

Orangutan Action Plan



2012 - 2016



Sabah Wildlife Department
Ministry of Tourism, Culture and Environment

ORANGUTAN ACTION PLAN

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EXECUTIVE SUMMARY

The Orangutan State Action Plan designed for Sabah is a comprehensive directive that emphasises the need for immediate, practical and adaptive conservation actions in order to ensure the long-term survival of the sub-species *Pongo pygmaeus morio*. This document results from an extensive consultation process initiated during the “First International Workshop on Orangutan Conservation in Sabah” (Kota Kinabalu, 2003), continued during subsequent workshops over the past few years and culminating in the “Species Action Plan Workshop” held in Kota Kinabalu in June 2010. The Plan presents a consensus of recommendations arrived by the major stakeholders who are involved in the management of orangutan populations in the State.

Orangutan number and distribution range have been declining on an unprecedented scale throughout Borneo and Sumatra over the past few decades. Several populations have already disappeared and the species will be extirpated in most of its natural environment unless drastic conservation management measures are identified and implemented urgently. In 2005, it was estimated that about 11,000 orangutans (95% Confidence Interval: 8,300-18,400) were distributed in fourteen major populations (i.e. populations with more than 25 individuals) in Sabah. Seven populations, called “Orangutan High Priority Areas” represent more than 70% of the total number of orangutans living in the State. In Sabah, a staggering 65% of the wild orangutans are surviving in non-protected forests that are prone to human exploitation. The vast majority of these animals are actually concentrated in forests managed for timber production by the Sabah Forestry Department and the Sabah Foundation.

In Sabah, orangutan distribution and abundance decline are directly attributed to recent and drastic habitat losses mainly due to the conversion of large expanses of orangutan habitat (lowland mixed dipterocarp forests) to oil palm plantations and other crops. Other immediate threats include habitat degradation due to unsustainable and/or illegal logging practices, various forms of encroachments with protected forests, fires and poaching/killing (for bush meat, medicinal purposes and/or as a means of crop protection). Poor land-use planning and aggressive agricultural

practices lead to habitat fragmentation and subsequent isolation of major orangutan populations in the state, which is unquestionably jeopardizing their long-term viability. Habitat loss and fragmentation is also resulting in increased orangutans and human conflicts.

Identification of these threats resulted in several actions over the past five years aiming at enhancing the prospects of orangutan long-term survival in the State (gazettement of the Lower Kinabatangan Wildlife Sanctuary in 2005; temporary logging ban within the Ulu Segama/Malua forest concessions in 2007; formulation of Forest Management Plans for sustainable timber production in all Forest Management Units, etc). However, the continuing decline of the species in Sabah shows that there is an urgent need to reinforce and diversify management efforts if this species is to survive in the long-term. The successful protection of the orangutan in Sabah must embrace a collective and adaptive approach that extends beyond the network of protected areas and requires a concerted effort to establish local, national and international approaches and priorities, and to identify partners and donors who will implement and monitor these conservation strategies.

The fact that orangutan's presence in Sabah offers a range of new opportunities (such as research or eco-tourism) that will significantly contribute to the economical development of local communities and increase revenues to the State Government must not be ignored and has to be taken into account in designing this plan.

The vision of this Action Plan is to secure the continued existence of viable orangutan populations in Sabah and to maintain the major wild populations in accordance with other management practices that exist for each specific forest.

The 5-year goals of this SAP are to identify, develop and implement strategies and actions that will address the threats to the species in all priority populations identified in the State by providing guidance to key players that will implement these strategies.

This SAP outlines a series of strategies and objectives that were identified during several workshops held in Sabah over the past few years.

1. For the State, to officially create, empower and mandate the “Sabah Orangutan Alliance” (SOCA) for developing a venue for better communication and collaboration between all partners involved in orangutan conservation. SOCA will be led by the Sabah Wildlife Department and will gather all state agencies and relevant partners to tackle orangutan conservation. SOCA will be primarily in charge of implementing this SAP.
2. Every Management Plan designed for any natural forest or plantation with orangutans should be in line with the recommendations developed in this SAP.
3. All forests holding significant populations of orangutans and not protected for conservation must not be converted to industrial tree or agricultural plantations and must be adequately managed under sustainable natural forest management practices.
4. Forest fragments inhabited by and important for orangutans shall be connected through wildlife corridors or additional patches of forest or other connectivity schemes as deemed necessary.
5. Improving current agricultural practices in large-scale plantations and also small holdings or private orchards by introducing effective mitigation features, either by physical construction or by establishing conflict mitigation units.
6. Developing guidelines/policies for sustainable and responsible orangutan tourism while ensuring that a percentage of benefits go directly to programs that will aid local community development projects.
7. Developing a strategy for the rescue, the rehabilitation and the release of orangutans, the implementation of proper post-release monitoring.
8. Production and dissemination of materials to enhance public awareness about orangutan in the state.

9. Developing a concerted approach to conduct ecological, biological and genetic studies on this species in man-made landscape to better manage orangutan habitat.
10. Stricter law enforcement to enforce a zero-killing policy in the State. The assistance of Honorary Wildlife Wardens is crucial in this goal.
11. Bornean orangutans are endemic to Borneo and they shouldn't be relocated outside of the island.

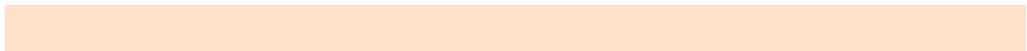


TABLE OF CONTENTS

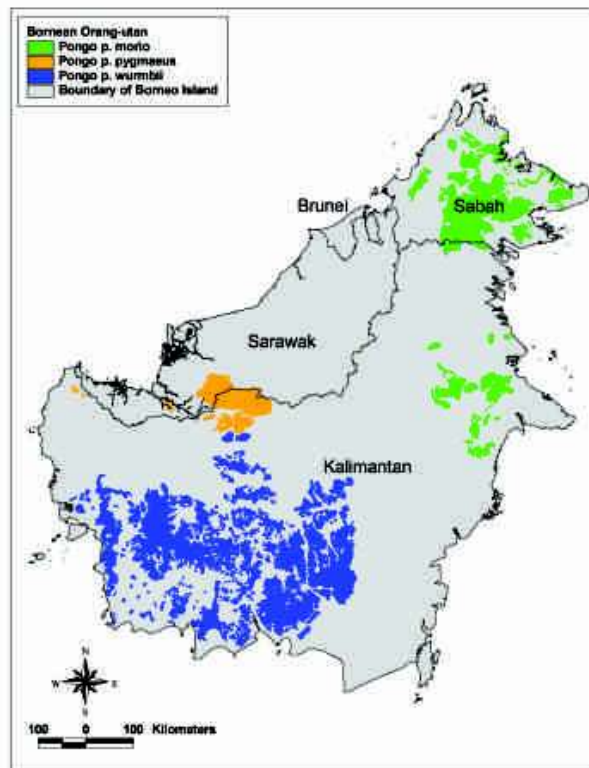
1	INTRODUCTION	1
1.1	Taxonomy	1
1.2	Legal status and legislation	2
1.3	Socio-ecology	2
1.4	Current distribution and population trends	4
1.5	Major threats	5
2	DISTRIBUTION IN SABAH AND SITE DESCRIPTION	8
2.1	The Sabah Foundation Concession Areas	8
2.2	Ulu Segama Malua Forest Reserves (USM FR)	11
2.3	Other Commercial Forest Reserves (CFRs) of the Sabah Foundation	11
2.4	Danum Valley Conservation Area	11
2.5	Forests of Upper Kinabatangan (North)	13
2.6	Tabin Wildlife Reserve	13
2.7	Lower Kinabatangan	13
2.8	Kulamba Wildlife Reserve	14
2.9	Ulu Kalumpang, Mt. Wullersdorf and Tawau Hill	15
2.10	Major threats on these High Priority Areas	16
3	NON-SITE SPECIFIC PRIORITY ACTIONS	17
	Action 1: Creation of the “Sabah Orang-utan Conservation Alliance”	17
	Action 2: Reconnecting fragmented landscapes containing orangutan sub-populations by creating contiguous corridors of natural forest	18
	Action 3: Biomonitoring and scientific research	19
	Action 4: Design better Forest Management Practices compatible with orangutan survival	20
	Action 5: Agricultural Practice and Development	21
	Action 6: Enhanced inter-agency collaboration	22
	Action 7: Promoting education and awareness activities	22

4	SITE-BASED PRIORITY ACTIONS	23
4.1	Sabah Foundation Forest Concession area	23
4.2	Forests of Upper Kinabatangan (North)	24
4.3	Tabin Wildlife Reserve	24
4.4	Forests of Lower Kinabatangan	24
4.5	Forests of Kulamba Trusan Kinabatangan wetlands	25
4.6	Forests of Danum Valley Conservation Area	26
4.7	Forests of Ulu Kalumpang	26
5	EX SITU CONSERVATION EFFORTS	27
6	ORANGUTAN ACTION PLAN IMPLEMENTATION, COORDINATION AND INTEGRATION WITH OTHER CONSERVATION EFFORTS	28
6.1	National efforts	28
6.2	International efforts	28
6.3	Monitoring and evaluation	29
6.4	Workplan, budget and partners	30
	LIST OF ABBREVIATIONS	31
	REFERENCES	32
	APPENDIX 1	34
	APPENDIX 2	38
	APPENDIX 3	44
	SPECIES ACTION PLAN COMMITTEE	46
	WORKSHOP PARTICIPANTS	47

1 INTRODUCTION

1.1 Taxonomy

Malaysia is one of the only 23 countries worldwide to be home to a great ape species, with two orangutan taxa found in the country: *Pongo pygmaeus morio* in Sabah, and *Pongo pygmaeus pygmaeus* in Sarawak: Map 1.



Map 1: Distribution of the three Bornean orangutan sub-species (modified from Meijaard. E., *et al.* 2004)

1.2 Legal status and legislation

The orangutan is banned from international trade by being listed on Appendix 1 of CITES (Convention of International Trade in Endangered Species of Flora and Fauna). The IUCN (World Conservation Union) 2008 Red List considers the Bornean orangutan as an endangered species (Ancrenaz *et al.*, 2008).

In Malaysia, the orangutan is a totally protected species since 1958. The Sabah Wildlife Conservation Enactment 1997 provides fine up to 100,000 RM and prison sentence up to five years for illegal killing and rearing of orangutans.

1.3 Socio-ecology

Orangutans are mostly found in lowland forests below 500 meter above sea level. They eat mostly fruits, although they also feed on leaves, flowers, tree bark, and insects to compliment their diet (McKinnon, 1972; Galdikas, 1988; Wich *et al.*, 2009; Rijksen and Meijaard, 1999). Orangutans are generalist feeders and are able to adapt their diet to natural resources available in the forest, explaining why they can cope to a certain extent with low level of timber extraction and survive in sustainably exploited forests (Ancrenaz *et al.*, 2010).

Orangutans are essentially solitary animals. Close groupings consist mostly of young dependant accompanying their mother until they reach an age of 8-10 years. Females occupy territories that fluctuate between 0.5 to 3 km², depending on food distribution and abundance. Flanged males are dominant individuals with territories covering



Flanged adult male feeding on figs along the Kinabatangan River. Photo: HUTAN.

several km² and encompassing the territories of several females (Wich *et al.*, 2008) usually wander about the forest, often crossing through and living within territories of several flanged males and females at any one time. Orangutan density is low throughout their range: securing a viable population requires thus considerable areas of suitable and interconnected habitat.

Male orangutans leave the community where they have been born to establish their own territory in a new area when they reach maturity (Goossens *et al.*, 2006). The ability for orangutans to migrate from one area to another is vital from a conservation and management perspective, as this allows animals to locate additional food sources in times of hardship, and also reduces the potential risk of inbreeding. It also reduces the probability of localised extinction by allowing for recolonisation of degraded forests.

Females become sexually mature at around 10 to 15 years of age and males between 13 to 15 years old. Pregnancy is about 8.5 months. Young apes are weaned when they are 3 to 4 years old but they will spend at least another 5 years with their mother to fully gain the necessary knowledge to survive in the forest independently. Birth intervals are the longest among primates, 6 to 8 years in average (Leighton *et al.*, 1995). As a result, females cannot produce more than 4 to 5 offspring in their lifetime (about 40 years in average). Because of these life-biology parameters, orangutans are very sensitive to hunting pressure: removal of more than 1% of a given population per year will destabilize and threaten the persistence of even initially large populations. Impacts of hunting are more severe when it occurs in lower quality habitat, where the potential population growth rate is not optimal (Singleton *et al.*, 2004).



Orang-utan feeding signs on a woody climber in the forests of Danum Valley.

Photo: Hutan/ Marc Ancrenaz.

1.4 Current distribution and population trends

Orangutan distribution in Sabah is irregular throughout the many fragmented forested areas. They are more common in the lowland forests of eastern and central Sabah than compared to elsewhere in the state. Only two significant minor and isolated populations are found in western parts of Sabah, namely in the Crocker Range and Kinabalu National Parks. However, transient individuals are sometimes observed in other western parts of Sabah (Long Pasia in Western Sabah for example).

The most recent estimates place the population at about 11,000 individuals in Sabah (with a 95% confidence interval: 8,000-18,000: see Ancrenaz *et al.*, 2005; Alfred *et al.*, 2010). Sabah can then be regarded as the main stronghold for this taxon. However, our surveys also showed that orangutan numbers have declined by at least 35% over the past 20 years in Sabah (Goossens *et al.*, 2006).



Oil palm development in the Segama floodplain. Photo: Hutan/ Marc Ancrenaz.

1.5 Major threats

The decline of the species is primarily due to human inference and recent conversion of extensive tracts of lowland forests to agriculture (Rijksen and Meijaard, 1999; McMorrow and Talip, 2001; Wich *et al.*, 2008).

1.5.1 Habitat loss

Most of Sabah's landmass was covered with tropical forests in a recent past. Today about 50% of the land is still under some sort of forest cover. Forest is here following the definition of the Malaysian Forest Council: it includes "natural" forests as well as industrial tree plantations. Oil palm plantations and other crops are excluded from this definition. These forests are therefore under different land tenures. In the Sabah context, "conversion of natural forest" refers to deliberate removal of natural forest and replacement with commercial crops, (with oil palm accounting for 1.4 million ha of land), industrial tree plantations (rubber, acacia), and other types of land uses (roads, human settlements, cattle or fish breeding, etc). Further habitat loss will without any possible doubt lead to additional population crash. In addition, the accumulation of dead materials and debris resulting from human activities in most forests bring high risks of fires during long dry periods.

1.5.2 Fragmentation of orangutan population and habitat

Commercial forest reserves and other range-forests for orangutans are more and more fragmented because of the establishment of oil palm and other industrial tree plantations, and with the expansion of infrastructure development (provision of electricity, road network, etc). Fragmentation prevents a proper gene-flow between different orangutan sub-populations and results in inbreeding and deleterious genetic effects. Over time, human pressure and encroachment on the natural landscape and the excessive fragmentation of the remaining forests will make the last orangutan populations more susceptible to local extinction.

1.5.3 Degradation of orangutan natural habitat

In addition to habitat destruction and fragmentation, repeated logging and timber extraction are also key threats to the remaining populations since forest over-exploitation results in orangutan decline and local extinction (Ancrenaz *et al.*, 2005; Ancrenaz *et al.*, 2010). Last but not least, increasing human activities in forested areas increase the threat of forest fire as well as the occurrence of poaching (for protecting people's crops or for other reasons).

1.5.4 Limits of the network of protected areas in the State

The definition of a protected area is an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means (World Conservation Union or IUCN). Although Commercial Forest reserves are kept under forest cover, they are not included in this definition.

The current network of protected areas established in Sabah is highly fragmented and is unlikely to maintain viable populations of orangutans in the long-term on its own:

- (1) the largest protected areas (Kinabalu and Crocker Range Park, as well as the network of mangrove forest reserves) are only marginal habitat for orangutan;
- (2) Virgin Jungle Forest Reserves disseminated throughout the state are far too small to sustain viable orangutan populations;
- (3) the major orangutan protected populations (Tabin, LKWS, Kulamba) are becoming highly fragmented and isolated;
- (4) conservation zones set aside in commercial forest reserves contain almost exclusively less profitable forests located in hilly or mountainous terrain that are of limited value for conserving most wildlife species. They also mostly occur as disconnected patches, which further reduce their significance for biodiversity conservation.

Today, more than 65% of the wild orangutans in Sabah are surviving outside of protected forests and a conservation landscape approach is needed to manage this species overall.

1.5.5 Illegal killing

Orangutans are still killed in the State by irresponsible people when the animals enter and damage crops or for meat consumption occasionally. Killing is exacerbated when the forest is converted to agriculture since food resources that used to be available are destroyed and animals have to rely on people's crops for survival.

1.5.6 Poor public awareness about the conservation needs for the species

Lack of knowledge and appreciation of the orangutan in Sabah and in Malaysia is an indirect threat to its long-term preservation. Changing public attitude and tackling public ignorance on orangutans is strongly required due to the imminent threat of extinction facing the species.

List 1 presents the fourteen distinct orangutan populations that are generally recognised in Sabah (Payne, 1987; Ancrenaz *et al.*, 2005). These populations are found in three major types of land tenure: (1) protected forests (Wildlife Sanctuaries; Wildlife Reserves; Parks; Conservation Areas); (2) commercial forest reserves and (3) privately-owned and agricultural lands. Each and every established population in the wild is worth protecting since the loss of any of these populations would seriously jeopardise the taxon's integrity as an evolutionary unit. In this Action Plan however, site-specific actions are presented for only six populations that all together represent more than 85% of the total orangutan population in the State (populations 1 to 6 in Table 1).

Orangutan populations are fragmented and isolated by non-forested lands (mostly oil palm plantations): proper management of these areas is crucial to maintain connectivity between populations and this issue must be addressed in this Plan.

2 DISTRIBUTION IN SABAH AND SITE DESCRIPTION

2.1 The Sabah Foundation Concession Areas

Following several cycles of heavy conventional logging, most forests administered by the Sabah Foundation are highly degraded. However, they are home to the largest population of orangutans occurring in Sabah and in Malaysia (Table 2).

Table 2: Approximate orangutan numbers identified in the forest concession of Sabah Foundation (¹Ancrenaz *et al.*, 2005; ²Alfred *et al.*, 2010; ³Ancrenaz *et al.*, 2010).



Forest fragmentation as a result of oil palm development in the Kinabatangan floodplain. Photo: Hutan/ Marc Ancrenaz.

Table 1: List of high priority areas for orangutans in Sabah, as recognized in this SAP
(High Priority Populations are in italic)

No	Forest Reserve(s)	Land Status	Approximate Orang-utan Number
1	<i>Sabah Foundation Forest Concession Area</i>	<i>Commercial Forest Reserve</i>	<i>USM: 2600 to 3000 (1295-5866)^{1,2,3} Other FMUs: 2100^{2,3}</i>
	<i>Danum Valley Conservation Area</i>	<i>Protection Forest Reserve</i>	<i>425 (309-570)³</i>
2	<i>Forest of Upper Kinabatangan (North)</i>	<i>Commercial Forest Reserve</i>	<i>1700 to 2100 (1016-3403)^{1,3}</i>
3	<i>Tabin Wildlife Reserve</i>	<i>Wildlife Reserve</i>	<i>1200 (868-1606)^{1,3}</i>
4	<i>Lower Kinabatangan Floodplain</i>	<i>Virgin Jungle Reserve, Wildlife Sanctuary & privately owned land</i>	<i>700 to 825(546-955)^{2,3}</i>
5	<i>Kulamba Wildlife Reserve Trusan Kinabatangan Wetlands – RAMSAR site</i>	<i>Wildlife Reserve, Mangrove Forest Reserve</i>	<i>480 (276-1214)^{2,3}</i>
6	<i>Ulu Kalumpang, Mt. Wullersdorf and Tawau Hills</i>	<i>Protection Forest Reserve, National Park</i>	<i>144 (54-408)¹ to 605 (487-783)³</i>
7	Trus Madi	CFR and Protection Forest	282 (126-736) ¹
8	Sepilok	Virgin Jungle Reserve	200 (100-300) ⁴
9	Crocker Range Park	Sabah Parks	181 (62-528) ¹
10	Bonggayya	CFR	111 (38-324) ¹
11	Lingkabau	CFR	100 (75-150) ⁴
12	Silabukan	Protection Forest Reserve	58 (21-159) ¹
13	Kinabalu Park	Sabah Parks	50 (25-75) ¹
14	Ulu Tunggud	CFR	29 (9-99) ¹

Sources: ¹Ancrenaz et al., 2005; ²Ancrenaz et al., 2010; ³Alfred et al., 2010; ⁴Payne, 1987; CFR: Commercial Forest Reserve-All confidence intervals have been bootstrapped.

Table 2: Approximate orangutan numbers identified in the forest concession of Sabah Foundation (¹Ancrenaz et al., 2005; ²Alfred et al., 2010; ³Ancrenaz et al., 2010)

FMUs	Areas	Orang-utan numbers
FMU 15	North (Sg Melikop)	Very few ¹
	West	Very few ¹
	East	136 (55-394) ¹
FMU 16		104 (50-216) ¹
FMU 20	West	23 (11-49) ¹
	East Kuamut River	610 (315-1114) ¹
	Malua FR	2580 to 3081
FMU 21	Southern bank of Segama	(1295-5866) ^{2,3}
	Northern bank of Segama	172 (84-622) ¹ 168 (128-220) ²
FMU 22	North	675 (348-1234) ¹
	Danum Valley Conservation Area	425 (309-570) ²
	South	128 (65-241) ¹
FMU 23	West	16 (7-34) ¹
	East	133 (67-248) ¹
FMU 24		84 (40-178) ¹
FMU 26	West	Very few ¹
	East	78 (38-138) ¹

2.2 Ulu Segama Malua Forest Reserves (USM FR)

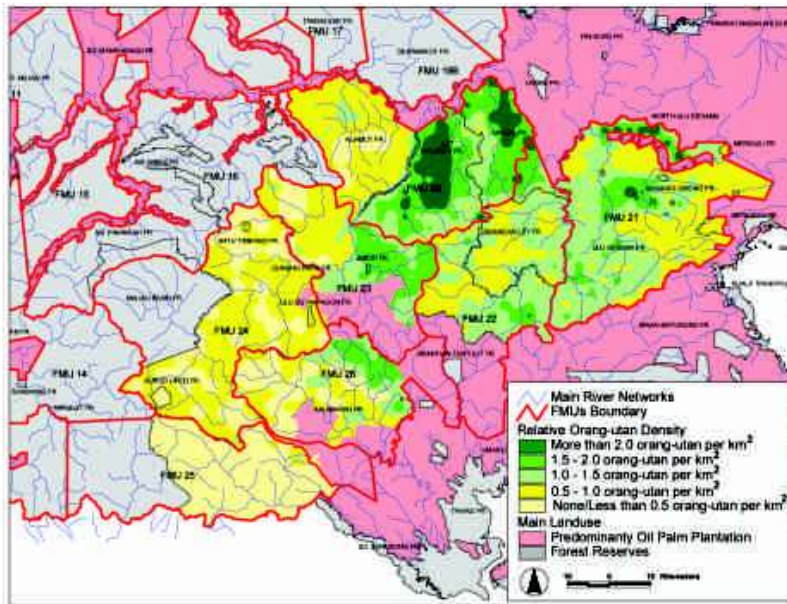
Recent surveys in the forests of Ulu Segama and Malua FRs (part of FMU 20 and FMU 21) yielded population size estimates between 2,580 (1,295-5,866) (Ancrenaz *et al.*, 2010) and 3,081 (2,291-4,083: Alfred *et al.*, 2010) orangutans (the population in Malua approximating 500 individuals (Alfred *et al.*, 2010)). Following a succession of heavy coupes that had left the forests devoid of timber resources, the State government decided in 2006 to ban logging in these forests. Simultaneously, a Biodiversity Credit scheme is being developed in Malua FR. The most degraded areas (such as Northern side of Ulu Segama) are in dire need of intense reforestation to prevent orangutans and other species to die from starvation. A set of actions required for managing and securing the future of the USM orangutan population was developed in the “Forest Management Plan” written in 2008 for USM FRs.

2.3 Other Commercial Forest Reserves (CFRs) of the Sabah Foundation

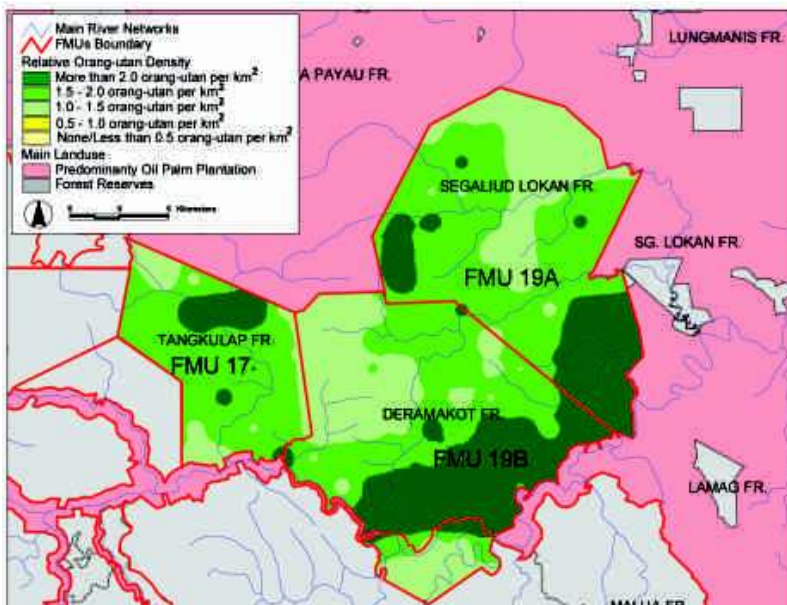
Surveys conducted in 2003 and in 2008 revealed that about 2100 individuals were living in these CFRs (Ancrenaz *et al.*, 2005; Alfred *et al.*, 2010): Table 2. Most of the orangutans are concentrated in the Eastern parts of Kuamut and Gunung Rara FRs. These CFRs are currently heavily exploited for timber, which is impacting the chances of long-term survival of these populations. The vast area demarcated for forest conversion and oil palm development will result in orangutan losses and displacement in the Benta Wawasan area.

2.4 Danum Valley Conservation Area

This conservation area is part of FMU 22 and covers 438 km². Recent estimates show that 425 (309-570) orangutans are living in Danum.



Map 2: Relative distribution density of the orangutans in the Sabah Foundation Forest Concession Area (Alfred *et al.*, 2010), *Note-distribution data for FMU15 and FMU16 is not available.



Map 3: Relative distribution density of the orangutans in the forests of Upper Kinabatangan (North) (Alfred *et al.*, 2010)

2.5 Forests of Upper Kinabatangan (North)

These commercial forest reserves include FMU 17 (Tangkulap FR) and 19A (Deramakot FR) that are managed by the Sabah Forestry Department and FMU 19 B (Segaliud Lokan FR) managed by KTS Plantation. Between 1,716 (1,016-3,403) (Ancrenaz *et al.*, 2005) and 2,130 (1,635-2,776) individuals (Alfred *et al.*, 2010) are found in this area. The sustainable forest management practices being implemented in Deramakot and being replicated in FMUs 17 and 19 B are crucial towards maintaining the stability and viability of the resident population of orangutans.

2.6 Tabin Wildlife Reserve

Tabin Wildlife Reserve (about 1200 km²) is mostly covered with lowland and hill dipterocarp forests. Orangutans are more abundant in the eastern parts that are covered with swamp forests. Orangutan densities in Tabin WR range from 0.4 ind./km² to 1.5 ind./km² for a total population size of 1,197 (868-1,606) individuals. Because of a generally low orangutan abundance (Payne, 1988), Tabin Wildlife Reserve was selected as a release site for translocation in the 90's. About 300 individuals were rescued from pockets of forests being converted to oil palm plantations and released in the western part of the Reserve by the SWD (Andau *et al.*, 1994). Tabin was recently selected for releasing young orangutan orphans originating from Sepilok FR. Tabin WR is entirely surrounded by oil palm plantations, which results in conflicts with agriculture at the edges of the reserve. A narrow and highly degraded corridor of forests exists along the Segama River between Tabin WR and Kuala Segama FR.

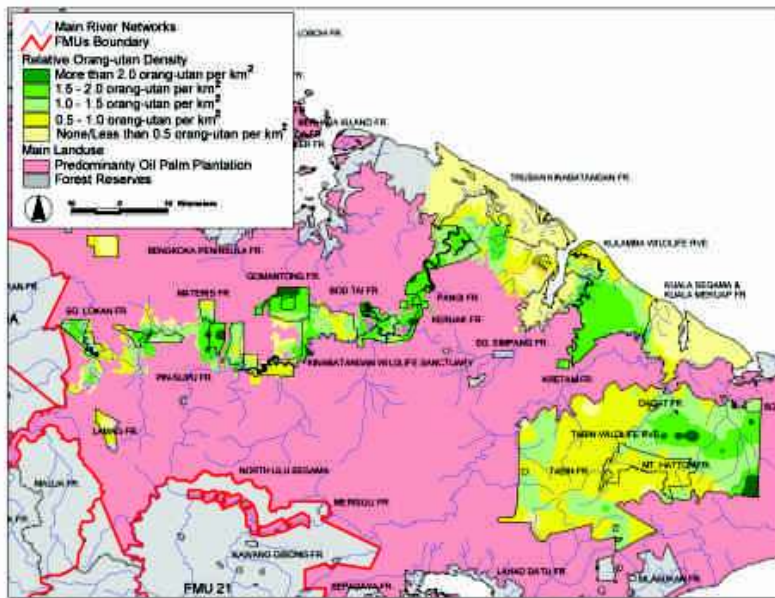
2.7 Lower Kinabatangan

The Lower Kinabatangan Wildlife Sanctuary (LKWS) was officially gazetted on August 11th, 2005. It is the only terrestrially protected area under the full jurisdiction of the Sabah Wildlife Department. This Sanctuary is connected with seven Virgin Jungle Reserves (class VI) representing an additional 12,000 ha of protected habitat.

In 2002, the total size of the Kinabatangan orangutan population was 1,125 individuals (95% C.I.: 690-1,800). In 2007, this number was down to 812 (425-1,418) and the number further decreased to 725 (546-955) in 2009 (Alfred *et al.*, 2010). This drastic decline is due to a combination of factors that must be rectified urgently to ensure the future of this population: forest conversion to agriculture; intense habitat degradation leading to shortages of food resources at certain times of the year; high forest fragmentation preventing animal's movement and leading to overcrowding or inbreeding; male dispersal in oil palm plantations surrounding forest patches; conflicts with crop owners. Although the genetic variability of the overall population is still high (Goossens *et al.*, 2005-2006), results of a population viability analysis (PVA) showed that only two sub-populations had a lesser than 5% probability of extinction after 100 years and that three sub-populations (7, 8, 10) were highly vulnerable to extinction with a greater than 20% probability of extinction after 100 years (Bruford *et al.*, 2010).

2.8 Kulamba Wildlife Reserve

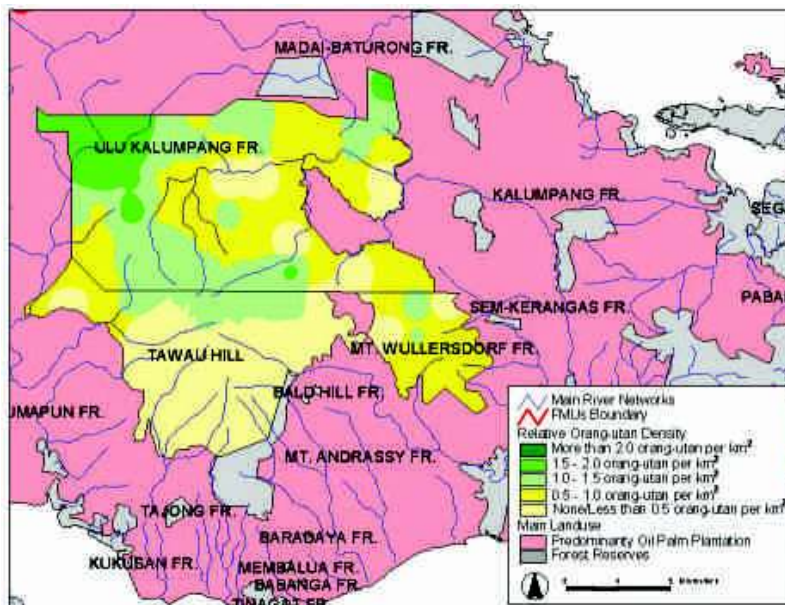
Kulamba WR is part of the Kulamba-Trusan Kinabatangan Wetlands Ramsar Site. This forest reserve mainly consists of mangrove areas, disturbed freshwater swamp forests and *Terminalia*-forests. Kulamba is connected with the extensive mangroves of Kuala Segama and Kuala Meruap in the east, with the mangroves and highly degraded forests of Trusan Kinabatangan in the west and with land mostly converted to oil palm plantations in the south. Population density remains highest in the west and south regions of Kulamba, where the forest strata is more intact, while the northern and eastern parts of Kulamba were badly damaged by fires in the past. The total population size is 481 (276-1214) individuals (Kulamba FMP, 2010). The limited size of good forests and the resulting high orangutan densities reflect a severe crowding effect, stress out the importance of creating a corridor to allow for natural emigration processes.



Map 4: Relative distribution density of the orangutans in the Lower Kinabatangan River Region, Greater Kulumba and Tabin Wildlife Reserve (Alfred *et al.*, 2010)

2.9 Ulu Kalumpang, Mt. Wullersdorf and Tawau Hill

This population includes 330 (246-457) animals living in Ulu Kalumpang Forest Reserve, 218 (149-301) in Tawau Hill Park and 57 (39-80) in Mt. Wullersdorf (Alfred *et al.*, 2010).



Map 5: Relative distribution density of the orangutans in Ulu Kalumpang, Mt. Wullersdorf and Tawau Hills (Alfred *et al.*, 2010)

2.10 Major threats on these High Priority Areas

	Orangutan Populations					
	1	2	3	4	5	6
Forest loss due to conversion to agriculture	x	x		x	x	
Forest degradation resulting from unsustainable logging practices					x	
Forest degradation resulting from illegal logging			x	x	x	x
Forest fires	x	x	x	x	x	x
Conflicts in newly established plantations	x		x	x	x	
Habitat and population fragmentation		x	x	x	x	x
Isolated population				x	x	
Population compaction	x			x	x	
Conflicts with tourism activities				x		

3 NON-SITE SPECIFIC PRIORITY ACTIONS

Action 1: Creation of the “Sabah Orangutan Conservation Alliance” (SOCA) as a venue encouraging collaboration and communication between all partners involved in orangutan management in the State.

This SAP needs to address the gaps existing between all initiatives that are currently being developed in Sabah at the macro-level (Heart of Borneo, Sabah Development Corridor Project, RAMSAR, Unesco Man and Biosphere, Kinabatangan Corridor of Life, etc) and at the localized level (FMPs, EIAs, PdPs, etc). This goal will be achieved with the official creation of SOCA. SOCA will be mandated by the State Government, established under the jurisdiction of the “Ministry of Environment and Tourism” and led by the Director of the Sabah Wildlife Department. All partners identified as having a key role for orangutan conservation in the State will become part of SOCA. This Alliance will be officially responsible for:

- developing a specific workplan to implement the recommendations made in this SAP. This workplan will present a detailed timeframe as well as the necessary financial and human resources required to achieve the objectives of this SAP. This workplan will be then presented to the State Government and other stakeholders for further action.
- developing a comprehensive Plan to identify where critical lands need to be secured for conservation.
- regularly reporting to the State Government about the progresses of the SAP.
- reviewing the SAP every five years.
- reviewing all official documents (FMPs, EIAs, etc) pertaining to the management of areas occupied by wild orangutan populations.
- pooling together expertise and information resources.
- elaborating management strategies before submitting them to relevant authorities.

Action 2: Reconnecting fragmented landscapes containing orangutan sub-populations by creating contiguous corridors of natural forest.

The highest priority of this Plan is to address the fragmentation process that renders the overall orangutan population in Sabah non viable in the long-term.

Recent surveys in eastern Sabah recorded the presence of orangutan nests in most forest patches that had been retained throughout the oil palm landscape, suggesting that some animals are found in the extensive oil palm landscape. However our current knowledge indicates that oil palm plantations alone cannot sustain a stable and resident orangutan population. On the contrary, it is



Orang-utan resting in its night nest in the Kinabatangan floodplain. Photo: Hutan.

likely that orangutans found within the oil palm estates are part of larger populations found in nearby forests. By connecting fragmented sub-populations that are isolated by oil palm estates, the orangutans roaming in the plantations are playing a vital function through dispersal and gene flow. As a result, it appears that the best long-term practical management option to secure the future of the orangutan in Sabah is the creation of “Greenways” or “Green Corridors”, that will provide a physical network of natural and contiguous forest habitat within the oil palm landscape allowing for orangutans to move across the landscape and to link together the different populations that are isolated by extensive oil palm plantations.

The participants of the recent “2009 Orangutan Conservation Colloquium” held in Kota Kinabalu recognized by consensus “the importance of corridors within a fragmented landscape for biodiversity conservation, orangutans and other wildlife, and recognize the need to re-establish connection between orangutan populations”.

The highest priority must be given to the creation of contiguous wildlife corridors of natural habitat between major populations. All nonviable and isolated sub-populations should also be linked by way of forested corridors to larger more stable populations. This target will only become achievable if the responsible stakeholders (plantation and private land owners) show a genuine and sincere willingness to collaborate together on matters of conservation for the species as a whole. The development of such corridors must be pragmatic and enforceable through legal clarity and community engagement:

- Important forest fragments for orangutans shall be connected through wildlife corridors or additional patches of forest or other connectivity schemes as deemed necessary.
- Wildlife corridors must be the minimum of 100 m along each side of all major rivers within the distribution of wild orangutans, exceptions will be made where there are established villages. In cases where there are established villages, 100 m wildlife corridors will circumvent the village boundaries.
- Acquisition of land along designated rivers and between isolated patches of forest supporting wildlife to provide for wildlife corridors in consultation with various stakeholders.
- Enforce Riparian reserves to ensure legal compliance on biodiversity, amongst other existing laws/international agreements.

An efficient information-sharing process about those initiatives that are aiming at reconnecting fragmented forests and that have been undertaken in Sabah in the past or presently need to be designed in order to learn about what will be the best possible approaches for recreating these corridors at the landscape level.

Action 3: Biomonitoring and scientific research

A comprehensive database of information about orangutan population trends in Sabah is urgently needed. Once established, this database will provide a basis for an early warning system designed to identify emerging threats.

- Establish an orangutan research database in Sabah.
- Produce a tool-box detailing survey methodologies and develop adequate skills through field training programs with all relevant stakeholders (SFD, forest managers, staff from Sabah Parks) to conduct proper orangutan surveys and monitoring.
- Regular valuation of the efficiency of the protection of orangutans and their habitat.

Action 4: Design better Forest Management Practices compatible with orangutan survival.

The long-term survival of orangutans in Sabah also depends on the existence of better-managed timber exploitation forests. In order to promote forest management practices that are compatible with orangutan long-term survival, we recommend the following actions:

- Keep the “High Priority Areas for Orangutan Conservation in Commercial Forest Reserves” under natural forest management.
- Adopt, apply and monitor the guidelines for sustainable logging and reduced-impact logging in all forests exploited for timber.
- No ITP to be developed on slopes above 15°.
- Review under SOCA the existing Forest Management Plans to incorporate orangutan issues.
- Ways to manage orangutan populations (if any) must be clearly identified when EIAs are being developed. Recommendations must be implemented on the ground with funding originating from project proponent, forest managers or plantation owners.
- Networking among key government departments/agencies & other key players through the “Sabah Forest Management Committee” to facilitate implementation of these recommendations.

Action 5: Agricultural Practice and Development

Agricultural development remains the most severe threat of all by destroying orangutan habitat, fragmenting further orangutan populations and creating conflicts between animals and people.

Agriculture development must consider orangutan presence and distribution before any land conversion is decided. The survival of the orangutans in habitats bordering agricultural lands will depend on conflict mitigation and public attitude/awareness as well as the compliance to solve these conflicts in a non-threatening or harmful manner toward the endangered species.

- Conversion of forest areas within existing orangutan population regions into oil palm plantations and other crops should be minimized and eliminated.
- Conversion of these forests to Industrial Tree Plantations may be authorized only if HCVF are properly identified before and protected during the establishment of these ITPs.
- In case of forest conversion to agriculture, consultation with the Sabah Wildlife Department and relevant stakeholders is compulsory, in accordance with section 38 of the Wildlife Conservation Enactment, 1997 to identify (1) which specific areas may contain significant orangutan numbers; (2) which areas are needed to be excised from future conversion scheme in order to allow animals movement between forest blocks; (3) what conflict mitigation measures would be appropriate to reduce potential conflicts and not jeopardize the future of these animals.
- Strict compliance with EIA's recommendations and Malaysian laws about full protection of riparian forest reserves and forests on slopes higher than 25% throughout the entire commercial area. These areas should be identified in the map and also on the ground. Additional areas that ensure the connectivity of the assigned orangutan conservation compartments/areas as mentioned above need also to be designated on maps and on the ground.
- Oil Palm companies comply with the best management practices developed by RSPO.
- Ways to implement at the State level a “No Net Loss” approach should be investigated and implemented.

Action 6: Enhanced inter-agency collaboration.

- A strict respect of Malaysian laws (such as EIAs, Wildlife Conservation Enactment, 1997; Water Enactment, 2002; etc) by all levels of the Society must be enforced strictly in orangutan habitat ranges.
- A special emphasis has to be given to the protection and rehabilitation of forests in the riparian areas, of steep slopes, of HCVF, etc.

Action 7: Promoting education and awareness activities.

The orangutan is widely accepted as the symbol of Sabah's unique fauna and the species attracts increasing level of interests, both nationally and internationally. This attitude should be capitalized on as a vehicle for comprehensive education and awareness campaigns targeting all levels of the Malaysian society. Immediate and specific education actions are necessary for at least six different target groups of people: (1) politicians/policy makers; (2) plantation managers and workers; (3) Forest Management Unit holders; (4) local communities; (5) younger generation; (6) people in charge of law enforcement and prosecution. Awareness campaigns targeted toward the general public are also crucial throughout the state.

- Establish and run an Environmental and Education Center for Orangutans.

4 SITE-BASED PRIORITY ACTIONS

4.1 Sabah Foundation Forest Concession area

1. Develop and implement proper Forest Management Plans for all CFRs within the concession.
2. Develop and implement a Master EIA for the entire concession area taking into account all activities occurring within the concession.
3. Ensure that the Forest Management Plan and Wildlife Monitoring strategies developed for Ulu Segama Malua are implemented.
4. Ensure that all Commercial Forest Reserves are kept under natural forest management and are not converted to any agricultural development scheme.
5. Ensure that industrial tree plantations (acacias, eucalyptus, rubber, etc) that are developed in commercial forest reserves respect HCVMs and do not convert compartments identified as key areas for orangutan.
6. In forests exploited for timber, adopt, apply and monitor the sustainable forest management concept and follow strictly the reduced-impact logging guidelines.
7. Identify compartments of special conservation value for orangutans and classify them under conservation compartments (no logging; no disturbance).
8. Strict compliance with EIA's recommendations and Malaysian laws about full protection of riparian forest reserves and forests on slopes higher than 25% throughout the entire commercial area.
9. Undertake rapid and extensive reforestation exercises in over-degraded areas that are home to orangutans (forests of North Ulu Segama, etc).
10. Implement the Management Plan developed for the "Greater Danum" and give a special emphasis to orangutan protection.

4.2 Forests of Upper Kinabatangan (North)

1. Initiate the establishment of a forest corridor along the Kinabatangan River linking the commercial forest reserves of Upper Kinabatangan with the Lower Kinabatangan Wildlife Sanctuary.
2. Identify compartments of special conservation value for orangutans within FMUs 17, 19A, 19B and classify them under conservation compartments (no logging; no disturbance).

4.3 Tabin Wildlife Reserve

1. Design a new Forest Management Plan for Tabin Wildlife Reserve that will replace the previous Plan developed in 1994.
2. Design and implement a post release monitoring of orangutans in Tabin WR.
3. Create a corridor of dry forest that will be linking the forest of the Lower Kinabatangan Wildlife Sanctuary with Tabin WR.

4.4 Forests of Lower Kinabatangan

1. Recognizing that the forests of Lower Kinabatangan are a high profile for tourism development and for the State's image but are also under permanent pressure from different human origins, the State government needs to come up with a dedicated "Management Committee for Kinabatangan" that will become in charge of tackling all issues arising in the area. The proposed "Kinabatangan Corridor of Life" can be the venue for such a committee. The outmost threat to be addressed urgently by this Management Unit is the general fragmentation stage of the natural ecosystem of the floodplain.
 - Prevent any process that would further fragment the orangutan habitat (bridges; highways; etc).
 - Enhance the protection and restoration of the Kinabatangan floodplain's riparian forests.
 - Take all opportunities to increase the size of the Sanctuary and reclaiming back riparian forest reserves that have been opened up, etc.
 - Establish orangutan bridges where necessary.

2. Power in property and control of river (riparian) reserves (as implied in the Land Ordinance) within natural distribution of orangutans should be delegated to Sabah Wildlife Department. Alienated land within the recommended minimum 100 m wildlife corridors to be acquired by SWD.
3. Ensure that FMPs available for Virgin Jungle Forest Reserves (like Pin Supu) are developed in accordance with the Management Plan of the LKWS and implemented.
4. Enhance food production of the Sanctuary by strictly controlling illegal logging and promoting forest restoration initiatives.
5. Expand the concept of community-based tourism developed by Red Ape Encounters to other parts of the lower Kinabatangan floodplain as appropriate.
6. In order to enhance the international recognition of the Lower Kinabatangan, obtain the status of UNESCO “Man and Biosphere Reserve” for the area.

4.5 Forests of Kulamba Trusan Kinabatangan wetlands

1. Lobby with current land owners to ensure that no further forest conversion to plantation is occurring in areas adjacent to the reserve. Any such action will only lead to a population decline of orangutans.
2. Finalize and implement the Management Plan developed for this RAMSAR site.

4.6 Forests of Danum Valley Conservation Area

1. Investigate ways to increase the size of the Conservation Area and to extend it to the neighboring forests home to high orangutan concentrations.
2. Link the orangutan population occurring in Danum with other protected areas designed within SF concessions.

4.7 Forests of Ulu Kalumpang

1. Reduce further encroachment (forest clearance for illegal plantations and other uses, hunting) through coordinated efforts by the SFD and Sabah Parks.
2. Place a special emphasis on the presence of an orangutan population and other wildlife species in the Forest Management Plan to be produced for this forest by SFD and partners.

5 EX SITU CONSERVATION EFFORTS

- Bornean orangutans are endemic to Borneo and they shouldn't be relocated outside of the island.
- Establish a research focal point at the Lok Kawi Wildlife Park to provide a database about all individuals managed in captivity or rehabilitated in Sabah.
- Initiate a capacity building process and provide training facilities for ex-situ conservation of orangutans at Sepilok and the LWP.
- Use existing facilities within Sabah to develop awareness events to reach out all society levels about the needs to protect the orangutan.
- Develop criteria and guidelines for a translocation strategy of orangutans in fragmented landscapes.



Ex-situ conservation of orangutans at Sepilok Orangutans Rehabilitation Centre.
Photo: WWF-Malaysia/ Lee Shan Khee

6 ORANG-UTAN ACTION PLAN IMPLEMENTATION, COORDINATION AND INTEGRATION WITH OTHER CONSERVATION EFFORTS

6.1 National efforts

In order for this Plan to achieve its final objective (i.e. securing the future of wild orangutans in Sabah) all recommendations should be formulated by SWD as a position paper and endorsed by the Sabah State Cabinet.

To ensure a better synergy, this Plan needs to consider and incorporate whenever possible the recommendations of several initiatives that are currently prepared or implemented in the State:

- Finalise the State Cabinet Paper about “Reconnecting fragmented habitats along major Rivers in Sabah” (2009 OUCC Resolution): see Annexes.
- Sabah Development Corridor Project: Creation of a contiguous forest corridor between Crocker Range and Kinabalu National Parks.
- Heart of Borneo initiative: With a special emphasis given to habitat connectivity.
- Kinabatangan Corridor of Life and proposed “Kinabatangan Man and Biosphere Reserve”. These two initiatives are a possible vehicle to establish a “management Committee” for the area.

6.2 International efforts

The extensive knowledge and skills available in Sabah about orangutan monitoring, management, community involvement and other aspects related to orangutan conservation make the state a major key player for great ape conservation at the international level. The following actions would benefit not only orangutans in Sabah but all great ape species worldwide.

- Disseminate by all possible ways of information the practices developed in FSC certified forests (Deramakot) to better manage orangutan populations in non-protected forests exploited for timber.
- Disseminate by all possible ways the results of the different models developed in Sabah to involve communities in orangutan conservation.
- Liaise with the IUCN/SSC Great Ape Section of the Primate Specialist Group, GRASP and other international initiatives working at securing the future of orangutan.
- Promote international recognition of key areas for orangutans by supporting the “Heart of Borneo” initiative.
- Promote international recognition of key areas for orangutans by conferring the status of Man and Biosphere Reserve to Lower Kinabatangan.
- Pursue and develop financial mechanisms to ensure the long-term viability of major orangutan populations through Bio Diversity credits (Malua being the model); timber certification (Deramakot model); oil palm certification; REDD; etc.

6.3 Monitoring and evaluation

Monitoring and evaluation of activities to be undertaken under this Plan will be conducted by SOCA. The results of Plan Implementation will be evaluated on a yearly basis and the Plan will be revised every five years.

6.4 Workplan, budget and partners

The first necessary step for implementing this SAP is for the State Government to endorse and support the creation of SOCA as soon as possible.

- Proposed workplan for SOCA:

January - June 2012: Creation of SOCA : Official invitation sent to key partners to join SOCA.
Preparation of a doable workplan (including milestones, outputs, partners in charge of its implementation) and budget for implementing the SAP. Presentation of the Master Plan to the State Cabinet.

June 2012 - June 2016: Supervision of the SAP implementation through regular meetings with all partners. Yearly reports about the progresses on the SAP implementation will be circulated at the highest government level.

LIST OF ABBREVIATIONS

BECA	Bornean Elephant Conservation Alliance
BES	Bornean Elephant Sanctuary
BORA	Borneo Rhino Alliance
CI	Confidence Interval
CSR	Central Sabah Range
DID	Department of Irrigation and Drainage
EAP	Elephant Action Plan
EIA	Environmental Impact Assessment
EPD	Environment Protection Department
FMP	Forest Management Plan
FMU	Forest Management Unit
FR	Forest Reserve
HEC	Human Elephant Conflict
LKWS	Lower Kinabatangan Wildlife Sanctuary
MER	Managed Elephant Range
PDP	Plantation Development Programme
PHVA	Population Habitat Viability Analysis
REDD	Reducing Emissions from Deforestation and Forest Degradation
SAP	State Action Plan
SECU	Sabah Elephant Conservation Unit
SFD	Sabah Forestry Department
SWD	Sabah Wildlife Department
TWR	Tabin Wildlife Reserve
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VHF	Very High Frequency
WCE	Wildlife Conservation Enactment

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APPENDIX 1

Resolution Document produced during the 2009 Orangutan Conservation Colloquium.

The participants of the “2009 Orangutan Conservation Colloquium” held in Sabah, Malaysia, on October 1st - 2nd 2009,

- **note the importance of corridors within a fragmented landscape for biodiversity conservation, orangutans and other wildlife, and recognise the need to re-establish connections between orangutan populations,**
- And arrived at the following priority recommendations by consensus:

GENERIC RECOMMENDATIONS

- All recommendations above to be formulated by SWD as a position paper and endorsed by the Sabah State Cabinet.
- Some of the action points below are already in existing policies or draft policies being considered by the Sabah State Government. It is therefore urged that the Sabah State Government implement these policies or approve the pending draft policies.
- All these recommendations are not necessarily specific to orangutan conservation.

SPECIFIC RECOMMENDATIONS

1. Recommendations pertaining to Land Issues

We envision the creation of contiguous wildlife corridors of natural habitat in order to balance sustainable development and the conservation of orangutans as flagship species for wider biodiversity. The development of

such corridors must be pragmatic and enforceable through legal clarity and community engagement.

- Important forest fragments for orangutans shall be connected through wildlife corridors or additional patches of forest or other connectivity schemes as deemed necessary.
- Wildlife corridors must be the minimum of 100 m along each side of all major rivers within the distribution of wild orangutans, exceptions will be made where there are established villages. In cases where there are established villages, 100m wildlife corridors will circumvent the village boundaries.
- Power in property and control of river (riparian) reserves (as implied in the Land Ordinance) within natural distribution of orangutans should be delegated to Sabah Wildlife Department. Alienated land within the recommended 100m wildlife corridors to be acquired and gazetted under the Wildlife Conservation Enactment, 1997.
- However NT will not be acquired by compulsory acquisition by the State or its appointed agent will enter into a private treaty agreement with individual land owners, and managed by SWD.
- To mitigate against further deforestation/degradation, Government should shift target paradigms of measuring palm oil production from hectareage to yield/ha.
- It is suggested that the State Government adopt a stringent policy in line with RSPO Principles & Criteria and ideally legislated.

2. Recommendations pertaining to land acquisition

The group envisages the creation of a contiguous green corridor through various means including compulsory acquisition:

- Acquisition of land along designated rivers and between isolated patches of forest supporting wildlife to provide for wildlife corridors in consultation with various stakeholders.
- Create a sizeable fund to compensate landowners and to restore to its original natural forest state.

- Enforce Riparian reserves to ensure legal compliance on biodiversity, amongst other existing laws/international agreements.
- Management guidelines should be superimposed on NT Land that is necessary for the viability of a wildlife corridor. Landowners will be compensated for the loss of opportunity income.

3. Recommendations pertaining to financial options

The group aims at developing financing solutions for the effective rehabilitation and restoration of Orangutan habitat within the Kinabatangan Landscape as a model for Borneo.

- Mandate that all mills and supply bases within the Kinabatangan landscape be RSPO- (or other robust, credible and marketable certification scheme) certified, and this to be matched with policy incentives/disincentives from government.
- Government, industry and stakeholders work together to brand RSPO- (or other robust, credible and marketable certification scheme) certified sustainable palm oil from an Orangutan landscape (Kinabatangan). Possible financial benefits derived from this action **MUST** be channelled back to the Orangutan landscape (Kinabatangan).
- Develop a landscape level carbon/PES/biodiversity trading bloc of landowners in the Kinabatangan landscape.
- Multi-stakeholders to fund an expert group to identify transaction costs, funding sources and management plans for the Kinabatangan landscape to meet the overall objectives.

Mechanisms:

- Company-driven annual conservation budget allocation matched by government (double) funds constituent on RSPO certification.
- Design a financing mechanism that would provide solutions for biodiversity conservation within the agricultural landscape, and package this mechanism into a proposal to be submitted for seed-grants/loans available from multi-lateral aid agencies within the climate change response arena. Specific sources are: ADB climate adaptation fund, GEF-Climate change seed grants, UNEP climate change programme, and the EU (dependent upon involvement of EU companies).

4. Recommendations pertaining to the establishment of forest corridors

The group recognises that forest corridors are crucial in maintaining and enhancing the ecosystem services of Sabah, including biodiversity and ecological integrity.

- Identify crucial forest fragments and connectivity needs to maintain and enhance the ecosystem services of Sabah.
- Determine the width requirements of riparian reserves to maintain key ecosystem services provided by major river systems (e.g. Sg. Kinabatangan, Sg. Segama, Sg. Sugut), with the ultimate aim of demarcating them on the ground and giving them legal protection.
- Review and formulate policies and legislation that facilitate the implementation of forest corridors.
- At the replanting phase, as well as for new plantings, require agricultural land users to create and maintain forest corridors. This should be prescribed as an environmental impact mitigating measure as provided for under current environmental laws.
- Restore connectivity between existing forest fragments.
- Explore possible incentives (e.g. tax deductions, grants) for the voluntary allocation of land for conservation purposes, such as wildlife corridors.

5. Recommendations pertaining to translocation exercises

Translocation is not a stand-alone solution for the long-term survival of orangutan populations but can be used as a management tool to complement the development of wildlife corridors in saving orangutans in fragmented landscapes.

- To undertake research and to develop criteria and guidelines for translocating orangutans in fragmented landscapes.
- To develop funding mechanisms and capacity for release site assessment, translocation and post translocation monitoring of orangutans.

APPENDIX 2

Resolution Document produced during the 2003 International Orangutan Workshop in Sabah.

RECALLING that the conservation status of the Bornean Orangutan (*Pongo pygmaeus*) in Sabah has long been of concern to the Government of the Federation of Malaysia and the State Government of Sabah;

ALSO RECALLING that in 2000 the Bornean Orangutan was classified as 'Endangered' in the IUCN Red List of Threatened Animals (2000), has been given a high priority for conservation by the IUCN Species Survival Commission (SSC) Asian Primate Specialist Group, and is listed in Appendix 1 of the Convention on International Trade in Endangered Species of Fauna and Flora (CITES);

NOTING that the Bornean orangutan is included on Schedule 1 of the Sabah Wildlife Conservation Enactment 1997 as a 'Totally Protected' species;

This workshop resolves that because the **orangutan is facing a high risk of extinction** in the future, a number of urgent and strategic actions need to be taken to ensure its conservation in the state of Sabah;

First, Sabah's forests should be managed for orangutan conservation by reviewing the current and future Forest Management Plans in the light of a State Wildlife Strategy formulated by the Sabah Wildlife Department, by enhancing collaboration among relevant management authorities and through the issuing of practical guidelines to foresters, especially in Forest Management Units (FMUs) which harbour over 60% of Sabah's orangutans. Second, agricultural practice must incorporate the needs of orangutans by sensitive protection measures for small-scale agriculture and the strict control of land development for oil palm plantations in orangutan habitat regions, including the enforcement of Section 38 of the Wildlife Conservation Enactment, 1997. Third, policies should be adopted for the enhancement and development of sustainable and responsible orangutan tourism in Sabah, both to minimize its impact on the environment

and to enhance the conservation of the orangutan population itself. Fourth, the already world recognized *ex situ* conservation activities for orangutans in Sabah should be improved, especially through the development of initiatives at the new Lok Kawi Wildlife Park. Fifth, current vital research on Sabah's orangutans should continue to be promoted and enhanced, especially through activities in local universities, institutions and departments. Finally, awareness of orangutan needs and the legal framework for their protection must be heightened, especially among policy makers and both forestry and plantation managers and workers. This resolution was arrived at by consensus.

There are six broad headings for our recommendations:

1) Forest Management.

Forests containing high densities of orangutans should be managed under natural forest management regimes (Forest Management Units 17, 19, 20, 21, 22 – **see map**). Orangutan conservation requires the management of continuous blocks of virgin and logged lowland forest habitat of minimally 100,000 ha, free from hunting and forest fires. To enable these blocks to be targeted and managed as soon as possible:

- The Sabah Wildlife Department (SWD) will first formulate a Wildlife Conservation Strategy for Sabah and coordinate with all relevant stakeholders.
- The current Forest Management Plans will be reviewed by incorporating wildlife conservation values. This will be done jointly by Sabah Forestry Department (SFD), SWD, Environmental Protection Department (EPD) & Forest Management Unit (FMU) holders.
- Networking among key government departments/agencies & other key players will be enhanced through the Sabah Forest Management Committee to facilitate implementation of the recommendations in this resolution.

- Practical guidelines for Biodiversity conservation in FMUs will be developed and incorporated into the formal training of the SFD, including forest managers and workers.
- As part of this process guidelines and checklists will be formulated for continuous monitoring, control, assessment and reporting.

2) Agricultural Practice.

These recommendations concern two major types of practice 1) small plots and orchards found in and around villages close to orangutan habitat and 2) large scale plantations, particularly oil palm:

- Water barriers (drains or moats) should be built to protect small scale agricultural land where possible.
- Wildlife Conflict Units (WCUs) should be formed to assist small-scale farmers under the model currently employed in Kampung Sukau.
- The conversion of forest areas within existing orangutan population regions into oil palm plantation should be minimized (ideally eliminated).
- Section 38 of the Wildlife Conservation Enactment should be routinely implemented, with special emphasis given to areas with orangutans.

3) The Tourism Industry.

The following recommendations support a mixed model of large scale and community-based ecotourism in Sabah:

- Create guidelines/policies for development of sustainable and responsible orangutan tourism products in Sabah to minimize its impact on the environment and on the orangutan population itself.
- Ensure that local communities benefit from orangutan based tourism by labelling of relevant eco-tourism products and decentralizing tourism licensing and enforcement of policies to state level.

- To develop and market orangutan based tourism products through improved training and awareness at the level of marketing and the quality of delivery on the ground.
- Quantify the economic value of orangutan conservation in Sabah (including for tourism) and develop tourism strategies to add value to orangutan conservation.

4) *Ex-situ* Conservation.

Considering the worldwide recognition of the Sepilok Orangutan Rehabilitation Centre and the imminent opening of the new Lok Kawi Wildlife Park and the potential effect this will have on the State, we recommend:

- The development of a strategy for SWD on rescue and rehabilitation of Bornean Orangutans in Sabah.
- The establishment of a research focal point at the Lok Kawi Wildlife Park to provide databased individual management of captive bred and rehabilitated Bornean orangutans in Sabah.
- The implementation of a post-release monitoring study to establish protocol and efficiency of releases of rehabilitated Bornean orangutans.
- The co-ordination of the production and dissemination of public awareness material on orangutan conservation issues through the Lok Kawi Wildlife Park.
- The provision of a capacity building and training facility for *ex-situ* conservation of Bornean orangutans at Sepilok and the Lok Kawi Wildlife Park.

5) Research.

Recognising that field research on orangutans is both time consuming and difficult but also that basic data are urgently required and need revision, we recommend:

- The implementation of high quality research on the biology of the orangutan in Sabah, such as that exemplified by the Kinabatangan Orangutan Conservation Project (KOCPP) study in sites across Sabah.
- The establishment of an orangutan research database in Sabah for example at the Universiti Malaysia Sabah (UMS).
- The genetic analysis of all major population centres in Sabah, including those samples generated through the Sepilok rehabilitation centre.
- Obtain as much accurate data as possible on orangutan population status and trends over time (through regular monitoring and census), including persecution and hunting.
- Carry out research on the demographic, genetic and ecological consequences of the construction of forest corridors (riverine and other), managed translocations and other habitat factors affecting major population foci.

6) Public Awareness.

We recognize that 3 target groups need immediate actions to provide them with information on the need to protect orangutans in Sabah. These are politicians/policy makers, plantation managers and workers and FMU authorities harboring high concentrations of orangutans. We recommend:

- That politicians and policy makers are informed about the needs of keeping natural forests in areas with high orangutan populations. This includes considering orangutan distribution and numbers before any land use decision is made.

- That plantation managers, owners and workers are informed that a) orangutans are a totally protected species and it is strictly prohibited to shoot them; b) they could be prosecuted by law if they kill orangutans and c) that they need to contact the SWD in case of conflicts with orangutans.
- To inform the FMUs harboring high concentrations of orangutans about the need for proper logging practices. They should also be made aware not to convert natural forest to plantations and to not kill orangutans.
- That the Resolution coming out of this Workshop will be widely distributed through the media to create awareness at a general level. The recommendations should also be made available to all government departments.

APPENDIX 3

Resolution about the Conservation of the Bornean Orangutan (*Pongo pygmaeus*) in the Lower Kinabatangan floodplain.

RECALLING that the conservation status of the Bornean Orangutan (*Pongo pygmaeus*) in Sabah has long been of concern to the Government of the Federation of Malaysia and the State Government of Sabah;

ALSO RECALLING that in 2000 the Bornean Orangutan was classified as 'Endangered' in the IUCN Red List of Threatened Animals (2000), has been given a high priority for conservation by the IUCN Species Survival Commission (SSC) Asian Primate Specialist Group, and is listed in Appendix 1 of the Convention on International Trade in Endangered Species of Fauna and Flora (CITES);

NOTING that the Bornean orangutan is included on Schedule 1 of the Sabah Wildlife Conservation Enactment 1997 as a 'Totally Protected' species;

ACKNOWLEDGING the success of actions initiated by the Government of the State of Sabah in:

- (a) Establishing protected areas for the Bornean orangutan and other forms of threatened wildlife in the lower Kinabatangan floodplain;
- (b) Designating the Lower Kinabatangan Wildlife Sanctuary as a "Gift to the Earth";
- (c) Building conservation partnerships with local stakeholders in the lower Kinabatangan floodplain through initiatives such as Kinabatangan Orangutan Conservation Project and the Honorary Wildlife Warden scheme;
- (d) Supporting the development of economically viable activities based on effective orangutan conservation management (e.g. community-based ecotourism on the lower Kinabatangan floodplain).

CONCERNED that very recent survey results confirm that the remaining populations of wild Bornean orangutans in the lower Kinabatangan floodplain are becoming increasingly fragmented and subject to hunting pressure;

RECOGNISING that in addition to national and state-level concerns about the survival of wild Bornean orangutans there is a very high level of international concern that this species should not become extinct in the wild;

The participants at the final session of the International Workshop on Orangutan Conservation in Sabah held in Kota Kinabalu, Sabah, Malaysia, 25-27 August 2003:

URGE all involved parties to support the Government of the State of Sabah to:

- (a) Take such steps as are necessary to maintain a genetically viable population of orangutans in the lower Kinabatangan floodplain;
- (b) Take such actions as are necessary to ameliorate current issues of management concern (including reduction in the incidence illegal killing), with the primary aim of improving the status of the wild orangutan population;
- (c) Enhance protection and restoration of the Kinabatangan floodplain's riparian forests which function as corridors linking larger blocks of important orangutan habitat;
- (d) Include consideration of the ecological needs of the orangutan in the local and State-level decision making process related to land use planning in the Kinabatangan floodplain;
- (e) Promote the role of local communities in managing wild orangutan populations;
- (f) Continue with the orangutan based Sukau ecotourism initiative and expand the concept of community-based tourism to other parts of the lower Kinabatangan floodplain as appropriate;
- (g) Improve local and national public awareness of the need to protect orangutans in the lower Kinabatangan floodplain;
- (h) Maintain a strong research presence related to this species;
- (i) Develop and implement mechanisms for the sustainable financing of orangutan conservation initiatives in the lower Kinabatangan region.

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