

## BORNEO

The island of Borneo contains highly biodiverse forests, and communities with rich cultures and strong relationship with the forests. Pressure from logging operations, followed by in-migration and plantation developments have placed pressure on forests, affecting mainly lowland and peat swamp forests. Multiple efforts have been implemented by government and the private sector to guide land use and support local populations, yet several challenges persist to conserve the remaining natural forests.

### Drivers of deforestation

<b>Tree plantations</b> 	Pulp and wood plantations developed in Indonesian Borneo reached about 5.9Mha in 2014. Much of this expansion has been in lowland forests in West and East Kalimantan <sup>[1]</sup> . In Indonesian Borneo, the expansion of tree plantations has been declining since the early 2000s with some oscillations <sup>[4]</sup> , but tree plantations have increased since 2010 in Malaysian Borneo <sup>[5, 6]</sup> .
<b>Large-scale oil palm plantations</b> 	Oil palm plantations are an important source of revenue <sup>[1, 7]</sup> , and have expanded in logged forests and peatlands <sup>[8]</sup> . Oil palm covered 2.4Mha in 2005, doubled to 4.9Mha in 2010, and reached more than 7Mha by 2015 <sup>[1]</sup> . The expansion has recently declined from more than half a million hectares annually on average in 2008-2012 <sup>[4]</sup> , but companies hold large forested areas as "land banks" <sup>[9]</sup> .
<b>Smallholder farming</b> 	Expansion of smallholder farming systems and, more importantly, adoption of oil palm by smallholders in Indonesian Borneo have increased pressures on forests <sup>[10]</sup> ; this is also linked to in-migration to palm oil production zones, and plantation workers investing in small-scale oil palm plantations <sup>[11]</sup> . In Sabah state in Malaysian Borneo, smallholder rubber plantations are also leading to deforestation <sup>[6]</sup> .
<b>Fires</b> 	Traditionally used for clearing land, but often spreads into drained peatlands. Some burnt tracts of forest do not recover, and tend to convert into shrubland and grasslands <sup>[12]</sup> . In Sarawak, where oil palm plantations are not allowed to use fire for land clearing, fires are rare.
<b>Transport infrastructure</b> 	There is ongoing expansion of tertiary and local roads into the heart of Borneo. Planned road investment associated with the Pan-Borneo Highway may increase pressure on forests <sup>[13]</sup> . Several hydropower dams have been developed in Sarawak that resulted in localized deforestation where dam reservoirs were created, particularly during the period between 2000 and 2015.
<b>Timber extraction</b> 	Poor forest management of production forest areas often leads to forest degradation. A portion of these forests that have a lower commercial value for timber have been exposed to encroachment and conversion to other land uses, including plantations <sup>[14]</sup> .
<b>Mining</b> 	In Indonesian Borneo, mining operations, mainly for coal, are small in area but have indirect impacts on road expansion and influx of people <sup>[1]</sup> ; dynamics depend on oscillating demand <sup>[15]</sup> . Gold mining is gaining momentum in Sabah (Malaysian Borneo) <sup>[16]</sup> .

- Primary cause of forest loss and/or severe degradation
- Secondary cause of forest loss and/or severe degradation
- Less important cause of forest loss and/or severe degradation

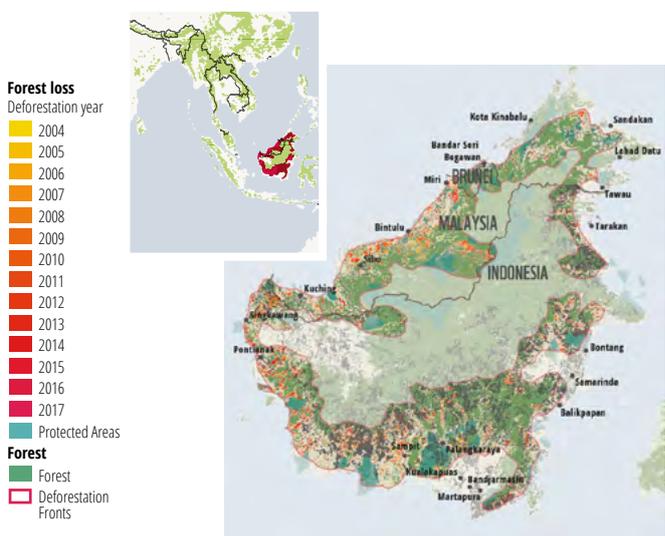
### Underlying causes

Underlying causes differ between Indonesian and Malaysian Borneo. In Indonesia, they are linked to misguided policies and processes of land concession allocation, along with land appropriation involving local elites<sup>[17]</sup>. Foremost among these is the prioritization of mining and plantation licences (considered strategic for national development) over commercial logging in production forests. Investments in mining and plantations, following growing international and domestic demand for commodities (e.g. palm oil, coal), have also fuelled forest conversion, as well as pressures due to in-migration to frontier areas.

<b>Countries, region</b>	Malaysia (Sarawak and Sabah), Indonesia (Kalimantan) and Brunei
<b>Forest type</b>	Humid tropical forests (lowland and upland), montane forest, peat swamp forests
<b>Total area</b>	35.5Mha
<b>Forest area in 2018</b>	21.5Mha (60.7% of total deforestation front area)
<b>Forest loss in 2004-2017</b>	5.8Mha (21.9% of forest area in 2000)
<b>Location of deforestation</b>	In Indonesian Borneo, deforestation is slowing in West and Central Kalimantan, and increasing in East Kalimantan. In Malaysian Borneo, deforestation in absolute terms has been higher in the state of Sarawak <sup>[1]</sup>
<b>Total forest core area in 2018</b>	11.3Mha (52.7% of forests in 2018)
<b>Fragmented forests 2000-2018</b>	3.3Mha (12.4% of forest area in 2000)
<b>Accumulated burned area, 2002-2019</b>	1.2Mha (4.6% of forest area in 2000)
<b>Deforestation trend</b>	Deforestation increased up to 2015, followed by a decrease since then. In Indonesian Borneo, official estimates indicate that deforestation remained between 200,000 ha and 300,000 ha per year between 2000 and 2014, and was around 500,000 ha in 2015 <sup>[2]</sup> , decreasing since then to 150,000 ha in 2017/18 <sup>[3]</sup> .
<b>Future trends</b>	Deforestation may continue expanding, but likely to slower rates

### Main outcomes

Illegal logging has declined due to timber monitoring efforts<sup>[29]</sup>, which have been complemented with increased monitoring of deforestation in Sarawak<sup>[30]</sup>. In Indonesian Borneo, deforestation from industrial oil palm plantations has decreased over time, which results from strengthened law enforcement to prevent forest fires and land clearing<sup>[31]</sup>, and likely from the moratoria on forest and peatland conversion. Certification of oil palm plantations may have contributed to reduced deforestation, but not fire or peatland clearance<sup>[32]</sup>. There has not been any significant fire on peat in Sarawak in recent years due to stringent regulations. In Indonesian Borneo, remaining deforestation is associated with pressure from smallholders and medium-size plantations that do not have zero-deforestation commitments or other voluntary commitments. The difficulty for small- and medium-scale operations to comply with these commitments has called into question their potential to prevent deforestation and peatland conversion at regional scales<sup>[33]</sup>.



## Key responses

<b>Protected areas</b>	The Heart of Borneo is the main conservation agreement to maintain established protected areas and wildlife corridors, and support sustainable management of production forests <sup>[1]</sup> .
<b>Moratoria</b>	The Indonesian government issued a moratorium on new conversion permits in primary forests and peatlands in 2011 <sup>[18]</sup> , and in 2016 enacted a moratorium banning expansion in peatlands <sup>[19]</sup> . Sarawak has announced no more new development on peat and no new licences for timber concessions <sup>[20]</sup> .
<b>Land-use zoning</b>	Provincial governments have developed land-use plans that guide land allocation decisions, accompanied by green growth plans <sup>[21]</sup> . Sarawak has a land-use policy to set aside at least 57% of land to be under permanent forest and protected areas. In Sabah, the land-use policy aims to set aside 30% of land under protected areas and 50% under forest cover <sup>[22]</sup> .
<b>Voluntary standards</b>	The largest palm oil corporate groups have embraced Roundtable on Sustainable Palm Oil (RSPO) certification and deforestation-free commitments, and some have put in place traceability systems to trace third-party suppliers <sup>[14]</sup> . In Sarawak, certification is mandatory for all timber concessions <sup>[20]</sup> .
<b>Timber legality</b>	In 2009, the Indonesia government established a timber legality assurance system known as SVLK. It was recognized as the basis of the EU voluntary partnership agreement that came into effect in 2014 <sup>[13]</sup> . In Sabah, a timber legality assurance system was issued in 2016, and a similar system was issued in Sarawak in 2018 <sup>[23]</sup> .
<b>Mandatory standards</b>	In 2011, the government of Indonesia introduced the Indonesian Sustainable Palm Oil (ISPO) scheme as a requirement for all commercial plantation operators. Progress has varied but ISPO is still very much part of the palm oil sustainability plans. In 2017, the Malaysian government announced that the Malaysian Sustainable Palm Oil standard would be mandatory for all palm oil areas by 2019 <sup>[24]</sup> , yet this deadline was not met and was pushed to 2020.
<b>REDD+ projects</b>	To date, 27 REDD+ projects have been established in Kalimantan, and a few in Sabah, with diverse targets, timelines, scope and operational approaches <sup>[25]</sup> .
<b>Traceability of supply</b>	The main palm oil corporate groups (e.g. Cargill, GAR, Musim Mas, Sime Darby Plantation and Wilmar) issued deforestation-free commitments and put in place traceability systems <sup>[26]</sup> .
<b>Sustainable finance</b>	Several specific projects and initiatives have been implemented at the municipal level to de-risk investments, mainly to support sustainable palm oil supply <sup>[27]</sup> .
<b>Sustainable livelihoods</b>	Several projects exist to enhance land management and agricultural supply and build alternative livelihoods, such as those implemented by IDH in West Kalimantan <sup>[28]</sup> .

■ Deployment at wider scale
 ■ Actively used and expanding
 ■ Project-specific, experimental

## Recommended future actions

- Strengthen the coordination and enforcement of land-use regulations, and continue to constraint expansion of plantations in peatlands.
- Cap the expansion of large-scale plantations in Indonesian Borneo, following the models adopted by governments in Sarawak and Sabah.
- Clarify tenure for local villagers and those settled in public lands, and improve incentives to enhance the productivity and environmental performance of smallholders.
- Implement more active policies supporting local livelihoods and avoiding further land encroachment.
- Integrate support for fire management and alternative livelihoods for local villagers, and build technical, financial and institutional capacity for local villagers to manage and protect their forests.

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