXPECTED CONDITIONS	SUCCESS INDICATORS	EXPECTED TARGET		
		2011	2014	2017
		- Sumatran tiger conservation supervisory agencies in industrial estates are established and operational. - Eradication of cross country illegal trade on Sumatran tiger by PHKA has the full support of parties.	- Efforts to eradicate illegal trade in Sumatran tiger products run effectively and have the support of stakeholders.	- Sumatran tiger conservation fund accumulates as a trust fund and is used efficiently and effectively. - Efforts to eradicate illegal trade in Sumatran tiger products run effectively and have the support of stakeholders.
3.5. An effective ex-situ Sumatran tiger conservation program is established and supportive to the in- situ conservation programs.	Ex-situ Sumatran tiger conservation program effectively supports in-situ conservation program.	- Revise the action plan and master plan of ex-situ Sumatran tiger conservation. - Protocol on ex-situ conservation program is carried out by 50% conservation institutions owning Sumatran tiger. - Study is produced on reintroducing the Sumatran tiger to existing habitat.	- Protocol on ex-situ conservation program is carried out by all conservation institutions owning Sumatran tiger. - The scientific study on conservation / breeding loan scheme is available and Sumatran tiger reintroduction begins.	- Protocol on ex-situ conservation program is carried out by all conservation institutions owning Sumatran tiger. - Conservation / breeding loan scheme develops (based on the study) and Sumatran tiger reintroduction can be carried out effectively.

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