



HOW *Unilever* PALM OIL SUPPLIERS ARE

BURNING UP BORNEO



NEW EVIDENCE SHOWS EXPANSION BY *Unilever* PALM OIL SUPPLIERS IS DRIVING SPECIES EXTINCTION IN CENTRAL KALIMANTAN AND FUELING CLIMATE CHANGE

In November 2007, Greenpeace released *Cooking the Climate*, an 82-page report summarising the findings of a two-year investigation that revealed how the world's largest food, cosmetic and biofuel companies were driving the wholesale destruction of Indonesia's rainforests and peatlands through growing palm oil consumption.

This follow-up report provides further evidence of the expansion of the palm oil sector in Indonesia into remaining rainforests, orang-utan habitat and peatlands in Kalimantan. It links the majority of the largest producers in Indonesia to Unilever, probably the largest palm oil corporate consumer in the world.

Unilever uses 1.3Mt of palm oil or palm oil derivative every year – about 3% of global production.¹ About half of Unilever's palm oil supply comes from Indonesia.² As recently as 2005, Unilever purchased 1 in every 20 tonnes produced in the country.³

Unilever has failed to use its power to lead the palm oil sector toward sustainability, either through its own palm oil purchasing – its primary suppliers in Indonesia represent over a third of the country's palm oil production⁴ – or through its role as leader of the Roundtable on Sustainable Palm Oil (RSPO), whose members represent 40% of global palm oil production.⁵

Through analysis of maps, satellite data, and on-the-ground investigations between February and April 2008, Greenpeace has mapped out how expansion of the oil palm plantations in Central Kalimantan is fuelling climate change and helping drive orang-utans to the brink of extinction. As Greenpeace investigations show, this expansion into the Indonesian territory of the island of Borneo has in large part been led by companies who are Unilever suppliers and RSPO members.



Unilever



This destruction is set to get worse. By 2030, demand for palm oil is predicted to more than double that of 2000.⁶ Between 2006 and 2016 alone, palm oil production is set to increase by close to 15Mt.⁷

To meet this growth in demand, major producers including Unilever suppliers and RSPO members are expanding their plantation areas into forests and peatlands in Indonesia.⁸ This expansion – often illegal⁹ and in breach of RSPO principles and criteria¹⁰ – is not only bad for wildlife, it is also bad for the climate and bad for governance.

Unilever itself is implicated in the impacts of this expansion through rapidly growing brand platforms that use significant quantities of palm oil and palm oil derivatives from companies operating in Indonesia. Product brands and brand platforms include *Dove*, *Dirt is Good* (*Persil*, *Omo*, *Surf Excel*), *Knorr*, *HeartBrand* (*Walls*) and *HealthyHeart* (*Flora/Becefl*).

Greenpeace investigations provide new evidence that it is Unilever's own palm oil traders and producers (themselves RSPO members) who are leading 'aggressive expansion' of the sector that results in the devastation of the last remaining orang-utan rainforest and peatland habitat in Borneo.

By failing to apply and enforce RSPO principles and criteria to both traders and producers at group level, Unilever has failed to bring the rapidly expanding palm oil sector under control. The growth of global brands and brand platforms such as *Dove* and *Dirt is Good* is creating incentives for Unilever's suppliers to expand, 'leading to the devastation of the last remaining rain forests in Borneo'.¹¹ As it stands, Unilever suppliers are driving species extinction, climate change through the significant greenhouse gas (GHG) emissions linked to deforestation and peatland destruction, and land conflict with forest-dependent communities.

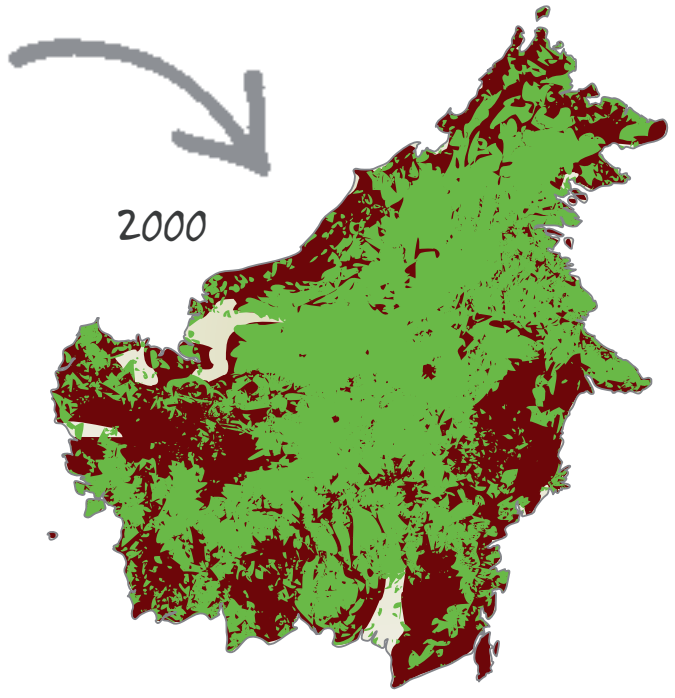
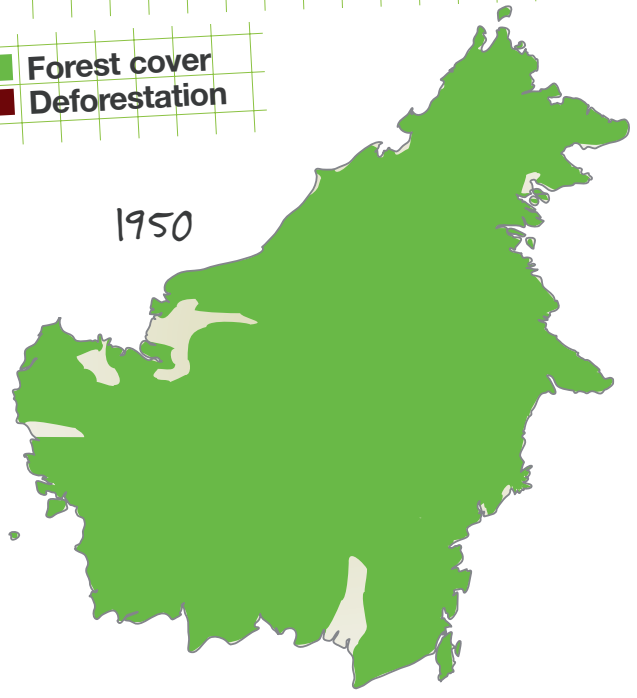
Given the urgent nature of the crisis, the only solution for the global climate, the regional environment, the wildlife and the forest-dependent communities relying upon Indonesia's forest resources is a moratorium on oil palm expansion into rainforest and peatland areas.



MAPPING EXTINCTION: HOW OIL PALM CONCESSIONS ARE DRIVING HABITAT DESTRUCTION AND FUELLING CLIMATE CHANGE

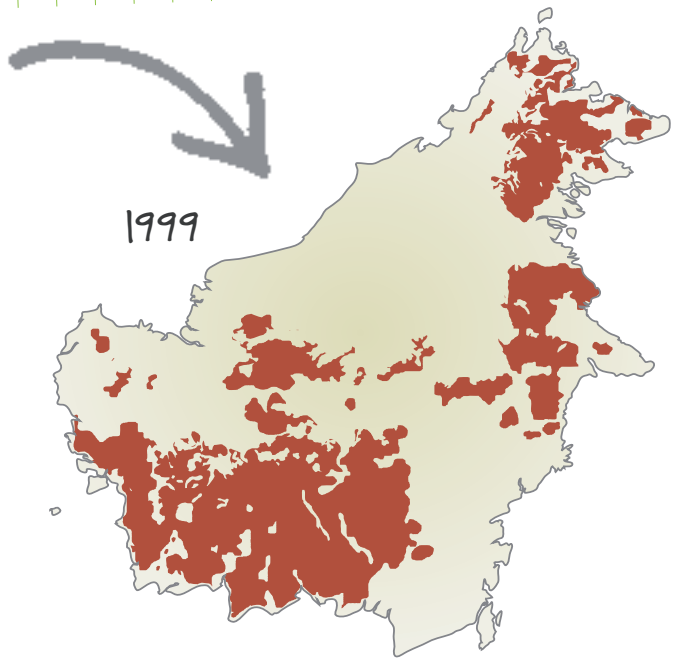
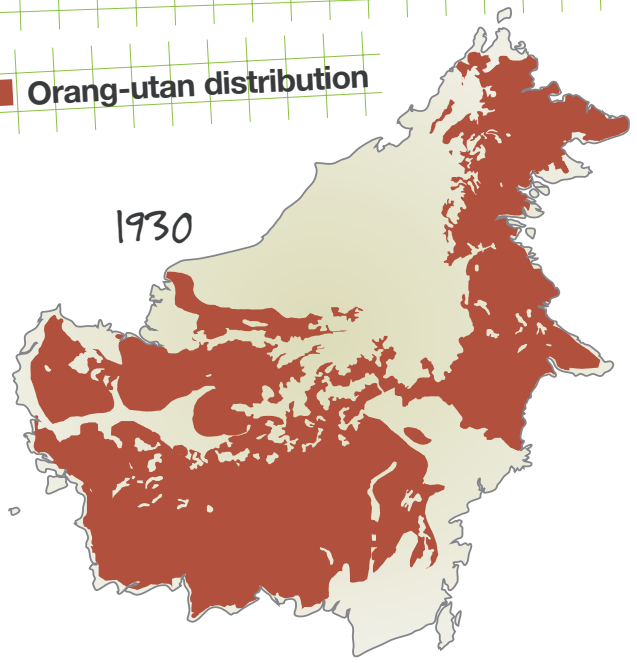
FOREST COVER IN BORNEO: DEFORESTATION 1950-2020

■ Forest cover
■ Deforestation

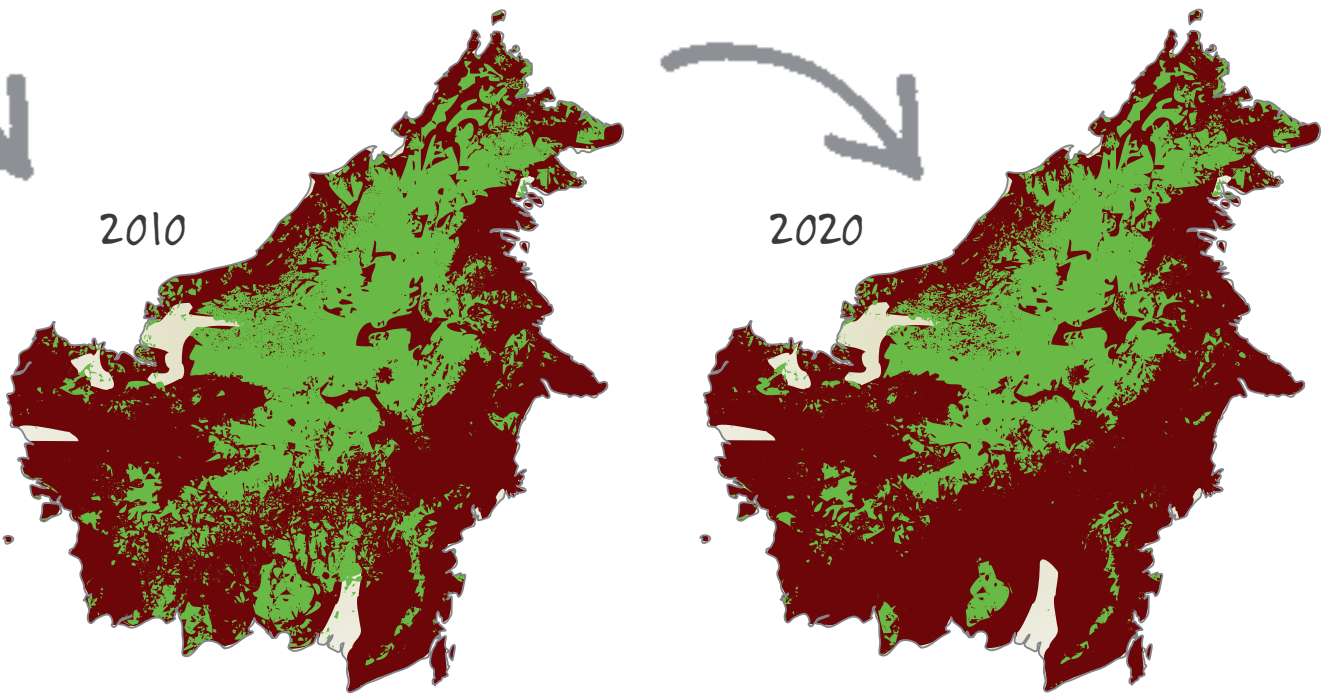


ORANG-UTAN DISTRIBUTION IN BORNEO: POPULATION LOSS 1930-2020

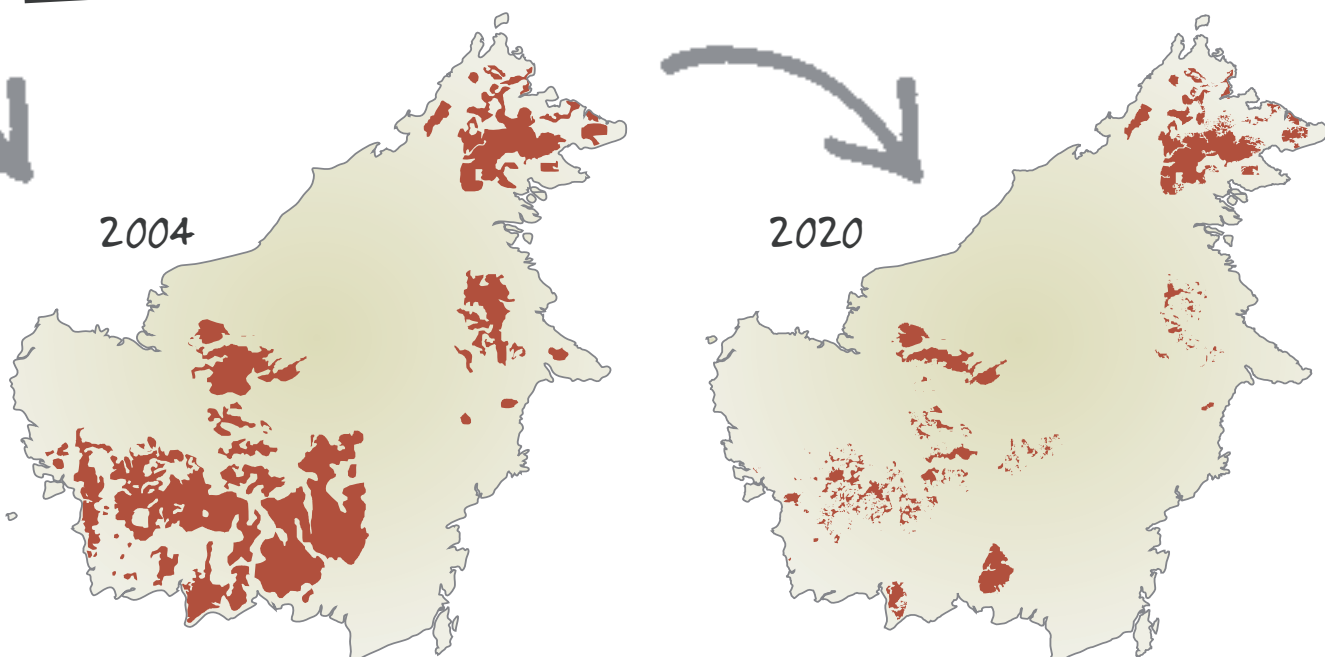
■ Orang-utan distribution



Maps and projections based on 2005 maps compiled by WWF.¹² Forest loss projections are placed around existing road network. WWF estimates that over the period 2000–2020 about 17,280,000ha of forest cover will have been lost.



Maps and projections based on 2005 maps compiled by WWF.¹³ The 2020 map shows probable orang-utan distribution only in areas where distribution of 2004 matches predicted forest cover 2020.



THE IMPACTS OF DEFORESTATION IN INDONESIA

Indonesia now has the fastest deforestation rate of any major forested country.¹⁴ Losing 2% of its remaining forest every year, Indonesia has earned a place in the Guinness World Records.¹⁵

According to World Bank estimates, between 1985 and 1997 alone, 60% of the lowland rainforest of Kalimantan and Sumatra was destroyed.¹⁶ The United Nations Environment Program (UNEP) estimates that 98% of Indonesia's lowland forest may be destroyed by 2022.¹⁷

Indonesia also holds the global record for GHG emissions from deforestation, which puts it in third place behind the USA and China in terms of total GHG emissions from human industry.¹⁸ The destruction of Indonesia's peat swamp forests alone is one of the largest sources of GHG emissions in the world. The largest portion of these emissions is associated with fires to clear the land for agricultural development.¹⁹

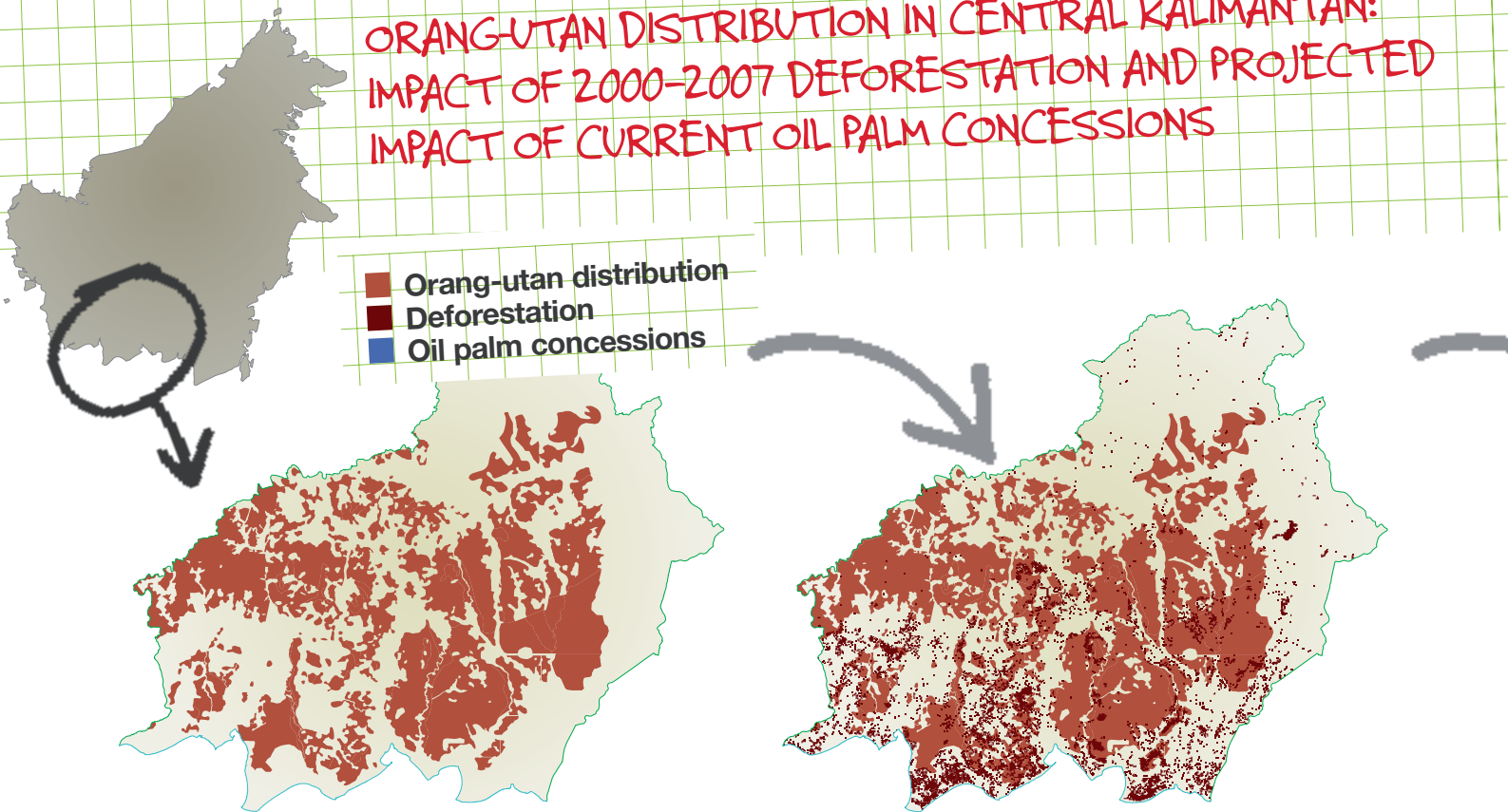
Indonesia's emissions from destroyed or degraded peatland are around 1.8Gt CO₂ per year,²⁰ equivalent to 4% of total GHG emissions,²¹ from less than 0.1% of the world's land surface.²² If predicted expansion in oil palm plantations goes ahead, peatland emissions of CO₂ are set to rise by at least 50% by 2030.²³

Orang-utans – one of our nearest biological relatives – survive only in the dwindling tropical rainforests of Borneo and northern Sumatra;²⁵ they depend on the forest for food and nesting sites.²⁶ Cutting down forest for timber or conversion to plantations is the main cause of their decline,²⁷ and today orang-utans are at high risk of extinction in the wild.

Recent Greenpeace analysis and investigations confirm that expansion in oil palm plantations by Unilever suppliers is having a serious impact on their habitat.



ORANG-UTAN DISTRIBUTION IN CENTRAL KALIMANTAN: IMPACT OF 2000-2007 DEFORESTATION AND PROJECTED IMPACT OF CURRENT OIL PALM CONCESSIONS



A 2007 UNEP report recognises that oil palm plantations are now the leading cause of rainforest destruction in Indonesia.³³ Between 1991 and 2006, almost 5 million hectares of new oil palm concession areas have been established in Indonesia alone,³⁴ equivalent to over 50 football pitches an hour. Much of this area was previously forest or peatland. The Indonesian Palm Oil Research Institute (IOPRI) estimates that two-thirds of all currently productive oil palm plantations involved deforestation.³⁵

On top of Indonesia's existing 6 million hectares of oil palms,³⁶ the country's central government has plans for another 4 million hectares by 2015 dedicated to biofuel production alone.³⁷ Provincial governments are even more ambitious in terms of oil palm expansion, planning for an additional 20 million hectares.³⁸

Kalimantan, the Indonesian portion of the island of Borneo, which it shares with Malaysia and Brunei, has some of Indonesia's largest remaining areas of forest habitat. This is home to most of the world's remaining orang-utans.

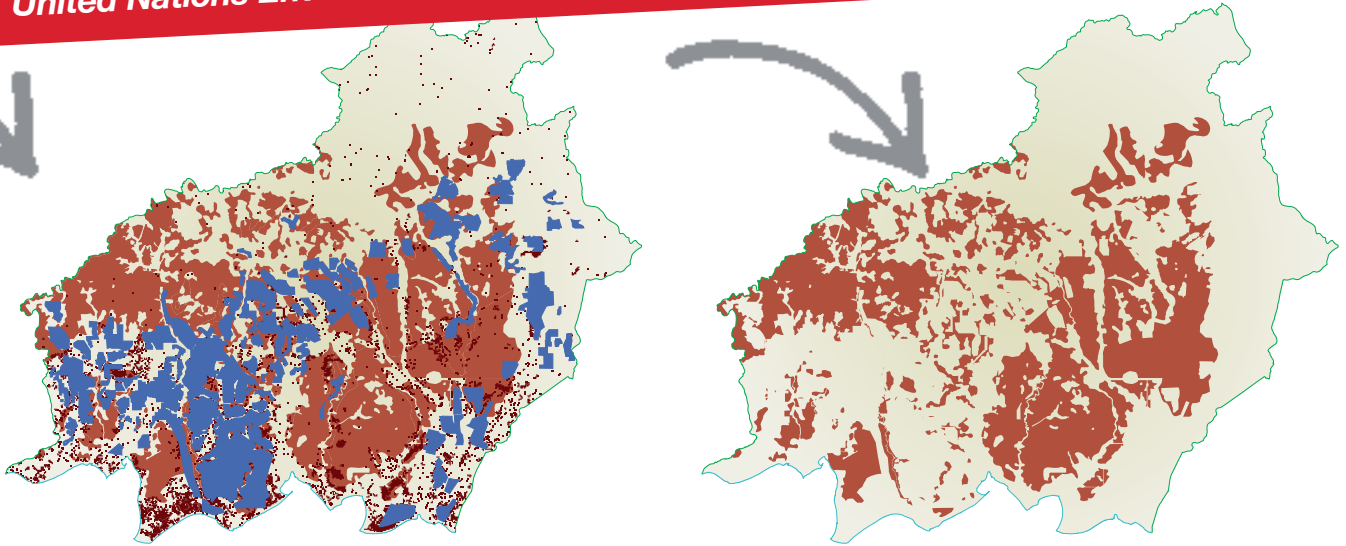
While most current palm oil production is concentrated in Riau and North Sumatra, oil palm groups are rapidly expanding their landbanks and clearing new areas. In West Kalimantan, by 2007 oil palm concessions had been granted on more than 3.2 million ha.³⁹ In Central Kalimantan, by 2006 oil palm concessions had been granted on 1.1 million ha.⁴⁰

As a 2008 Greenpeace investigation reveals, much of this area – which overlaps critical orang-utan habitat – is being cleared of valuable forest, the peatlands drained and the land burned as oil palm plantation area expands.

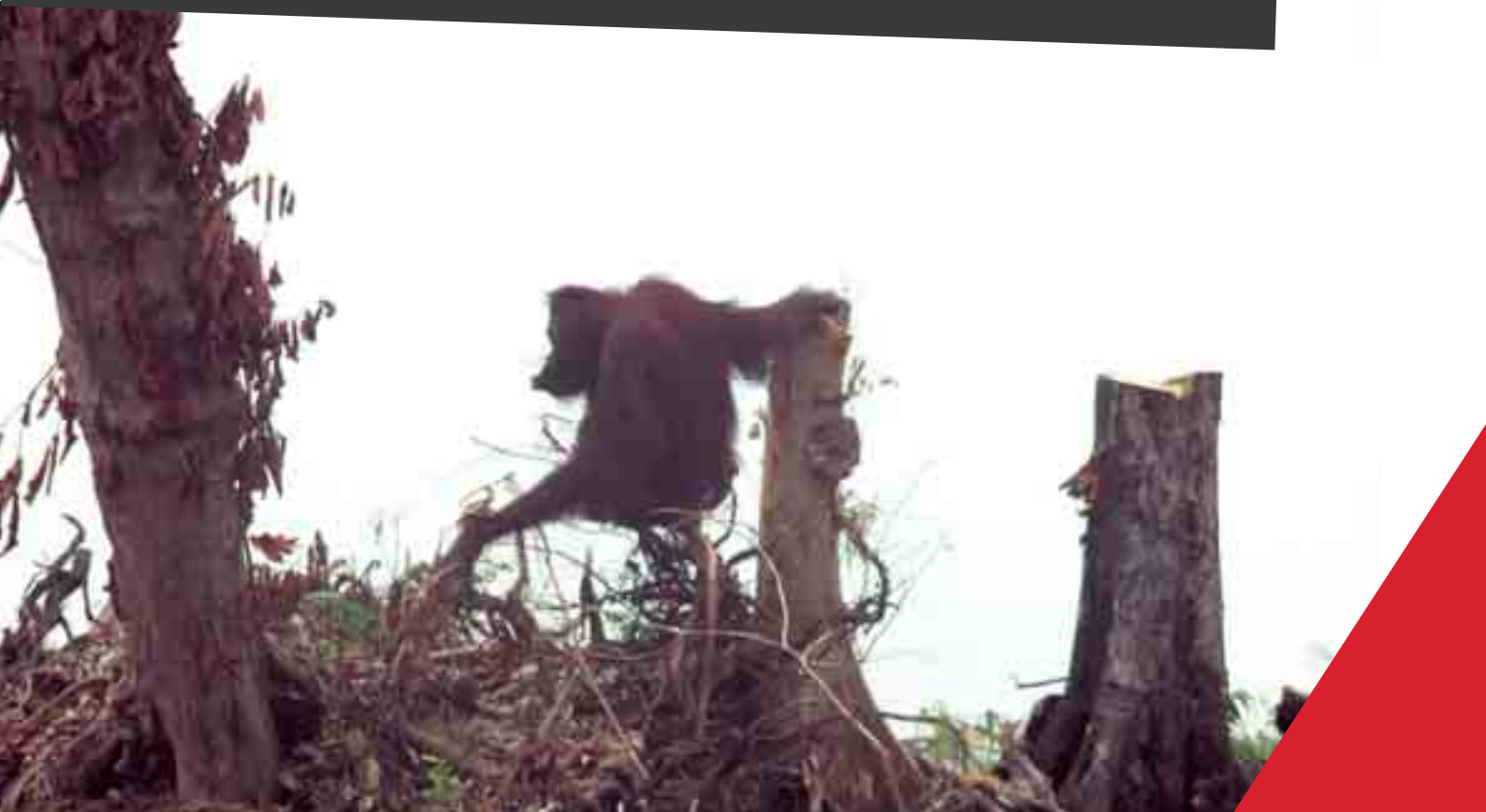
As orang-utans and other species lose their rainforests to oil palm plantations, they are deprived of their natural source of food. Seeking to survive off young palm plants, hungry orang-utans can become 'pests' to oil palm producers, and plantation workers commonly kill orang-utans to protect the crop.⁴¹ According to the Centre for Orangutan Protection, at least 1,500 orang-utans died in 2006 as a result of deliberate attacks by plantation workers.⁴²

'The Bornean orang-utan is classified as *Endangered* [...] indicating that it has a very high risk of extinction in the wild in the near future. The Sumatran orang-utan is classified as *Critically Endangered* [...] indicating that it has an extremely high risk of extinction in the wild in the near future. Since 1900, the number of Sumatran orang-utans is thought to have fallen by about 91%, with a rapidly accelerating loss towards the end of the twentieth century.'

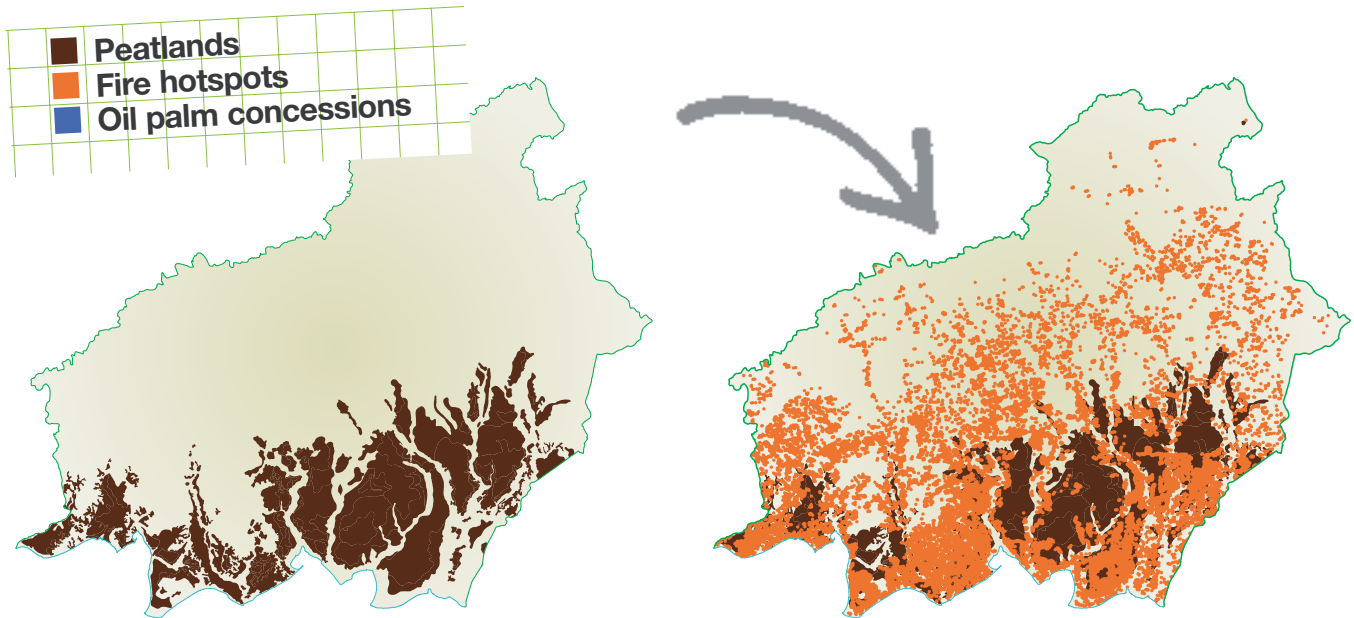
United Nations Environment Programme, 2007



These maps overlay several data sets. Orang-utan distribution is based on 2005 maps compiled by WWF.²⁸ The oil palm concession boundaries are based on 2006 work by Forest Watch Indonesia.²⁹ Deforestation data is based on 2007 maps developed by Sarvision-Wageningen University in collaboration with the Indonesian Ministry of Forestry. The first map shows 2004 orang-utan distribution in Central Kalimantan. The second map projects the impact of 2000-2007 deforestation on orang-utan distribution. The third map overlays this with oil palm concessions. The fourth map projects that all remaining orang-utan habitat within concession areas will be lost.



PEATLAND DISTRIBUTION IN CENTRAL KALIMANTAN: PROJECTED IMPACT OF 2006-2007 FIRE HOTSPOTS IN RELATION TO CURRENT OIL PALM CONCESSIONS



In Central Kalimantan, between 2006 and 2007, one orang-utan rescue centre retrieved more than 200 orang-utans from oil palm plantations.⁴³ Greenpeace has evidence of orang-utans found on concessions belonging to Unilever suppliers.⁴⁴

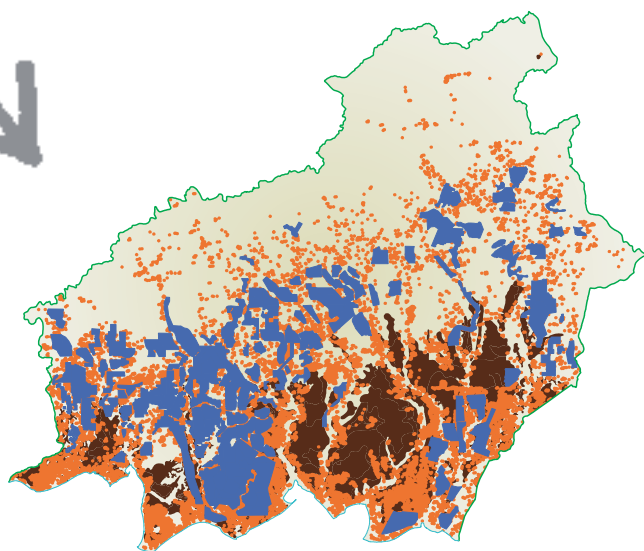
Oil palm plantation expansion takes place with little oversight from central or local government. Procedures for environmental impact assessment, land-use planning and ensuring a proper process for development of concessions are neglected.

Many new plantations are located on peat that should be off-limits to development or degradation according to Indonesian law.⁴⁵ This stipulates that land should not be allocated for oil palm plantations on peat soils deeper than 2 metres; in addition, activities that damage upstream natural swamp forests with deep peat (more than 3 metres) are prohibited.⁴⁶ In other words, palm oil development on such peatlands is illegal. Greenpeace has documented such clearance on concessions belonging to Unilever suppliers.⁴⁷

The use of fire to clear forest areas is the largest source of GHG emissions in the world.⁴⁸ The practice has been illegal in Indonesia since 1999,⁴⁹ yet remains commonplace among palm oil producers. Greenpeace has identified thousands of fire hotspots (areas visible on satellite images used to monitor forest fires) on concessions belonging to Unilever suppliers during the period 2006–2007.⁵⁰

Social conflict, including land rights and resource conflicts, is often associated with oil palm plantation expansion.⁵¹ Greenpeace has evidence of such conflicts resulting from the establishment of concessions belonging to Unilever suppliers.⁵²

'The main areas remaining for new extensive plantations are the large tracts of tropical peatlands – until recently virgin rainforest areas. Over 50% of new plantations are planned in these peatland areas.'
Wetlands International, 2007



These maps overlay several data sets: peatland distribution maps,³⁰ oil palm concession boundaries based on 2006 work by Forest Watch Indonesia,³¹ and fire hotspots identified by NASA satellite imagery.³² The first map shows peatland distribution in Central Kalimantan. The second map overlays this with 2006 – 2007 fire hotspot data. The third map overlays this with oil palm concessions, showing where they all overlap.

'Peat swamp forests, which host high densities of orang-utans, are targeted for palm oil production. Palm oil plantations are also being developed on logged-over forest land, preventing recovery.'

United Nations Environment Programme, 2007



Unilever PALM OIL SUPPLIERS ARE LEADING AGGRESSIVE EXPANSION

UNILEVER SUPPLIERS SINAR MAS, IOI, ADM-KUOK-WILMAR, SIME DARBY, MUSIM MAS, ASTRA AGRO AND ASIAN AGRI ARE PUSHING EXTINCTION

Unilever acknowledges that it has no idea where about 20% of its palm oil comes from. Of the remaining 80%, it knows the group supplying the palm oil, but not necessarily the concession areas from which it originates.⁵³

Palm oil producers linked to Unilever include Sinar Mas, IOI, ADM-Kuok-Wilmar, Sime Darby, Musim Mas, Astra Agro and Asian Agri.

Greenpeace analysis of deforestation maps, satellite data of fire hotspots, and orang-utan distribution maps, as well as field investigations of oil palm operations in Central Kalimantan, show these Unilever suppliers laying claim to large tracts of forest and peatland, with devastating impacts on climate and biodiversity.

'A scenario released by UNEP in 2002 suggested that most natural rainforest in Indonesia would be degraded by 2032. Given the rate of deforestation in the past five years, and recent widespread investment in oil palm plantations and biodiesel refineries, this may have been optimistic. New estimates suggest that 98% of the forest may be destroyed by 2022, the lowland forest much sooner.'

United Nations Environment Programme, 2007



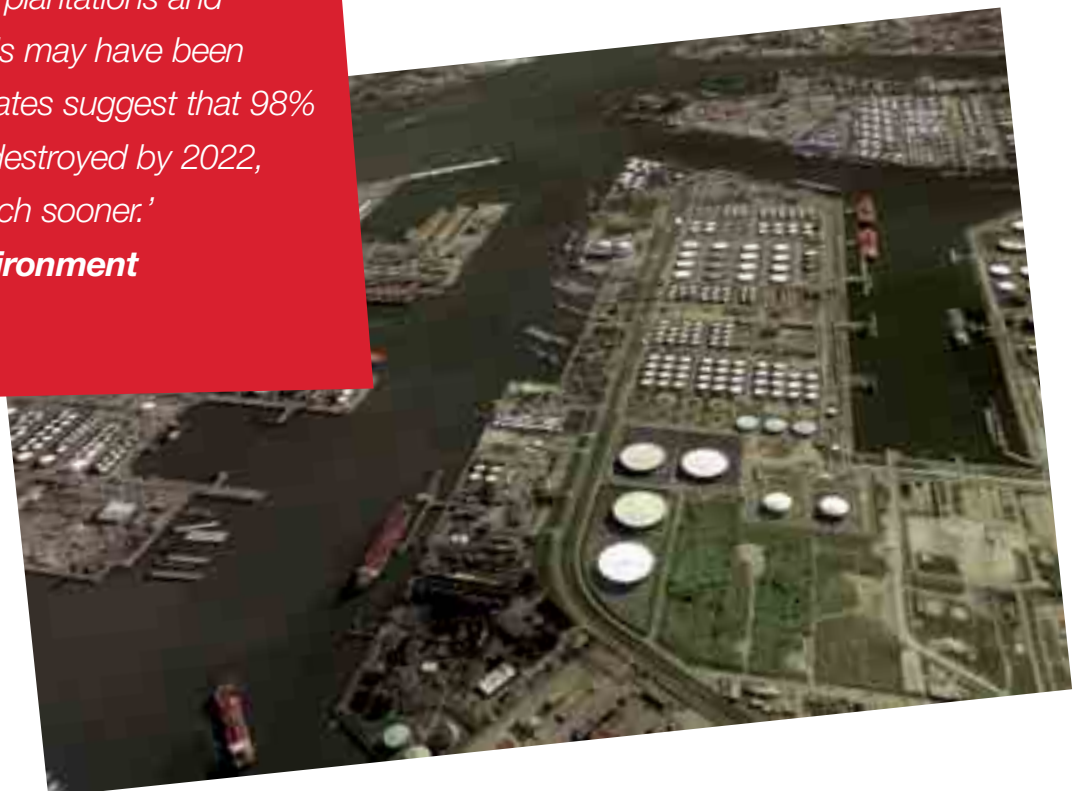
UNILEVER'S TRADERS ARE DEALING WITH BAD COMPANIES

Many of the largest producers in Indonesia that supply Unilever directly are also traders. This means that a significant portion of the palm oil they sell may come from third parties as well as their own operations. In this way, the identity of groups heavily reliant on deforestation and peatland clearance is lost in the supply chain. Producer-traders include Sinar Mas, IOI, ADM-Kuok-Wilmar, Sime Darby, Musim Mas and Asian Agri.

Another significant palm oil refiner and trader,⁵⁴ RSPO member,⁵⁵ and supplier to Unilever is the agricultural commodity giant Cargill. It is the largest privately-owned company in the world.⁵⁶

Industry sources confirm that roughly half of the palm oil imported into Europe by Cargill comes from Indonesia.⁵⁷ According to export data for 2007, Cargill's Singapore trading arm exported palm oil from 15 different oil palm concession holders in Indonesia.⁵⁸ These include some of Indonesia's largest palm oil producers: Sinar Mas, Wilmar, Musim Mas, Astra Agro and Asian Agri.⁵⁹

Greenpeace has traced palm oil from a Cargill refinery in Europe to Knorr, one of Unilever's high profile brands. Cargill is also one of Unilever's European suppliers of palm oil for ice cream.⁶⁰





SINAR MAS IS INDONESIA'S LARGEST OIL PALM PLANTATION COMPANY

SINAR MAS IS A MAJOR PLAYER IN THE PALM OIL SECTOR AND IS A MEMBER OF THE RSPO

Sinar Mas is a RSPO member through its oil palm plantation subsidiary PT SMART.⁶¹

The Sinar Mas Group accounts for almost 10% of palm oil production in Indonesia.⁶² The Group produces not just crude palm oil, but also palm kernel oil and a wide range of refined products for both food and industrial purposes.⁶³

In 2008, Sinar Mas branded itself 'No. 1 in Indonesia'⁶⁴ for total planted plantation area. This empire includes 360,000ha of plantation: some 213,000ha in Sumatra, 135,000ha in Kalimantan and 12,000ha in Papua.⁶⁵

Sinar Mas claims to have 'the largest land bank in the world for new plantations'⁶⁶ and has publicly announced plans to expand its holdings by 1.3 million ha in the heavily forested province of Papua and in Kalimantan.⁶⁷ However, an internal company presentation obtained by Greenpeace indicates that the company plans to develop a rainforest area of up to 2.8 million ha in Papua.⁶⁸

The Sinar Mas Group is involved in 'aggressive plantations expansion'⁶⁹ – 'the most aggressive new planting programme among the plantation companies'⁷⁰ – planting 53,000ha in 2007 with plans to plant at least 60,000ha in 2008,⁷¹ representing a growth in plantation area of over a third in a two-year period.⁷² Judging by past operations and known landbank, the vast majority of this will involve deforestation, some on peatlands and in critical orang-utan habitat.

UNILEVER'S LINKS TO SINAR MAS

Despite Sinar Mas' 'legacy issues'⁷³ – including defaulting on most of the \$13.4 billion debt of its APP subsidiary in 2001⁷⁴ – Unilever has maintained a long-standing relationship with the company. A 1999 Sinar Mas document states: 'Our major customers include Cargill and Unilever. These sales were made through foreign brokers or directly to the importer located in the countries to which the products were exported.'⁷⁵ The Sinar Mas 2004 and 2006 Annual Reports⁷⁶ also indicate that Unilever has been an important client in 2003–2006, along with Nestlé and Carrefour.⁷⁷

SINAR MAS IS IMPLICATED IN RECENT OR ONGOING FOREST DESTRUCTION IN CENTRAL KALIMANTAN

- Deforestation on orang-utan habitat
- Deforestation on peatlands
- Fire hotspots
- Remaining forest on orang-utan habitat
- Remaining forest on peatlands





IOI AND UNILEVER'S LONG HISTORY

IOI IS A MAJOR PLAYER IN THE PALM OIL SECTOR AND IS A MEMBER OF THE RSPO

The IOI Group has a plantation land holding of nearly 170,000ha in Malaysia (of which 149,000ha is planted) and another 152,000ha in Kalimantan in Indonesia (of which 43,000ha is planted) via a joint venture,⁷⁸ with 72% of its Indonesian holdings yet to be planted. These holdings include 63,000ha in Central Kalimantan.⁷⁹

IOI has been involved in oleo chemicals since 1980.⁸⁰ In 2006, IOI emerged as the world's largest producer of oleo chemicals – chemicals often derived from palm oil that are used in cosmetics, laundry detergents and other household products. IOI has a total fatty acid production capacity of 700,000 tonnes a year.⁸¹

In 2007, the Group produced 790,000 tonnes of crude palm oil representing more than 2% of global production.⁸² It also produced 185,000 tonnes of palm kernel oil,⁸³ representing more than 4% of global production.⁸⁴

In 2007, IOI is estimated to have produced around 180,000 tonnes of crude palm oil in Indonesia,⁸⁵ accounting for just over 1% of Indonesian production.

UNILEVER'S LINKS TO IOI

IOI has had a long association with Unilever. In 2002–2003, IOI bought the palm oil refining company Lodders Croklaan from Unilever⁸⁶ at the same time as it acquired Unilever's Malaysian oil palm plantations.⁸⁷ Announcing the deal, Unilever stated: 'Lodders Croklaan will continue to supply Unilever with specialty products.'⁸⁸

In 2007 and 2008, IOI Rotterdam confirmed that it supplies Unilever from its Dutch refineries.⁸⁹

In 2008, Unilever named IOI as one of its principle suppliers.⁹⁰

'The proposed Joint Venture is in line with the Group's strategy of growing its core palm oil business [...]. It will provide immediate addition to planted hectareage as well as substantial suitable land bank for sustained business growth, hence providing the Group with the opportunity to capitalise on the very favourable outlook for the oil palm industry. The plantations [...] shall be cultivated in compliance with sustainable agricultural practices and principles in accordance with the principles and criteria of the Roundtable on Sustainable Palm Oil.'

IOI Announcement, 2007

IOI IS IMPLICATED IN RECENT OR ONGOING FOREST DESTRUCTION IN CENTRAL KALIMANTAN

- Deforestation on orang-utan habitat
- Deforestation on peatlands
- Fire hotspots
- Remaining forest on orang-utan habitat
- Remaining forest on peatlands





ADM-WILMAR-KUOK IS ONE OF THE WORLD'S LARGEST PRIVATELY OWNED GROUPS

THE ADM-KUOK-WILMAR ALLIANCE IS A MAJOR PLAYER IN THE PALM OIL SECTOR AND IS A MEMBER OF THE RSPO

Wilmar is a RSPO member. It claims to be the world's largest producer of palm oil based biodiesel.⁹¹ The Group – effectively a shareholder alliance between ADM⁹² and the Kuok family⁹³ – also controls about 570,000ha of concession area (just over a third of this has been cleared and planted), palm oil refineries and biodiesel plants across Indonesia and Malaysia.⁹⁴ Of this, some 493,000ha is in Indonesia.⁹⁵

In 2007, Indonesian production for the Wilmar Group was around 540,000 tonnes of crude palm oil, accounting for more than 3% of Indonesia production.⁹⁶ Although Wilmar owns substantial concession areas, more than 55% of its palm oil production comes from third party plantations.⁹⁷

The Kuok Group was founded by Robert Kuok Hock-Nien, the uncle of William Kuok, one of Wilmar's founders. According to Forbes, in 2005, Robert Kuok Hock-Nien was the richest man in Asia.⁹⁸

The US-headquartered ADM claims to be the world's leading processor of agricultural crops and Europe's leader in biofuels.⁹⁹ The company also trades crude palm oil on the Chicago futures market (meaning contracts are signed and traded months ahead of delivery).¹⁰⁰ ADM is one of Cargill's main competitors in the palm oil sector,¹⁰¹ although through Wilmar, the alliance also trades with Cargill.¹⁰²

UNILEVER'S LINKS TO ADM-KUOK-WILMAR

In a 2006 declaration to institutional investors, Wilmar announced that its key international customers include Procter & Gamble, Cargill, Unilever, Nestlé and China Grains & Oils Group Corporation.¹⁰³

In the UK, most if not all of Unilever's palm oil is supplied by ADM.¹⁰⁴ The company operates a refinery immediately next door to Unilever's margarine factory outside London. Reported as the largest margarine factory in the world,¹⁰⁵ the Unilever factory produces brands such as Flora and Bertolli.¹⁰⁶ The ADM refinery handles more than 300,000 tonnes of edible oils a year, including palm oil.¹⁰⁷ In addition to supplying products to the Unilever factory, the company delivers products to a wide range of food factories around the UK and overseas.¹⁰⁸ Unilever also has trade links to the Kuok Group. For instance, Unilever Pakistan purchased almost 100 tonnes of palm kernel oil from the Group in August 2007.¹⁰⁹ Kuok Group is known to source palm oil from Astra Agro as well as other third-party suppliers.¹¹⁰

In 2008, Unilever named Kuok-Wilmar as one of its principle suppliers.¹¹¹

ADM-KUOK-WILMAR IS IMPLICATED IN RECENT OR ONGOING FOREST DESTRUCTION IN CENTRAL KALIMANTAN

- Deforestation on orang-utan habitat
- Deforestation on peatlands
- Fire hotspots
- Remaining forest on orang-utan habitat
- Remaining forest on peatlands





SIME DARBY – THE WORLD’S LARGEST OIL PALM PLANTATIONS COMPANY

SIME DARBY IS A MAJOR PLAYER IN THE PALM OIL SECTOR AND IS A MEMBER OF THE RSPO

The 2007 merger of Sime Darby, Golden Hope Plantations and Kumpulan Guthrie established Sime Darby Plantation as the world's largest palm oil producer, with the potential of producing 8% of the world's total palm oil output.¹¹² This publicly-listed group, which runs plantations, refineries and biodiesel plants across Indonesia and Malaysia,¹¹³ is controlled by the Malaysian government.¹¹⁴

Sime Darby is a RSPO member.¹¹⁵

The Group is focusing on Indonesia for expanding its business.¹¹⁶

With total plantation assets of nearly 550,000ha, Sime Darby's nearly 200,000ha of oil palm concessions in Indonesia makes up for more than a third of its total holdings.¹¹⁷ Prior to the merger, Golden Hope controlled a total area of 60,000ha in West Kalimantan, Indonesia, of which 13,000ha were planted with oil palms.¹¹⁸ Kumpulan Guthrie owned and operated 56 plantation estates in Indonesia with a total land area of 220,000ha spread over Sumatra, Kalimantan and Sulawesi,¹¹⁹ of which 175,000ha had been planted.¹²⁰

In 2007, Indonesian production for the Sime Darby Group was around 800,000 tonnes of crude palm oil, accounting for nearly 5% of Indonesia production.¹²¹

UNILEVER'S LINKS TO SIME DARBY

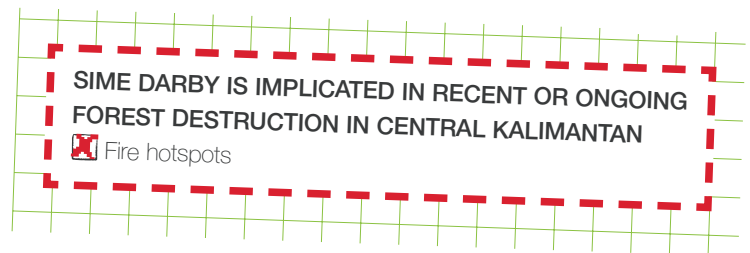
The Group is a major supplier to Unilever.¹²²

There is a long standing relationship between Unilever and companies now part of Sime Darby Group.

In 2002, Golden Hope bought Unimills, Unilever's oil refinery in Rotterdam in The Netherlands.¹²³ Unimills is the second largest diversified oil and fats blend manufacturer in Europe¹²⁴ – an industry that uses large quantities of palm oil. A recent announcement by Sime Darby confirmed that Unilever is a major customer of the Golden Hope (now Sime Darby) Unimills refinery in Rotterdam.¹²⁵

In 2008, Unilever named the Sime Darby Group, including Golden Hope and Kumpulan Guthrie, as one of its principle suppliers.¹²⁶

Golden Hope is known to trade palm oil sourced from the Musim Mas Group in Indonesia.¹²⁷



'We are the first plantation company in Malaysia to receive the Global 500 Award by the United Nations Environment Programme (UNEP) for our "Zero Burning" practices.'
Golden Hope (now part of Sime Darby)



MUSIM MAS

MUSIM MAS IS A MAJOR PLAYER IN THE PALM OIL SECTOR AND IS A MEMBER OF THE RSPO

In 2006, Musim Mas had 126,000ha of landholdings in Indonesia,¹²⁸ over half of these in Central Kalimantan.¹²⁹

In 2007, the Group produced around 300,000 tonnes of crude palm oil, accounting for 2% of Indonesia's production.¹³⁰

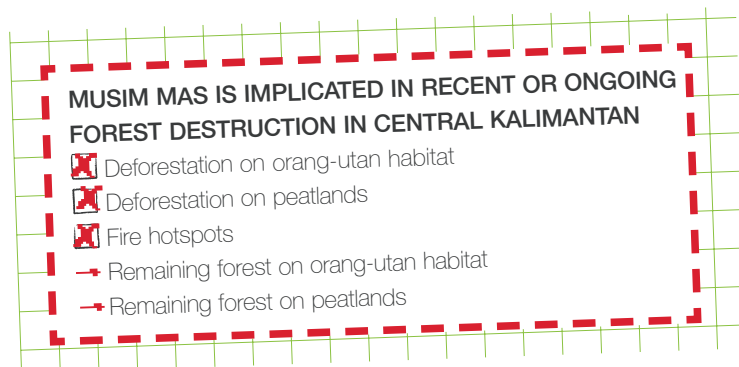
The company seeks RSPO certification for all of its operations. This includes certification of the Central Kalimantan concession PT Globalindo Alam Perkasa in September 2009. As of December 2007, 2,531ha of this concession (15%) was reported planted.¹³¹ Greenpeace has evidence that in December 2007, a baby orang-utan was captured in this concession area, indicating that it has high conservation values (HCV). The concession is located on peat,¹³² in some areas over 4 metres deep, and had fire hotspots in 2006 and 2007,¹³³ implying recent clearance.

UNILEVER'S LINKS TO MUSIM MAS

Unilever supplier Golden Hope is known to source palm oil from the Musim Mas Group in Indonesia.¹³⁴

Unilever trader Cargill is known to source palm oil from the Musim Mas Group in Indonesia.¹³⁵

In 2008, Unilever named Musim Mas as one of its principle suppliers.¹³⁶



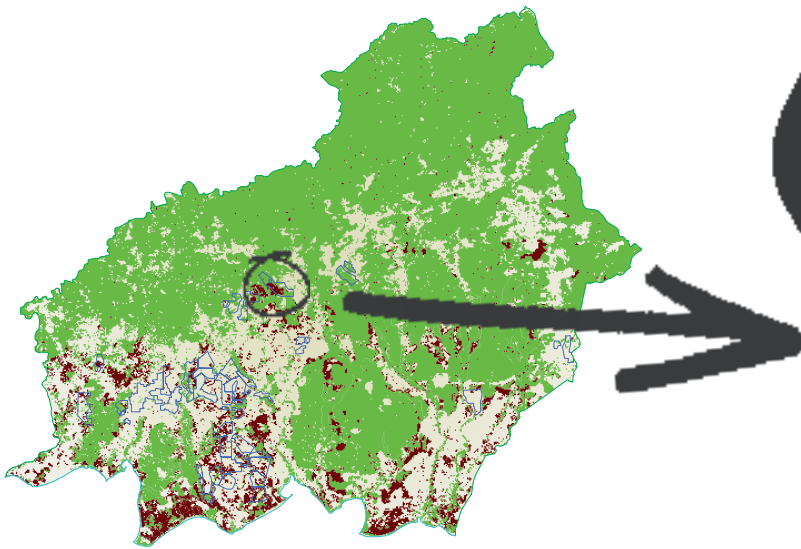
Oil palm concession PT Globalindo Alam Perkasa controlled by Unilever supplier Musim Mas. The Google Earth image shows significant forest cover within the concession boundaries. The first detail map shows 2004 orang-utan habitat and deforestation 2000–2007. The second map shows peatland areas and 2006–2007 fire hotspots. This suggests active deforestation in the concession.



ASIAN AGRI

ASIAN AGRI IS A MAJOR PLAYER IN THE PALM OIL SECTOR AND IS A MEMBER OF THE RSPO

RSPO member Asian Agri¹³⁷ is part of the Raja Garuda Mas Group, which owns the pulp and paper giant APRIL.¹³⁸ Raja Garuda Mas is controlled by Sukanto Tanoto, whom *Forbes* lists as the richest man in Indonesia.¹³⁹ *The Jakarta Post* reports that Asian Agri is currently under investigation for evasion of taxes worth up to Rp1.3 trillion (\$140 billion), with the possibility of criminal charges against its top executives.¹⁴⁰



Asian Agri controls over 160,000ha of planted plantation land in Riau, Jambi and North Sumatra:¹⁴¹ 100,000ha in concessions and 60,000ha in smallholder areas.¹⁴²

In 2007, the Group refined about 1.5Mt of crude palm oil, about 9% of Indonesia's production.¹⁴³

UNILEVER'S LINKS TO ASIAN AGRI

Unilever trader Cargill is known to source palm oil from the Asian Agri Group in Indonesia.¹⁴⁴

In 2008, Unilever named Asian Agri as one of its principle suppliers.¹⁴⁵

ASIAN AGRI IS IMPLICATED IN RECENT OR ONGOING FOREST DESTRUCTION IN CENTRAL KALIMANTAN

- Deforestation on orang-utan habitat
- Deforestation on peatlands
- Fire hotspots
- Remaining forest on orang-utan habitat



Oil palm concession PT Karya Dewi Putra in Central Kalimantan controlled by Unilever supplier Asian Agri. The large area map shows that the concession was still forested in 2007. The first detail map shows 2004 orang-utan habitat and deforestation 2000–2007. The second map shows 2006–2007 fire hotspots. This suggests active deforestation in the concession.

'Asian Agri has a very strict no-burn policy. During either initial planting (land clearing) or replanting, Asian Agri utilises mechanical means to clear land.'

Asian Agri website



ASTRA AGRO

ASTRA AGRO IS A MAJOR PLAYER IN THE PALM OIL SECTOR

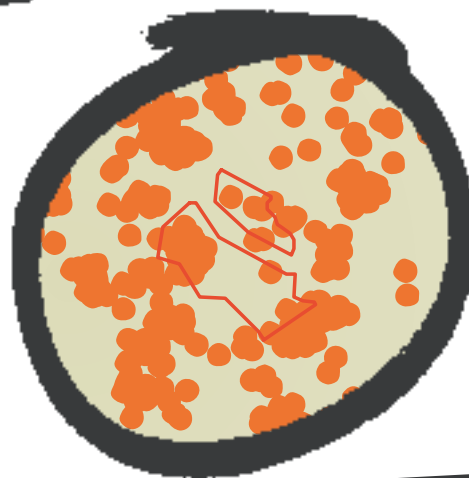
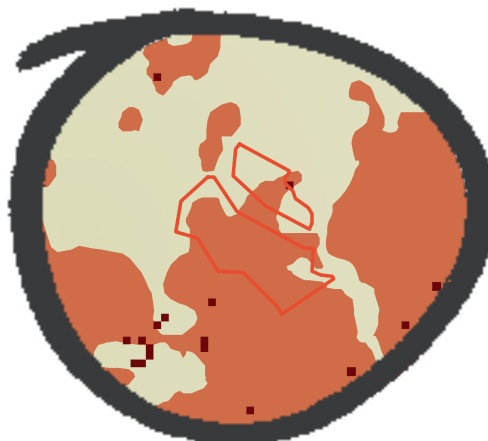
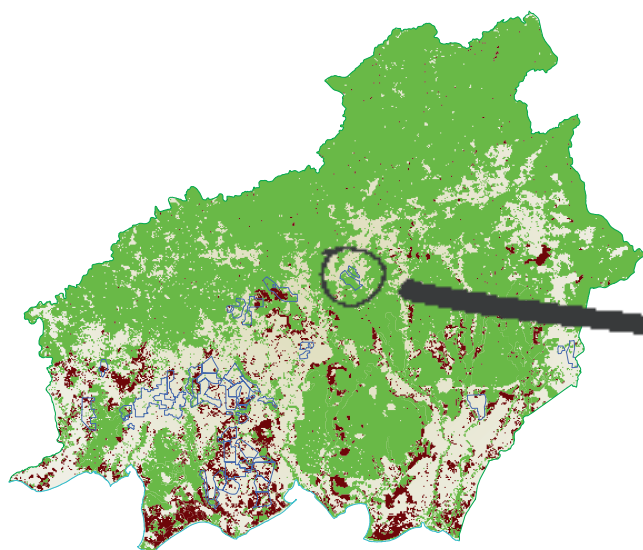
Astra Agro is controlled by Indonesia's car manufacturer PT Astra International.

During 2007, the Group increased its landholdings by 70% to nearly 400,000ha.¹⁴⁶ Of this, some 235,000ha is planted¹⁴⁷ (90,000ha in Kalimantan, 107,000ha in Sumatra and 38,000ha in Sulawesi).¹⁴⁸ Some 40% remains to be planted.

In 2007, the Group produced 921,000 tonnes of crude palm oil, accounting for 5.5% of Indonesia's production.¹⁴⁹

UNILEVER'S LINKS TO ASTRA AGRO

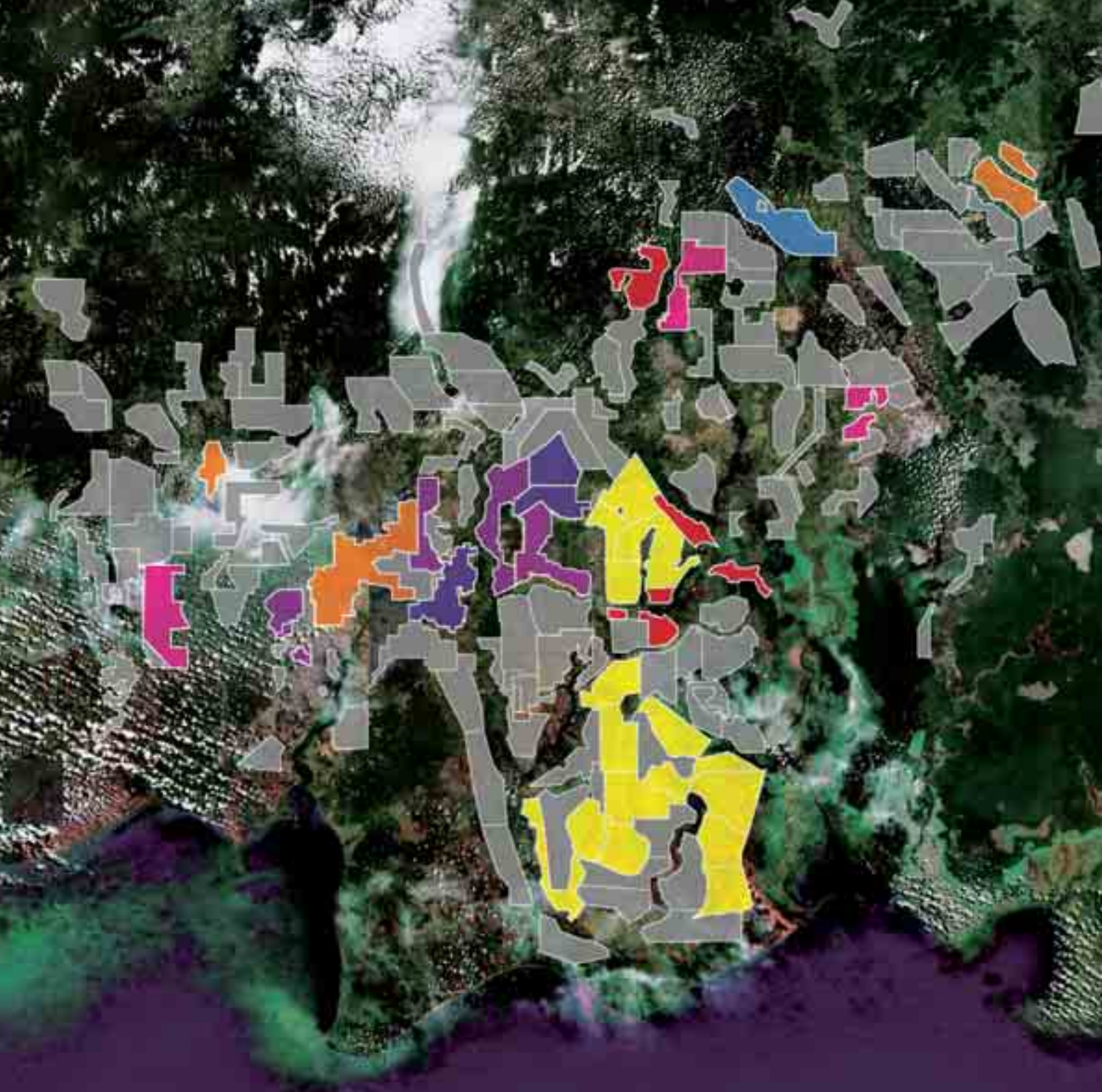
Unilever trader Cargill is known to source palm oil from the Astra Agro Group in Indonesia.



ASTRA AGRO IS IMPLICATED IN RECENT OR ONGOING FOREST DESTRUCTION IN CENTRAL KALIMANTAN

- Deforestation on orang-utan habitat
- Deforestation on peatlands
- Fire hotspots
- Remaining forest on orang-utan habitat

Oil palm concessions PT Agro Lestari Sentosa in Central Kalimantan controlled by Unilever supplier Astra Agro. The large area map shows that the concessions were still forested in 2007. The first detail map shows 2004 orang-utan habitat and deforestation 2000–2007. The second map shows 2006–2007 fire hotspots. This suggests recent deforestation in the concession.



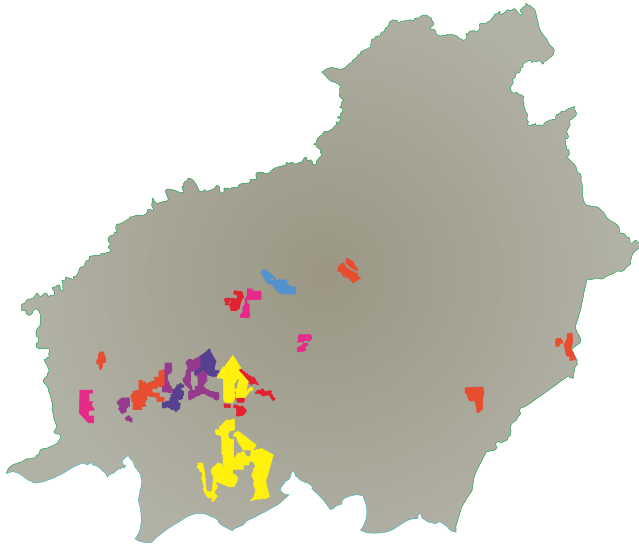
CONCESSIONS CONTROLLED BY UNILEVER SUPPLIERS IN THE AREA OF LAKE SEMBULUH IN CENTRAL KALIMANTAN

 Sinar Mas	 Musim Mas
 IOI	 Asian Agri
 ADM-Kuok-Wilmar	 Astra Agro
 Sime Darby	

CLIMATE AND BIODIVERSITY IMPACTS OF *Unilever* PALM OIL SUPPLIERS IN CENTRAL KALIMANTAN¹⁵⁰

OIL PALM GROUPS	Sinar Mas	IOI	Wilmar	Sime Darby	Musim Mas	Asian Agri	Astra Agro
Share of Crude Palm Oil (CPO) production in Indonesia (2007)	10%	1.1%	3.2%	4.7%	2.0%	9.0%	5.5%
Oil Palm Concessions in Central Kalimantan							
Number of identified oil palm concessions	6	4	15	3	6	1	7
Total area (ha)	68,845	48,779	255,714	49,086	38,925	26,437	111,810
Peatland Areas							
Number of concessions on peatland	3	1	12	1	4	0	1
Actual area on peat (ha)	8,067	2,981	57,591	1,626	10,039	0	23,269
Total peatland carbon store / CO ₂ equivalent (CO ₂ e)	12.1Mt (44.5Mt CO ₂ e)	3.6Mt (13.2Mt CO ₂ e)	35.7Mt (131.4Mt CO ₂ e)	0.73Mt (2.7Mt CO ₂ e)	11.7Mt (42.9Mt CO ₂ e)	0	58.4Mt (214Mt CO ₂ e)
Number of concessions on deep peat >2m	2	1	2	0	0	0	1
Area (ha)	6,597	1,685	6,693	0	2,283	0	23,269
Number of concessions with deforestation on peatland (2000 to July 2007)	1	1	9	0	4	0	1
Number of concessions with remaining forest on peatland in July 2007	2	1	7	0	3	0	0
Orang-utan Habitat							
Number of concessions on 2004 orang-utan habitat	5	2	15	2	6	1	4
Number of concessions with deforestation on orang-utan habitat (2000 to July 2007)	1	1	9	0	4	0	1
Number of concessions with significant remaining forest on orang-utan habitat in July 2007	3	2	8	0	5	1	3
Forest Fires Hotspots (2006-2007)							
Number of concessions 2006	260 fire hotspots on 5 concessions	180 fire hotspots on 4 concessions	1117 fire hotspots on 4 concessions	70 fire hotspots on 3 concessions	135 fire hotspots on 3 concessions	266 fire hotspots on 1 concession	442 fire hotspots on 7 concessions
Number of concessions 2007	62 fire hotspots on 3 concessions	33 fire hotspots on 4 concessions	13 fire hotspots on 7 concessions	3 fire hotspots on 2 concessions	53 fire hotspots on 3 concessions	12 fire hotspots on 1 concession	264 fire hotspots on 7 concessions

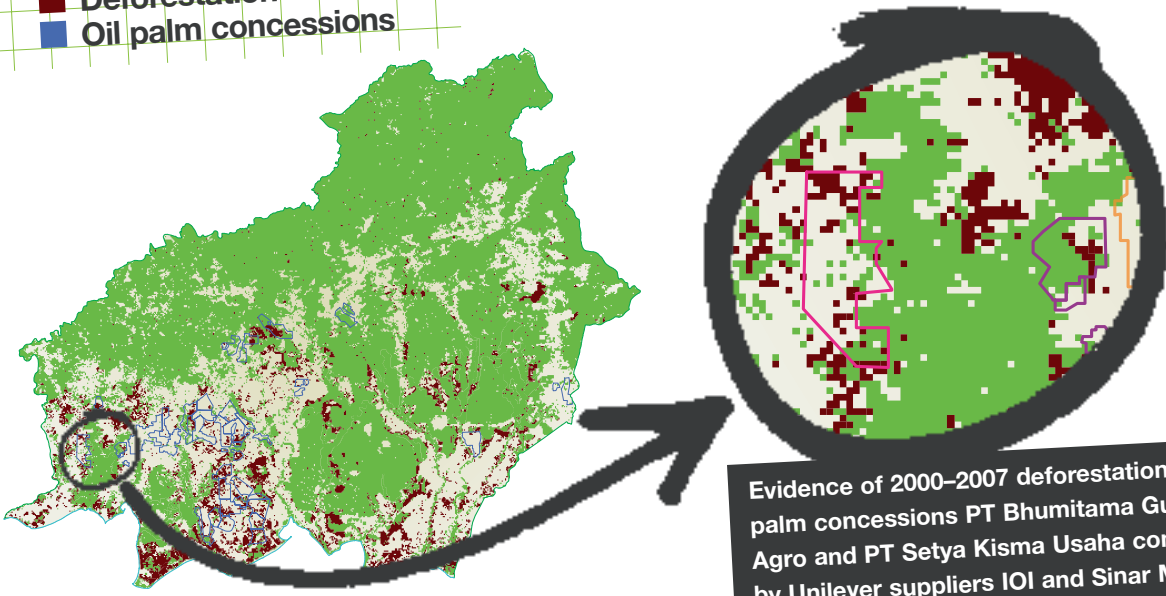
OIL PALM CONCESSIONS IN CENTRAL KALIMANTAN CONTROLLED BY UNILEVER SUPPLIERS



- Sinar Mas
- IOI
- ADM-Kuok-Wilmar
- Sime Darby
- Musim Mas
- Asian Agri
- Astra Agro

FOREST COVER IN CENTRAL KALIMANTAN: IMPACT OF OIL PALM CONCESSIONS CONTROLLED BY UNILEVER SUPPLIERS

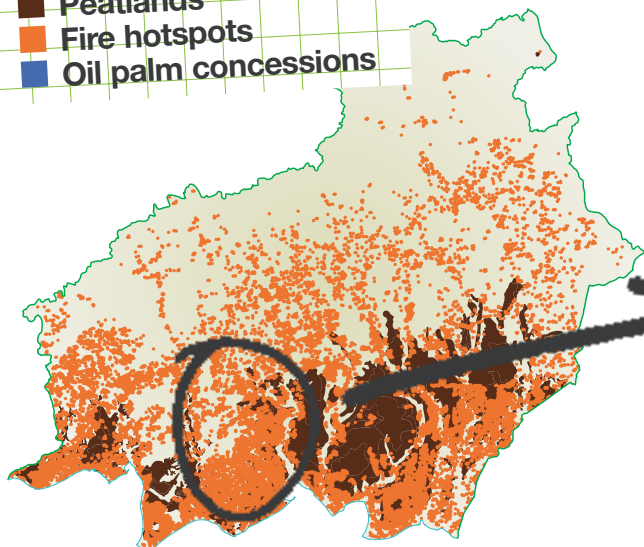
- Forest cover
- Deforestation
- Oil palm concessions



Evidence of 2000–2007 deforestation on oil palm concessions PT Bhunitama Gunajaya Agro and PT Setya Kisma Usaha controlled by Unilever suppliers IOI and Sinar Mas

PEATLANDS IN CENTRAL KALIMANTAN: IMPACT OF 2006-2007 FIRE HOTSPOTS IN RELATION TO OIL PALM CONCESSIONS CONTROLLED BY UNILEVER SUPPLIERS

- Peatlands
- Fire hotspots
- Oil palm concessions



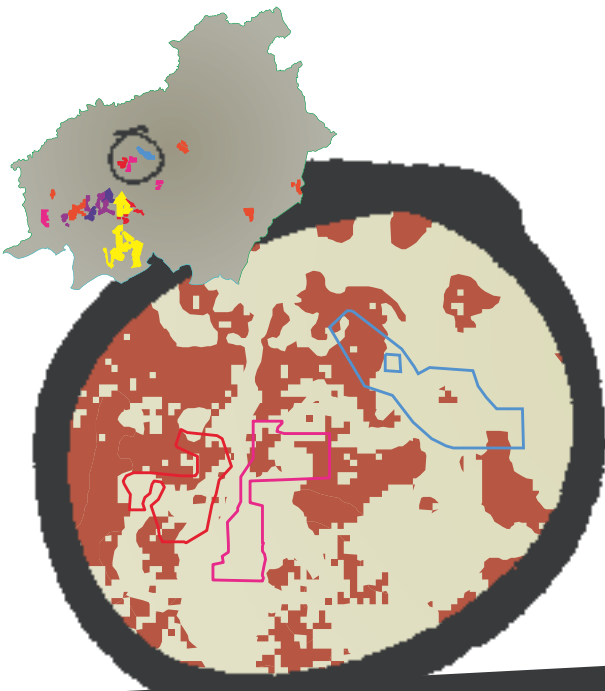
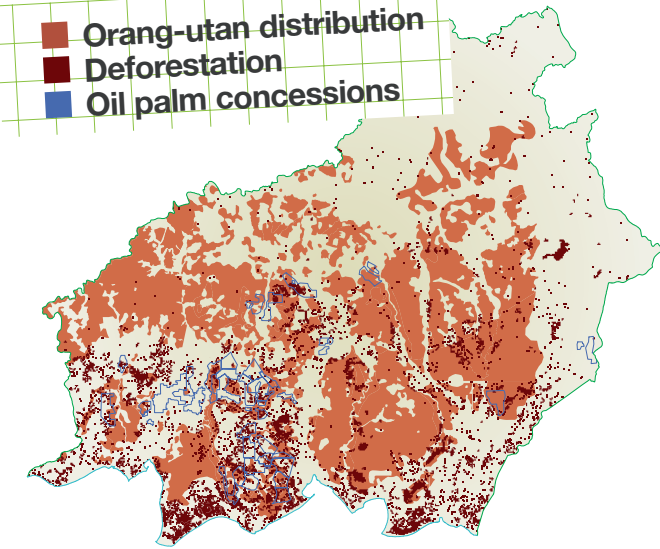
Evidence of 2006-2007 fire hotspots on oil palm concessions in the Lake Sembuluh area controlled by Unilever supplier Wilmar



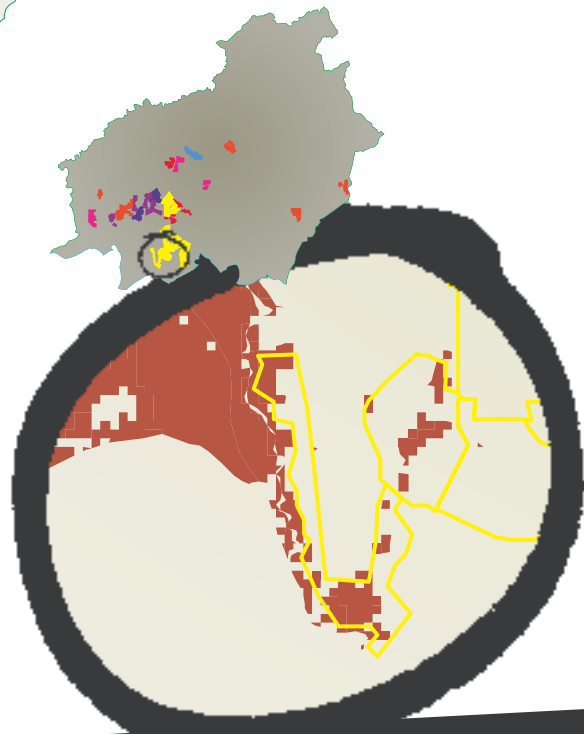
5 October 2006: Fire hotspots in Central Kalimantan as documented by MODIS satellite imagery - detail map shows multiple fire hotspots on concessions in the Lake Sembuluh area controlled by Unilever supplier Wilmar

ORANG-UTAN DISTRIBUTION IN CENTRAL KALIMANTAN: IMPACT OF OIL PALM CONCESSIONS CONTROLLED BY UNILEVER SUPPLIERS

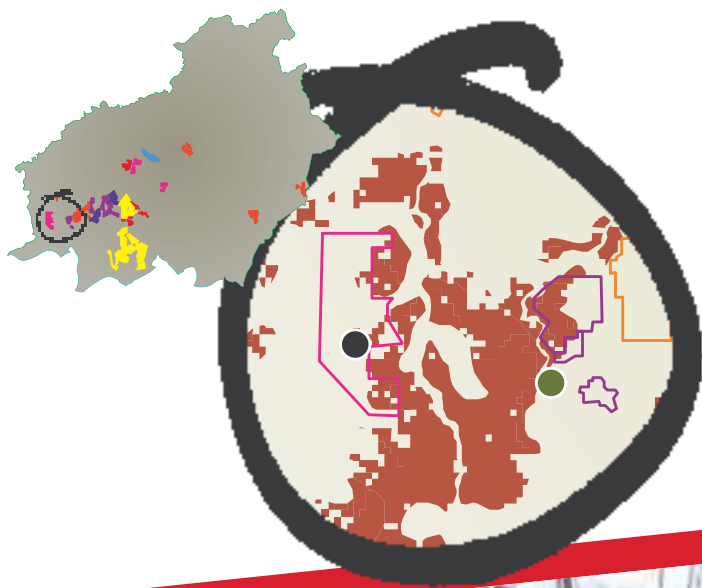
- Orang-utan distribution
- Deforestation
- Oil palm concessions



Oil palm concessions PT Unggul Lestari controlled by Unilever supplier Musim Mas, PT Karya Makmur Bahagia controlled by Unilever supplier IOI, and PT Karya Dewi Putra controlled by Unilever supplier Asian Agri shows significant overlap with orang-utan habitat.



Oil palm concessions PT Bawaal Sawit Tunas Belum and PT Alam Sawit Permai controlled by Unilever supplier Wilmar shows significant overlap with orang-utan habitat.



Oil palm concessions PT Bhunitama Gunajaya Agro controlled by Unilever supplier IOI and PT Setya Kisma Usaha controlled by Unilever supplier Sinar Mas. The map shows the concessions are located on orang-utan habitat. The photos taken during Greenpeace field investigations document active deforestation on the concessions and show the area is important orang-utan habitat. Coloured dots in the map locate where two of the photos were taken.

ORANG-UTAN NEST



TIME FOR ACTION: A MORATORIUM ON OIL PALM EXPANSION INTO INDONESIA'S RAINFORESTS AND PEATLANDS

Protecting the world's remaining forests is crucial to efforts to stabilise the climate, to preserve global biodiversity and to ensure the livelihoods of millions of people who depend on forests.

Forest destruction is responsible for about one fifth of global GHG emissions – Indonesia and the Amazon are by far the two largest sources of GHG emissions from deforestation. Emissions from Indonesia's degraded peatlands represent 4% of global GHG emissions, but the area of degraded peatlands involved is relatively small – about 10 million hectares or less than 0.1% of the Earth's land surface.

If we are to prevent dangerous global climate change, we need a global effort to halt forest destruction as well as bringing about a drastic reduction in our use of coal, oil and gas by using energy more efficiently and utilising cleaner sources of energy.

In order to help protect the climate, Greenpeace is calling for an end to deforestation in Indonesia – the largest source of GHG emissions from deforestation.

A halt to further rainforest destruction in Indonesia is also critical to ensuring the future for critically endangered species such as the orang-utan.

WHAT DOES THE INDONESIAN GOVERNMENT NEED TO DO?

STOP THE PROBLEM: ZERO DEFORESTATION

Establish a moratorium on forest clearance and peatland degradation and ensure enforcement of the moratorium.

START THE SOLUTION: CLIMATE PROTECTION

Prioritise protection of remaining peat swamp forests and other forest areas with high carbon storage capacity, biodiversity values and benefits for indigenous peoples and other local communities.

START THE SOLUTION: CUT ONGOING EMISSIONS

Rehabilitate degraded peatland areas with natural and native flora.

WHAT DO UNILEVER AND THE PALM OIL SECTOR NEED TO DO?

STOP THE PROBLEM: SUPPORT ZERO DEFORESTATION

Support a moratorium on forest clearance and peatland degradation.

START THE SOLUTION: CLEAN UP THE TRADE

Do not trade with those engaged in deforestation and peatland degradation.

Inform suppliers that purchasers will no longer buy from companies engaged in forest conversion and peatland degradation.

'A moratorium will be a strong signal. [It] can be a first step in countering peatland degradation [,] to buy time to maximise the new opportunity of carbon finance. A moratorium needs to be part of a longer-term strategy of land-use planning.'
Yogyakarta statement, endorsed by the Indonesian Minister of the Environment, August 2007



'The simplest and most effective measure to prevent a further increase in fires and CO₂ emissions is by conservation of remaining peat swamp forests and rehabilitation of degraded peat swamp forests.'

Wetlands International, 2006

PICTURE CAPTIONS

Cover

16 October 2006: Fire on Central Kalimantan oil palm plantation

©www.films4.org

4 October 2007: Haze from plantation fires clouds the Kapuas River in Central Kalimantan ©[Greenpeace/Behring](http://Greenpeace.com)

13 November 2006: Orang-utan found on oil palm concession PT Mustika Sembuluh in Central Kalimantan now controlled by Unilever supplier Wilmar – rough treatment by plantation workers has left it with a broken arm

©[Greenpeace](http://Greenpeace.com)

6 August 2007: Digger at work on oil palm concession PT Sarana Titian Permata in Central Kalimantan now controlled by Unilever supplier Wilmar – the sign on tree reads 'Do not hunt the wildlife' ©www.films4.org

pp1-2

6 August 2007: Deforestation on oil palm concession PT Sarana Titian Permata in Central Kalimantan now controlled by Unilever supplier Wilmar ©www.films4.org

Unilever products ©[Greenpeace/Novis](http://Greenpeace.com)

pp6-7

25 August 2006: Two photos of burning peatland oil palm concession areas in Riau – use of fire for land clearance is illegal but common in the industry, and every year cause a thick smog-like haze over the entire region, threatening the health of millions of people and contributing to the problem of climate change ©[Greenpeace/Dithajohn](http://Greenpeace.com)

13 November 2006: Orang-utan baby trapped by workers on an oil palm plantation in Central Kalimantan – the baby's mother was found dead ©BOS Foundation

1 October 1997: Sumatran rainforest on fire due to climate change effects from El Niño ©[Lily/Greenpeace](http://Lily.com)

p9

26 September 2006: Orang-utan marooned on deforested oil palm concession in Central Kalimantan ©[BOS International](http://BOS.com)

p11

13 April 2008: Crane draining peatland in the vicinity of oil palm concession PT Tapian Nadenggan controlled by Unilever supplier Sinar Mas ©[Greenpeace](http://Greenpeace.com)

p12

Google image of the Cargill refinery in Rotterdam ©[Google Earth](http://Google.com)

p13

February 2008: Oil palm concession PT Setya Kisma Usaha in Central Kalimantan controlled by Unilever supplier Sinar Mas shows clear evidence of burning – the concession has peatland areas and is located on orang-utan habitat ©[Greenpeace](http://Greenpeace.com)

13 April 2008: Road building in the vicinity of oil palm concession PT Tapian Nadenggan in Central Kalimantan controlled by Unilever supplier Sinar Mas ©[Greenpeace](http://Greenpeace.com)

p14

12 April 2008: Crane clearing forest area on oil palm concession PT Bhunitama Gunajaya Agro in Central Kalimantan controlled by Unilever supplier IOI ©[Greenpeace](http://Greenpeace.com)

p15

6 August 2007: Female agile gibbon with broken nose captured by plantation workers on oil palm concession PT Kerry Sawit Indonesia in Central Kalimantan controlled by Unilever supplier Wilmar – the species is listed as endangered by the IUCN ©www.films4.org

p16

Google image of the Unimills refinery in Rotterdam ©[Google Earth](http://Google.com)

p17

27 December 2007: Orang-utan baby caught by plantation workers on oil palm concession PT Globalindo Alam Perkasa in Central Kalimantan controlled by Unilever supplier Musim Mas – the baby died soon after this image was taken ©[Greenpeace](http://Greenpeace.com)

Google image of oil palm concession PT Globalindo Alam Perkasa in Central Kalimantan controlled by Unilever supplier Musim Mas – remaining forested orang-utan habitat on peatland area is clearly visible ©[Google Earth](http://Google.com)

p20

Google image of the Lake Sembuluh region of Central Kalimantan overlaid with concession areas controlled by Unilever's palm oil suppliers ©[Google Earth](http://Google.com)

p23

5 October 2006: Fire hotspots in Central Kalimantan as documented by MODIS satellite imagery ©[Jeff Schmaltz, Earth Observatory/MODIS Rapid Response team](http://Jeff.com)

p25

February 2008: PT Bhunitama Gunajaya Agro oil palm concession in Central Kalimantan controlled by Unilever supplier IOI shows clear evidence of drainage – the concession has peatland areas and is located on orang-utan habitat ©[Greenpeace](http://Greenpeace.com)

15 April 2008: Baby orang-utan captured in the Pangkalan Bun area near palm oil concessions controlled by Unilever suppliers IOI and Sinar Mas ©[Greenpeace](http://Greenpeace.com)

13 April 2008: Isolated orang-utan nest in Central Kalimantan in the vicinity of oil palm concession PT Tapian Nadenggan controlled by Unilever supplier Sinar Mas ©[Greenpeace](http://Greenpeace.com)

p27

14 April 2008: Sunset over threatened orang-utan habitat inside a concession controlled by Unilever supplier Sinar Mas ©[Greenpeace](http://Greenpeace.com)

Back cover

15 April 2008: Baby orang-utan captured in the Pangkalan Bun area near palm oil concessions controlled by Unilever suppliers IOI and Sinar Mas ©[Greenpeace](http://Greenpeace.com)

ENDNOTES

- 1 Unilever uses 1.3Mt of palm oil or palm oil derivative every year. Of this, about 800,000 tonnes is for food use and the remainder is for industrial use, of which approximately 300,000 tonnes comes from palm kernel oil (Personal communication, 10 April 2008). This represents about 3% of global palm and palm kernel oil production in 2007 (42.4Mt). Source: Oilworld ISTA Mielke (2008) 'Oilworld statistics update' 14 March 2008' together with an estimate of palm kernel oil based on FAO 2006 figures.
- 2 Clay (2005)
- 3 Clay (2005)
- 4 See table in this document
- 5 Adam Harrison, WWF, letter to Greenpeace, 19 October 2007; this is equivalent to 17Mt given that global production for 2007 is 38.13Mt (Source: Oilworld ISTA Mielke (2008) 'Oilworld statistics update' 14 March 2008)
- 6 FAO (2006): 56
- 7 Vegetable oils, here defined as rapeseed oil, soyabean oil, sunflower seed oil and palm oil, except in Japan where it excludes sunflower seed oil, will rise by 31.7Mt; palm oil by 14.9Mt. OECD-FAO (2007b)
- 8 of Annual Reports of Sinar Mas, Asian Agri (RGM), Wilmar, Musim Mas, Genting, IOI and others
- 9 For instance, concessions on peatlands over 2 metres deep or use of fire for clearance.
- 10 Eg Criterion 7.3 which prohibits conversion of areas with High Conservation Values (See RSPO 'Principles and Criteria for Sustainable Palm Oil Production' (2007) www.rspo.org/resource_centre/RSPO%20Principles%20&%20Criteria%20Document.pdf)
- 11 Unilever's contribution to *Review of EU Biofuels Directive Public Consultation Exercise*, April-July 2006, Energy and Transport Directorate-General, European Commission
- 12 WWF (2005) Forest cover 2000 is based on LANDSAT ETM imagery 1999 and 2000, modified by images from 2002. Forest cover 2010 and 2020 is a projection based on LANDSAT imagery 2000.
- 13 WWF (2005) Orang-utan distribution 1930 and 1999 based Rijkssen and Meijaard (1999) Modified by removing occurrence above 500 m asl, except for Crocker Range National Park, Mt. Kinabalu and some areas in southeast Sabah. Orang-utan distribution 2004 and 2020 in Kalimantan based on 'Orang-utan PHVA (Population and Habitat Viability Assessment)' (2004) Modified by removing occurrence above 500 m asl. Orang-utan distribution 2004 and 2020 in Sabah based on Ancrenaz et al. (2005) FAO (2005)
- 14 Greenpeace SE Asia, 'Indonesia makes it to 2008 Guinness World Records as fastest forest destroyer on the planet' 3 May 2007 www.greenpeace.org/seasia/en/news/indonesia-makes-it-to-2008-gui
- 16 FWI/GFW (2002): 14 citing Holmes (2000)
- 17 Nelleman et al (2007) 43
- 18 2.8Gt CO₂ per year through deforestation during the 1990s; 3Gt CO₂ through deforestation and fossil fuel use. WRI (2007) Climate Analysis Indicators Tool vs 4.0
- 19 See *Cooking the climate*
- 20 Hooijer et al (2006): 29
- 21 IPCC WGIII (2007): 3
- 22 Based on emissions from deforestation of 8.52Gt. IPCC WGIII (2007): 104 'Figure 1.2: Sources of global CO₂ emissions, 1970-2004 (only direct emissions by sector)'. Indonesia's peatland emissions are 1.8Gt/year. Hooijer et al (2006): 29. There are 27.1 million hectares of peatlands in SE Asia, 83% of this is in Indonesia. 10.6 million hectares (39%) of peatland in SE Asia was deforested in 2000. Accounting for continued deforestation at a rate of 1.5%/year, the deforested peatland area in 2006 is around 45% of total peatland area, or 12.1 million hectares. 83% of 12.1 = 10 million of peatland deforested and degraded. Source: Hooijer et al (2006): 9, Wetlands International (2006a, 2006b). CIA (2007) gives global land area as 15 billion hectares. So Indonesia's degraded peatlands equal 0.07% of the Earth's land surface.
- 23 Hooijer et al (2006): 17
- 24 IUCN Red List Database (2007) 'Red List of Threatened Species' www.iucnredlist.org
- 25 Nelleman et al (2007) 9
- 26 Nelleman et al (2007) 9
- 27 Nelleman et al (2007) 9
- 28 WWF (2005)
- 29 FWI (2006)
- 30 Wahyunto et (2006)
- 31 FWI (2006)
- 32 NASA/University of Maryland (2002)
- 33 Nelleman et al (2007): 28
- 34 FAOSTAT (2008) <http://faostat.fao.org> accessed April 2008
- 35 Cited in IFC (2007): 208: according to the industry data 3% of all oil palm plantations are established in primary forests and 63% in secondary forest and vegetation.
- 36 5.5 million hectares in 2005. IPOC (2006). 6.1 million hectares in 2006. Suharto (2007):4 'Area and production by category of producer, preliminary data for 2006'
- 37 Legowo (2007)
- 38 Colchester et al (2006): 26, Table 1.2 'Provincial government plans to expand oil palm plantations'
- 39 Painter, James (2007) 'Losing land to palm oil in Kalimantan' *BBC News* 3 August 2007 <http://news.bbc.co.uk/2/hi/asiapacific/6927890.stm>
- 40 FWI (2006)
- 41 Nelleman et al (2007): 9
- 42 AFP (2007) 'Activists: Palm oil workers killing endangered orangutans' *The Manila Times* 26 July 2007 www.manilatimes.net/national/2007/july/26/yehey/opinion/20070726opi8.html
- 43 Michelle Desilets (2008) email communication, 8 April 2008
- 44 Photographic, video and rescue database evidence held by Greenpeace – examples include Wilmar, Musim Mas and Sinar Mas
- 45 Decree of Minister of Forestry and Plantation Number 376/1998, dated 8 April 1998. Decree no 376/1998 issued by the Ministry of Forestry and Plantations, 8 April 1998, gives criteria for choosing areas for oil palm plantations: 'plantation developments on peat soils deeper than two metres are not allowed'
- 46 Presidential Decree No. 32/1990, source: Walhi et al (2006). Presidential decree no 32/1990 on 'Management of Protected Areas' 25 July 1990: Article 10 specifies that 'upstream' swamp and peatlands deeper than 3 metres should be protected'.
- 47 See table in this document
- 48 See *Cooking the Climate*
- 49 Forestry Act No. 41/1999; Plantation Law 18/2004, article 26 states: 'any entrepreneur of plantation business is not allowed to open and/or manage its land by burning it, which can result in pollution and destruction of environment'. Source: Colchester et al (2006)
- 50 NASA/University of Maryland (2002)
- 51 Colchester et al (2006)
- 52 Evidence held by Greenpeace – eg Sinar Mas, Wilmar, Astra Agro
- 53 Personal communication, 10 April 2008
- 54 Cargill, 'Cargill History and Current Status' www.cargill.com/news/issues/palm_current.htm#TopOfPage accessed 29 October 2007; Greenpeace investigation 2006-2007
- 55 Cargill, 'Cargill and Palm Oil Production' www.cargill.com/news/issues/palm_roundtable.htm accessed 29 October 2007
- 56 Forbes 'The largest private companies in 2005: 1: Cargill' www.forbes.com/lists/2005/21/5ZUJZ.html accessed 29 October 2007
- 57 Evidence held by Greenpeace
- 58 Evidence held by Greenpeace
- 59 Evidence held by Greenpeace
- 60 US Patent No. 20060141102 is evidence of this. Free Patents Online 'Frozen confection and process for manufacturing such' www.freepatentsonline.com/20060141102.html accessed 15 October 2007
- 61 RSPO 'RSPO Members' www.rspo.org/members_list.aspx?catid=37&ddlD=39&membercat=13 accessed 16 April 2008
- 62 1.6Mt of CPO (Source: Golden Agri-Resources (2008)) out of 16.7Mt Indonesia 2007 production (Source: Oilworld ISTA Mielke 'Oilworld statistics update' 14 March 2008)
- 63 Golden Agri-Resources (2008)
- 64 Golden Agri-Resources (2008)
- 65 212,589ha (Sumatra); 134,922ha (Kalimantan); 12,222ha (Papua) Golden Agri-Resources 'Our Business' www.goldenagri.com.sg/ourbusiness.html accessed 16 April 2008
- 66 Golden Agri-Resources (2008)
- 67 Golden Agri-Resources (2008). 200,000ha in Kalimantan (acquired), 100,000ha in Kalimantan (in acquisition), 1,000,000ha in Papua (in acquisition).
- 68 Copy held by Greenpeace
- 69 Greenall (2007): 1
- 70 Greenall (2007): 8
- 71 Golden Agri-Resources (2008): 26
- 72 From 307,000ha in 2007, source: Greenall (2007): 9
- 73 Greenall (2007): 1
- 74 Sara Webb 'APP Says Debts Now Total \$13.4 Billion; Creditors May Not Get Plan Until March' *The Wall Street Journal* 10 April 2001; Tom Wright 'Asia Pulp & Paper Sees Outline \$13B Debt Plan By November', Dow Jones Newswires, Jakarta, 30 August 2001. Both cited in van Gelder (2001).
- 75 Golden-Agri Resources (1999)
- 76 Sinar Mas (2004) and Sinar Mas (2006) The Group's products consist of refined palm products such as cooking oil, fat and margarine, and crude palm oil (CPO), palm kernel (PK) and palm kernel oil (PKO)
- 77 Sinar Mas (2004) and Sinar Mas (2006)
- 78 IOI Announcement on Kuala Lumpur Stock exchange, 'Proposed acquisition of equity interests in Sarawak plantation companies' 18 March 2008 www.bursamalaysia.com/website/bm/listed_companies/company_announcements/announcements/historical.jsp
- 79 IOI Announcement on Kuala Lumpur Stock exchange, 'Proposed joint venture for oil palm cultivation in Indonesia' 19 November 2007 www.bursamalaysia.com/website/bm/listed_co

- companies/company_announcements/announcements/historical.jsp
- 80 IOI Oleochemical Industries 'History' www.ioi.com.my/history.asp accessed 16 April 2008
- 81 IOI Group 'Plantation Statistics' www.ioigroup.com/business/busi_plantstats.cfm accessed 10 April 2008
- 82 790,000 tonnes of crude palm oil (Source: www.ioigroup.com/business/busi_plantstats.cfm) out of 38.13Mt (Source: Oilworld ISTA Mielke (2008))
- 83 IOI Group 'Plantation Statistics' www.ioigroup.com/business/busi_plantstats.cfm accessed 10 April 2008
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