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DUE NEGLIGENCE

WILL A DUE DILIGENCE REGULATION ON ILLEGAL DEFORESTATION DELINK UK SUPPLY CHAINS FROM DEFORESTATION?

ABOUT THIS REPORT

This report summarises an analysis of the UK's proposed deforestation due diligence regulation using analysis of soy from Brazil and palm oil from Indonesia to illustrate the potential advantages and disadvantages of various formulations of a due diligence requirement. Full details of the analysis and methodology can be found in the accompanying technical report.

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Cover Image: © Andre Dib / WWF-Brazil

Large fire burns in the Cerrado, Brazil. David Bebber / WWF-UK

KEY TERMS

Conversion: Change of a natural ecosystem to another land use or profound change in a natural ecosystem's species composition, structure, or function.

Deforestation: Loss of natural forest as a result of: i) conversion to agriculture or other non-forest land use; ii) conversion to a tree plantation; or iii) severe and sustained degradation.

Due diligence: A risk management process implemented by a company to identify, prevent, mitigate, and account for how it addresses environmental and social risks and impacts in its operations, supply chains, and investments.

Forest- and ecosystem-risk commodities: Agricultural and forest commodities whose production is associated with deforestation and the conversion of other natural ecosystems.

SUMMARY

The UK government's proposal of new legislation would make it mandatory for large companies[1] to carry out due diligence to ensure that there is no illegal deforestation in their agricultural and forestry supply chains. Legality would be defined by producer country regulations.

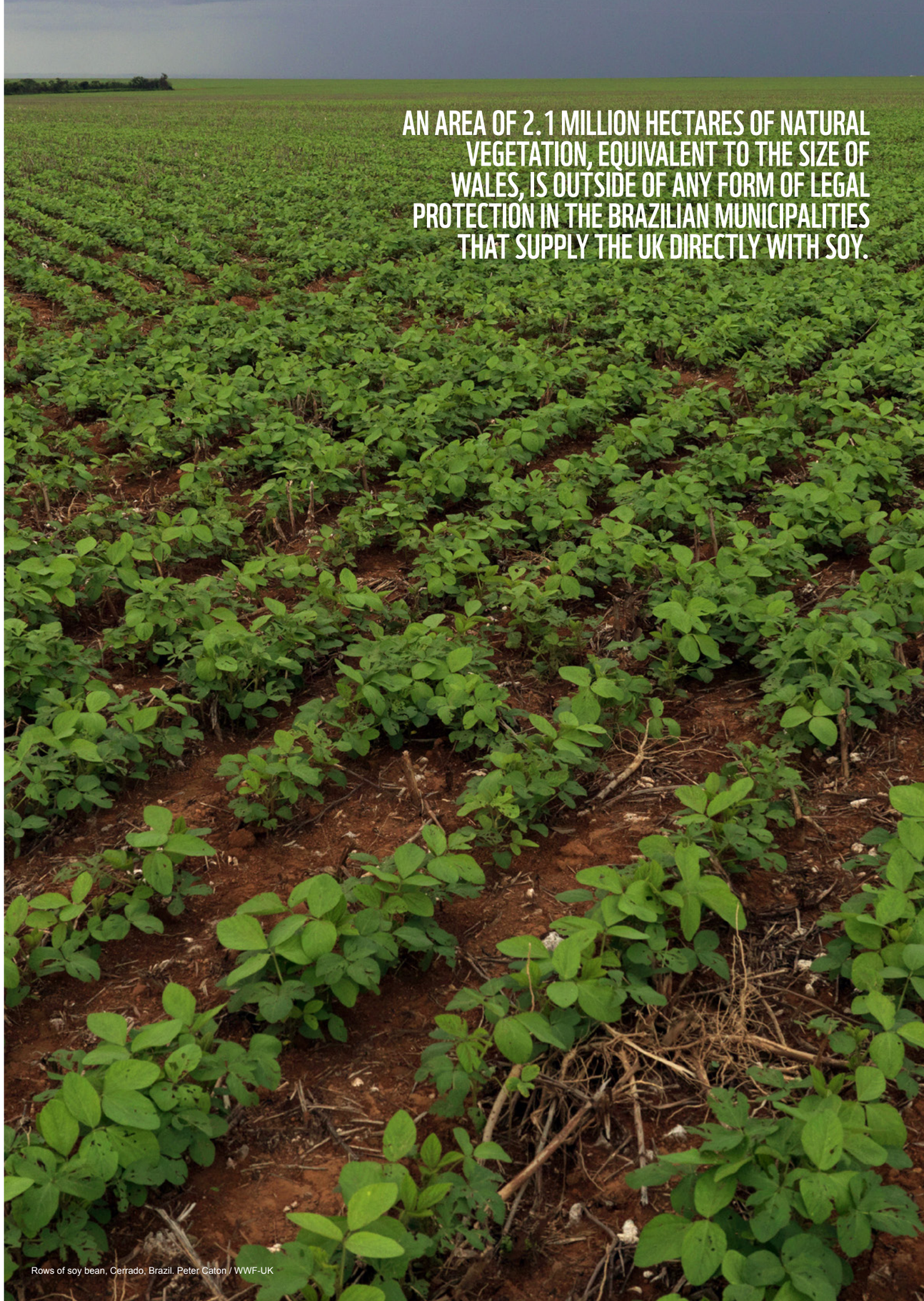
The key findings summarised below concern our assessment of the environmental scope of the due diligence regulation, its focus on legality, and the specific policy formulations required to create an impactful due diligence regulation.

1. A regulation based on excluding illegal deforestation only may have limited impact on the overall conversion associated with UK supply chains. Spatial analysis of the municipalities in Brazil that supply soy directly to the UK show that over 2.1 million hectares of natural vegetation – including forests – could potentially be legally converted. Applying plausible deforestation scenarios implies that conversion of 36-59,000 hectares of this natural vegetation would be attributable to UK supply chains between 2021-2030. Recorded levels of legal compliance in the sector suggest that between 29-42,000 hectares of this conversion could be legal, containing 14-21 million tonnes of above- and below-ground carbon. A regulation based on excluding illegal deforestation may therefore have limited impact on deforestation and conversion associated with UK soy supply chains from Brazil, and on the associated carbon emissions and impacts on biodiversity. In Indonesia, while Indonesian Sustainable Palm Oil (ISPO) certification can provide an indication of whether legality has been met, it does not give any indication whether this was given to a management unit that had been or is currently deforesting or that has adopted zero deforestation commitments and practices within its supply chain. Far from promoting environmental responsibility in supply chains, the proposed legislation falls well below the existing targets and practices of many UK companies that are major users of forest- and ecosystem-risk commodities.

2. A regulation based on illegal deforestation will be harder to implement and enforce than one based on all (legal and illegal) deforestation and conversion, due to the complexity of legal structures in producing countries, the variation in what is defined as legal between countries, and the lack of comprehensive, publicly available data on legality. It is possible to determine whether any producing area is or has been associated with deforestation in near real-time using satellite technology. However, it is rarely possible to ascertain whether that deforestation is legal or illegal. Palm oil imported to the UK from Indonesia is one example of many commodities and producer regions under complex legal frameworks and with limited data transparency. Some oil palm plantation areas have an elevated risk of illegality as they are located on land not designated for agricultural use, but, in most cases, there is no data available publicly or otherwise to determine whether an oil palm plantation that has been created at the expense of forest has been done so legally. To further complicate matters, laws are subject to change. In 2021, bills passing through the Brazilian Congress would, if enacted, retrospectively grant land title to hitherto illegally occupied and deforested public lands. In Indonesia, the Omnibus Law passed in 2020 has paved the way for legalisation of plantations located on land that was previously not designated for oil palm plantations. The proposed focus on ending UK imports of illegally produced commodities would therefore make implementation of the regulation difficult for companies and make enforcement more challenging for authorities, as well as potentially inducing further deregulation in the future. Enforcement would be easier if it was based only on whether deforestation/conversion has occurred, rather than calling for an additional, complex analysis of the legality of such events.

3. Focusing on forests only, rather than all ecosystems, puts those other ecosystems and the people and species that live in and depend on them at risk. In Brazil, 47% of the land outside of legal protection in the 133 municipalities that supply the UK with soy directly is savannah, the predominant vegetation of the Cerrado biome. The Cerrado contains vast quantities of above- and below-ground carbon, is home to nearly 5% of the world's species – many of which are unique to this region – and provides critical ecosystem services on which millions of people depend, being the watershed of at least five major South American rivers.

4. Getting the right model of due diligence and effective penalties for non-compliance matters. There are at least two distinct models of due diligence, which have different consequences for companies and for enforcement. The UK government should initially frame the regulation around a model of due diligence based on specified steps that must be taken before a product is placed onto the UK market. This model provides a more robust basis for detection and enforcement of non-compliance in the case of forest- and ecosystem-risk commodities than the alternative, which is based on continuous improvement. A review of the model should be considered in the medium and long term to ensure other environmental risks are included and properly assessed. Effective, dissuasive penalties must be in place and enforceable for the legislation to have an impact on the behaviour of all companies within the supply chain.



Rows of soy bean, Cerrado, Brazil. Peter Caton / WWF-UK

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Bukit Tigapuluh landscape, Sumatra. Neil Ever Osborne / WWF-US

INTRODUCTION

WHY IT MATTERS

We are facing global biodiversity and climate emergencies, brought about by the destruction of nature and by carbon emissions generated by human activities. As the Dasgupta Review makes clear, urgent and transformational changes to economies, governance and cultures are required if we are to reverse the risk of biodiversity and ecosystem service collapse.[2] The Covid-19 pandemic has highlighted the risk that degrading and converting ecosystems plays in increasing the likelihood of diseases transferring from animals into human populations. We have less than a decade to avoid dangerous climate change: without urgent action now, the consequences will be devastating.

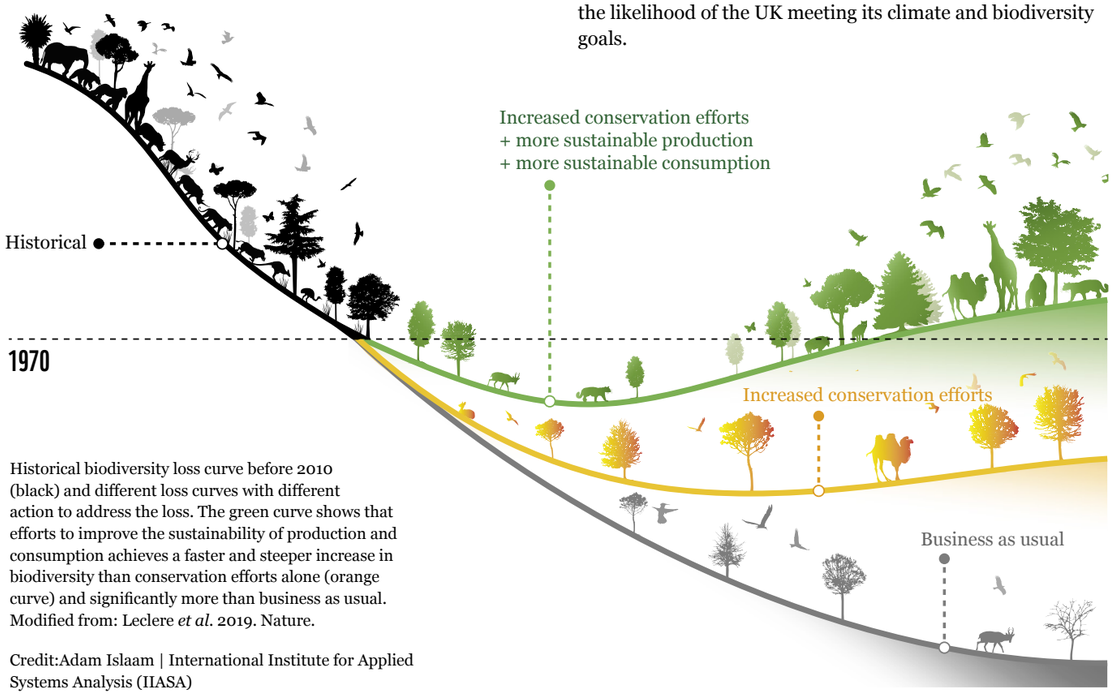
More than a quarter (27%) of all deforestation results from the production of agricultural commodities.[3] Agriculture, forestry and other land use activities account for around 23% of total net anthropogenic carbon emissions.[4]

As a major economy, the UK has a disproportionate footprint on earth systems and biodiversity. Between 2016 and 2018, an average annual area of 21.3 million hectares was required to supply the UK's demand for just seven forest- and ecosystem-risk commodities: beef and leather, cocoa, palm oil, pulp and paper, rubber, soy, and timber.[5] This is equivalent to 88% of the UK's total land area and has increased by 15% since the previous study assessing the period from 2011 to 2015. Twenty-eight per cent of this land area was within countries rated as having a high or very high risk of deforestation and conversion and poor social indicators.

BENDING THE CURVE

WWF recognises that three major changes have to happen to 'bend the curve' of biodiversity loss globally:[6] zero loss of natural habitats, zero species extinction, and halving the footprint of production and consumption globally.[7] 'Bending the curve' will require a wide range of interventions and changes: a recent WWF-UK and 3Keel report shows the UK needs to reduce its global footprint by an estimated 75%. Stopping all deforestation and conversion associated with UK supply chains is an essential step in achieving this.

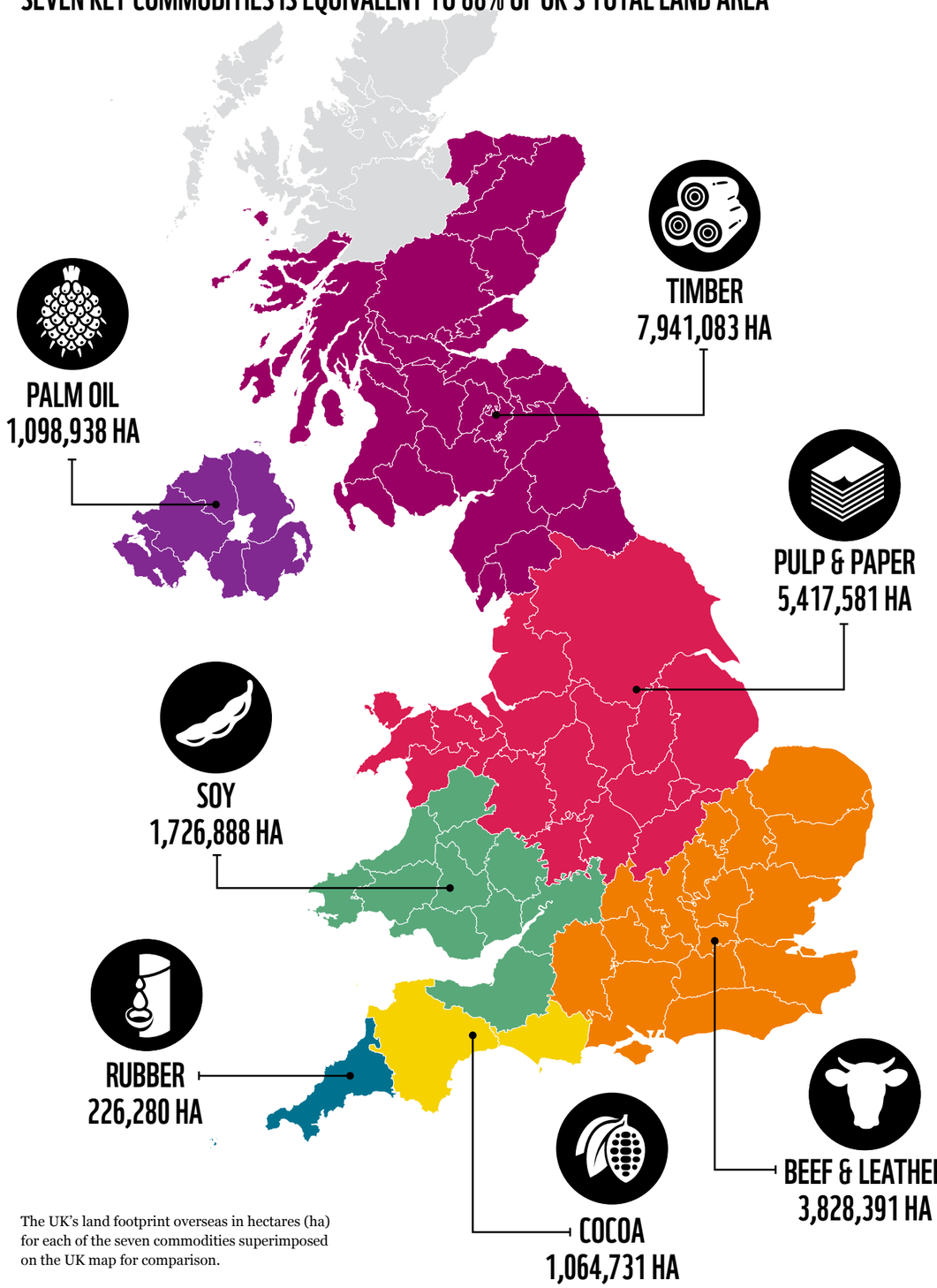
The UK government recognises much of this and is introducing a regulation through the Environment Bill that will make it mandatory for companies to conduct due diligence to exclude material produced via illegal deforestation from agricultural and forestry supply chains. However, the extent to which the current formulation of the regulation will deliver the biodiversity, social, and other environmental benefits required to 'bend the curve' and address carbon emissions is unclear. Specifically, the focus on due diligence on illegal deforestation only, and the focus on deforestation rather than conversion of all ecosystems, could diminish the impact of the regulation, therefore reducing the likelihood of the UK meeting its climate and biodiversity goals.



Historical biodiversity loss curve before 2010 (black) and different loss curves with different action to address the loss. The green curve shows that efforts to improve the sustainability of production and consumption achieves a faster and steeper increase in biodiversity than conservation efforts alone (orange curve) and significantly more than business as usual. Modified from: Leclere *et al.* 2019. Nature.

Credit:Adam Islaam | International Institute for Applied Systems Analysis (IIASA)

THE OVERSEAS LAND FOOTPRINT REQUIRED TO MEET OUR DEMAND FOR JUST SEVEN KEY COMMODITIES IS EQUIVALENT TO 88% OF UK'S TOTAL LAND AREA



The UK's land footprint overseas in hectares (ha) for each of the seven commodities superimposed on the UK map for comparison.

Source: WWF-UK and RSPB. 2020. Riskier Business: The UK's Overseas Land Footprint.

THE OPPORTUNITY

POLICY CONTEXT

In *A Green Future: our 25 Year Plan to Improve the Environment*,[8] the UK government articulates an ambitious set of goals and actions for the UK, including committing that '*our consumption and impact on natural capital are sustainable, at home and overseas*'. This statement of intent, and the draft indicator that has been developed to monitor deforestation embedded in UK supply chains,[9] support the UK's international commitments on climate, nature and people, including the Sustainable Development Goals, the Paris Agreement, the Aichi Biodiversity Targets, the New York Declaration on Forests, the Amsterdam Declaration and the Leaders' Pledge for Nature.

In 2019, the Global Resource Initiative (GRI) Taskforce was launched by the UK government, and proposed a suite of actions to achieve sustainable supply chains for food and forestry products, free from deforestation and land conversion. Among the GRI Taskforce's recommendations was '*The government urgently introduces a mandatory due diligence obligation on companies that place commodities and derived products that contribute to deforestation on the UK market and to take action to ensure similar principles are applied to the finance industry*'. The Taskforce also recommended that the government should introduce a legally binding target to end deforestation within UK agriculture and forestry supply chains by 2030 at the latest.

The withdrawal of the UK from the European Union has necessitated the development of environmental regulations to replace the EU legal frameworks that previously applied to the UK. This has resulted in the drafting of the Environment Bill, which, at the time of writing (July 2021), is in in the House of Lords at committee stage and is expected to pass into law by the end of 2021. Relevant secondary legislation will be developed over the coming year.

Included within the Environment Bill is a draft deforestation due diligence regulation, which would place a mandatory requirement on companies above a certain size to conduct due diligence to ensure that the forest-risk commodities that are imported into the UK are not associated with illegal deforestation. Legality would be defined by producer-country regulations governing the protection of forests and other natural ecosystems.

As the UK is looking into options to address the issue of deforestation embedded in commodity supply chains, other major importers of forest- and ecosystem-risk commodities are doing likewise. In the United States, a draft bill authored by Senator Brian Schatz would prohibit companies from importing commodities that are produced on illegally cleared land. The mechanism would be implemented through a reporting requirement and a "reasonable care" standard. The regulation would apply to imported soy, cattle, palm oil, cocoa and rubber initially, and draws heavily on the US Lacey Act.[10] In June 2021, the California Assembly passed a bill that requires contractors supplying forest products to the state to have policies to prevent forest loss and guarantee Indigenous Peoples the right to free, prior and informed consent (FPIC) for any operations on their traditional territories.

Meanwhile, the European Commission has committed to publish a legislative proposal to minimise the risk of deforestation and forest degradation associated with products placed on the European Union market. The proposal is likely to include a range of mandatory measures, including due diligence and a deforestation-free requirement for market access, alongside voluntary measures.[11]

The private sector has not been waiting for government action to adopt measures towards eliminating deforestation from its supply chains either. As part of this research, we assessed the deforestation commitments of 23 major UK and EU importers, UK manufacturers and retailers of soy and palm oil products. Seven (30%) had a commitment to eliminate either conversion of all ecosystems or conversion of any natural forest from their supply chains, and a further 11 (48%) had commitments to eliminate net deforestation or conversion of specific types of forest. Five companies had no public commitment to eliminate deforestation from their supply chains. However, even those companies that are working to eliminate deforestation need policy and legislation to reinforce their voluntary actions and to ensure that the same rules apply to all actors.

In addition, the UK's exit from the EU represents a critical juncture for shaping future impacts of UK trade on the environment. As the UK negotiates a different relationship with the European Union and the rest of the world, there are unparalleled opportunities to ensure that robust environmental and social standards are central to trade agreements and trade policy, and significant risks in not doing so. As president of the upcoming United Nations Framework Convention on Climate Change Conference of Parties (UNFCCC COP26), and convenor of the Forest, Agriculture and Commodity Trade (FACT) Dialogue, the UK has an opportunity to demonstrate environmental leadership and bring other nations along towards transformative solutions to halt deforestation and land conversion and ensure a fair transition to sustainable production.

POLICY ANALYSIS

The wording and design of the deforestation due diligence regulation has critical implications for its implementation and effectiveness. The impact of the due diligence regulation will be affected by factors including how due diligence, deforestation and conversion are defined, the nature of the requirements on companies, the type and the size of companies, the ecosystems and commodities covered, the sanctions or incentives, and the measuring and enforcement of compliance. Much of this detail is to be set in secondary legislation following the Environment Bill receiving Royal Assent, and so is currently unknown.

SCOPE OF COMPANIES

A clear definition of the scope of companies that must comply with the regulation will be crucial. Current wording of the draft regulation suggests the definition will be based on a combination of turnover, balance sheet (i.e., its assets, liabilities and shareholders' equity) and number of employees. However, a more meaningful definition would be based on the quantities (or value) of deforestation and ecosystem-risk commodities that a company trades, which would most directly correlate with the deforestation risk that a company's activities pose.

SCOPE OF COMMODITIES

The scope of commodities included under 'forest and ecosystem-risk commodities' must be as broad as possible and encompass all of the major drivers of deforestation and habitat conversion. In the current regulation wording, the list is to be defined in regulations made by the Secretary of State. If a limited number of commodities are within scope of the legislation, the impacts of the regulation will be concomitantly limited. In addition, there are some crucial potential gaps in the current discussed wording; a product is not covered if it is used for renewable transport fuel, and, according to a transcript of a recent debate of the Bill, cattle ranching is only "likely to be considered for inclusion" despite being a main driver of deforestation and habitat conversion.

DEFINING 'DUE DILIGENCE'

There are two main models of due diligence: i) as a market obligation, which requires actors to conduct supply chain due diligence before placing a product on a market (e.g. the EU Timber Regulation); and ii) as a process of corporate improvement, in which actors must identify and progressively address risks in their supply chains (e.g. the French Devoir de Vigilance law). Both interpretations have strengths and weaknesses. The first option provides a more robust basis for detection and enforcement of non-compliance but may unfairly affect smaller suppliers for whom the bureaucratic burden of proving compliance is proportionately higher. The second option gives an 'early movers' advantage to those companies that already have good policies and processes in place and means that there is not a proliferation of due diligence approaches for different products or environmental risks. However, enforcement is more challenging. The definition that is adopted must fundamentally be reflected in how the due diligence regulation is applied and enforced, including the requirements that are placed on companies. The regulation should be initially framed around the former, a model of due diligence based on specified steps that must be taken before a product is placed onto the UK market, given the nature of the risks it covers. Nevertheless, a review of the model should be considered in the medium and long term to ensure that other environmental risks are included and properly assessed.

PENALTIES AND ENFORCEMENT

Effective due diligence regulation depends on penalties that are effectively dissuasive. Fines are commonly discussed as the main penalty mechanism but will only work if proportionate and scaled sufficiently to make infringement economically risky to even the largest actors. This has not been the case with the EU Timber Regulation.[12] A more effective approach may be measures of supply chain disruption such as a suspension of authorisation to trade or a block on a company's imports similar to those associated with the US Tariffs Act. A due diligence regulation based on corporate improvement may especially need a strong instrument of enforcement to ensure that compliance translates to tangible action and impacts on the ground rather than just reporting.

Rhinoceros Hornbill (*Buceros rhinoceros*), Borneo. Martin Harvey / WWF

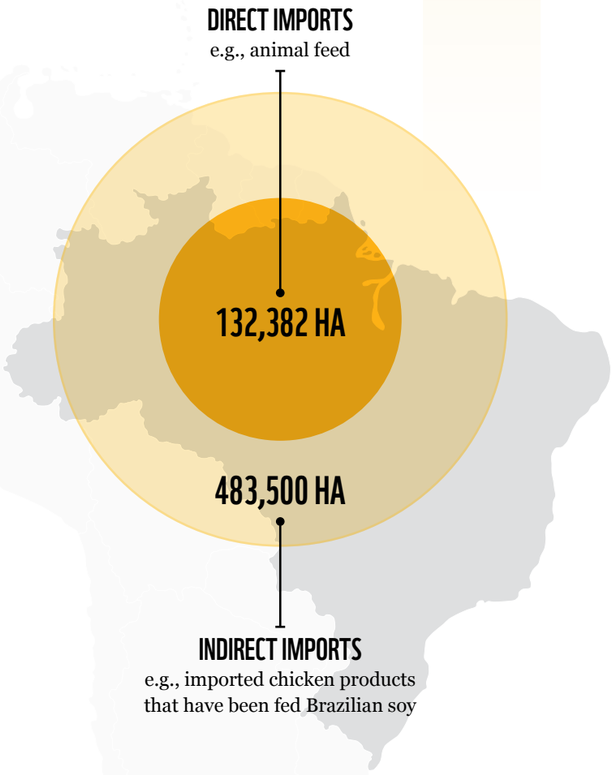
SOY FROM BRAZIL

Brazil is the second largest source of soy to the UK market, after Argentina. The UK imported 465,341 tonnes (soybean equivalent) of soy directly from Brazil in 2018, requiring 132,382 hectares of land to produce.[13] However, when indirect imports (via trader countries) and embedded imports (e.g. imported chicken products that have been fed soy) are included, the land area in Brazil required to satisfy the UK's demand rises to nearly 483,500 hectares.[14] At least 75% of the UK's imported soy is either embedded in imported meat, eggs and dairy or is used for animal feed.

465,341 TONNES

of soy directly from Brazil in 2018 - mainly for animal feed

LAND AREA REQUIRED TO PRODUCE UK SOY IMPORTS...

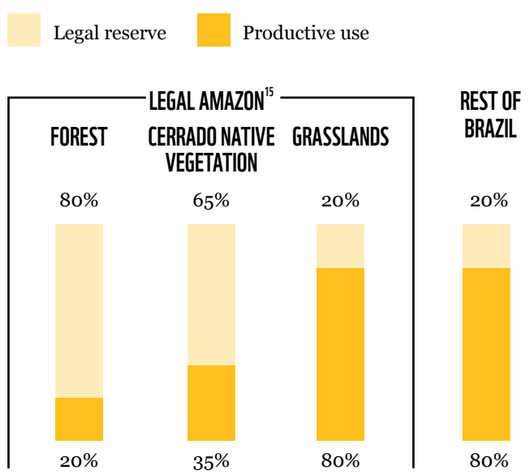


METHODS

The Brazil Forest Code – the major legislation governing private rural land use in Brazil – requires each landholding to be registered on the 'Cadastro Ambiental Rural' (CAR). Any deforestation and conversion on unregistered land would de facto be considered illegal. Further, each landholding must include Areas of Permanent Protection (APPs) where natural vegetation must be retained to protect water bodies, steep slopes, marshes etc. Finally, an additional area of natural vegetation must be retained as a 'Reserva Legal' (Legal Reserve), the extent of which depends on which biome the landholding is in (Table 1).

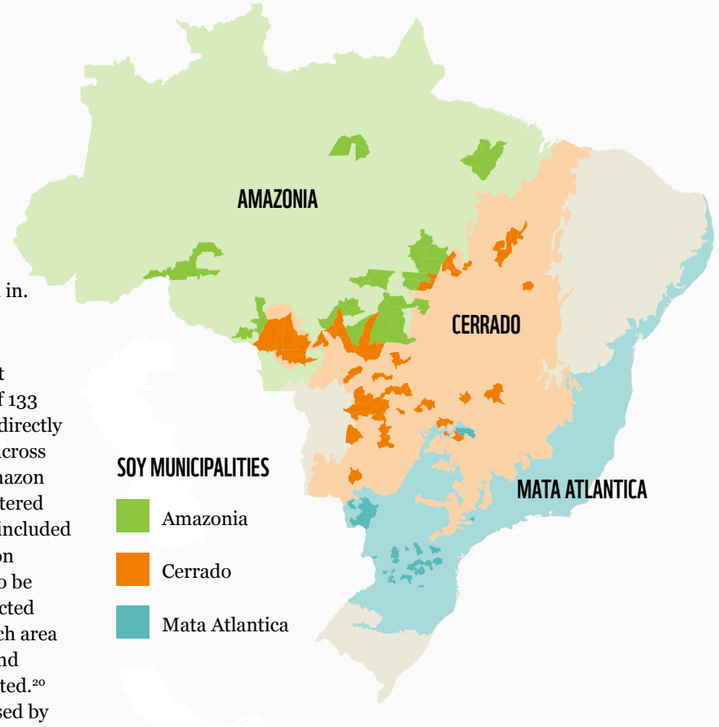
LEGAL RESERVE THRESHOLDS

Table 1: The legal requirement under the Forest Code for the size of a legal reserve depends on where a property is located.



MAP OF 133 MUNICIPALITIES WITH BIOME OVERLAY

The municipalities that directly supply the UK with soy and the biome they are located in.



Spatial analysis was used to assess the area that could potentially be legally converted in each of 133 municipalities from which the UK sourced soy directly from Brazil.[16] These municipalities are spread across 12 States, predominantly located within the Amazon and Cerrado biomes. Each of the 299,022 registered landholdings within these municipalities were included in the analysis.[17] The extent of natural vegetation above the biome-specific proportion required to be Legal Reserve and outside other forms of protected area[18] was estimated. The vegetation type of each area was recorded,[19] and the above- and below-ground carbon stored in that natural vegetation estimated.[20] The potential impact on biodiversity was assessed by enumerating the number of Critically Endangered, Endangered and Vulnerable species present in the 12 States.[21]

It is important to note that conversion of vegetation into agricultural land, even if it is unprotected by the provisions of the Forest Code, is not automatically legal. Two further steps are required for legal compliance: 1) a licence to clear native vegetation must be obtained, and 2) conversion of natural vegetation in medium and large landholdings above the proportion allowed that occurred before July 2008 must be compensated by restoration, or by payment to another landholding to retain the equivalent extent of natural vegetation. Unfortunately, there is no comprehensive publicly available data relating to these two legal elements. For example, research efforts to obtain information on clearing licences across 11 Brazilian States resulted in usable information covering just 5% of the deforestation in those States.[22] The unprotected vegetation identified in this research is therefore more correctly thought of as a maximum possible extent of legal deforestation: in reality, some of this could not or would not be converted legally.

To estimate the potential contribution of UK soy supply chains to deforestation and conversion in Brazil between 2021 and 2030, the natural vegetation outside any form of legal protection was then assessed against two plausible conversion scenarios and two legal compliance scenarios (Table 2). The portion of each deforestation and legal compliance scenario that could be attributed to the UK's soy supply was estimated to be 0.13% of all deforestation and conversion in Brazil, from the area of Brazilian deforestation attributed to the UK's soy imports in 2017[23] divided by the total loss of natural vegetation in that year.[24]

Table 2: Deforestation/conversion and legal compliance scenarios used to generate estimated legal and illegal deforestation and conversion from the UK's soy supply chains in Brazil

Scenarios		Value	Rationale for scenario values used
Deforestation/ conversion scenario[25]	High	0.75% yr^{-1}	Average of the three highest annual rates of natural vegetation cover loss between 1985-2019
	Medium	0.44% yr^{-1}	Median rate of natural vegetation cover loss between 1985-2019
Legal compliance scenario	Medium compliance	78.5%	3.7 M ha of 17.2 M ha of soy planted was on registered landholdings between 2016 and 2017 was potentially illegally deforested
	Low compliance	5%	95% of deforestation in soy farms in Mato Grosso State was found to be illegal in 2019.

KEY FINDINGS

How much deforestation is likely to happen in the UK's Brazilian soy supply chain by 2030?

30.4 million hectares of natural vegetation is present in the 133 municipalities that supply the UK directly with soy.[28] This vegetation holds an estimated 1.04 billion tonnes of above- and below-ground carbon. Seventy one per cent of the area of vegetation is forest (21.5 million hectares), 21% savannah (6.2 million hectares), and almost all the rest is natural grassland (2.5 million hectares, 8%).

An area of 2.1 million hectares of natural vegetation is outside any form of protection. This is 6.8% of the total remaining natural vegetation in the municipalities and is equivalent to the area of Wales. This represents the maximum possible extent of legal deforestation and conversion.

Depending on the rate of deforestation and conversion in Brazil under the different scenarios, conversion of 36-59,000 hectares of natural vegetation would be directly attributable to UK supply chains between 2021 and 2030. This vegetation stores 18-30 million tonnes of above- and below-ground carbon, equivalent to between 4-7% of the UK's current annual domestic GHG emissions.[29]

... how much of this deforestation and conversion could be illegal?

Estimates of the legal loss of natural vegetation under the medium legal compliance scenario are between 71-79%, depending on the rate of deforestation and conversion. This suggests that legislation focusing on illegal deforestation would fail to capture 29-42,000 hectares of deforestation and conversion in UK supply chains (Figure 1), and 14-21 million tonnes of above- and below-ground carbon. This legal compliance scenario is based on a Brazil-wide study of soy, and hence perhaps represents the most likely level of compliance.

Under the low legal compliance scenario, an estimated 4.5-5% would be legally converted, leaving 35-56,000 hectares illegally converted. The above- and below-ground carbon stored in this converted vegetation would be 17-29 million tonnes (illegal) and 0.9-1.4 million tonnes (legal). In this scenario, a regulation focusing on illegality would capture most conversion and associated carbon emissions. However, it should be noted that this scenario is derived from research in one single State, Mato Grosso, and the rates of illegality detected there may not apply throughout the country.

How much of the converted land is likely to be 'forest'?

The difference in the proportion of the savannah vegetation remaining within the municipalities (21%) and that which is outside of any protection and therefore theoretically available for conversion (47%) indicates that savannah is disproportionately threatened by conversion (Table 3). By contrast, natural forest is 71% of the remaining vegetation within the municipalities, representing 35% of the unprotected area. These figures represent vegetation formations, irrespective of biome.

Table 3: Area of natural vegetation remaining in the 133 study municipalities in 2019, and the area of vegetation without protection, by vegetation type

	Total Remaining vegetation		Unprotected vegetation	
	Area (ha)	**%**	**Area (ha)**	**%**
Forest	21,532,797	(71%)	723,580	(35%)
Grassland	2,527,065	(8%)	358,670	(17%)
Savanna	6,249,680	(21%)	968,021	(47%)
Other	123,114	(0%)	5,533	(0%)
Total	**30,432,655**		**2,055,804**	

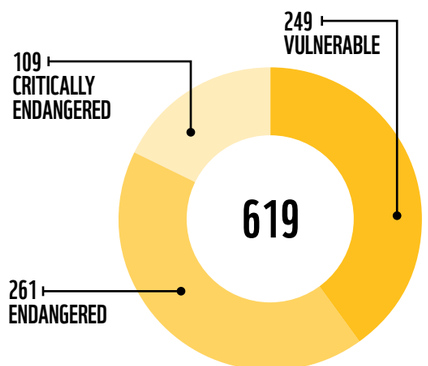
What could be the impacts on biodiversity?

The Brazilian States containing the municipalities studied are home to at least 2,462 species of plants and animals.[30] A quarter of these are categorised in the highest conservation risk categories: Critically Endangered (109 species), Endangered (261) or Vulnerable (249), mostly due to habitat destruction through logging and/or the expansion of agriculture. Six of the Critically Endangered species are possibly extinct, with a further two possibly extinct in the wild.

Among these threatened species are a number of iconic and well-known species, including the giant anteater (*Myrmecophaga tridactyla*), the brown howler monkey (*Alouatta guariba*), the black-faced spider monkey (*Ateles chamek*), the giant armadillo (*Priodontes maximus*), and mahogany (*Swietenia macrophylla*). These states are is also home to endemic species that are at risk of extinction, including two of the world's most threatened bird species: the Brazilian merganser (*Mergus octosetaceus*) and the blue-eyed ground dove (*Columbina cyanopis*). There are also 308 species (12.5% of the total) for which there is insufficient knowledge to be able to categorise their threat status. Ongoing conversion of the habitat of these and other threatened species will only increase the risk that these species become extinct.

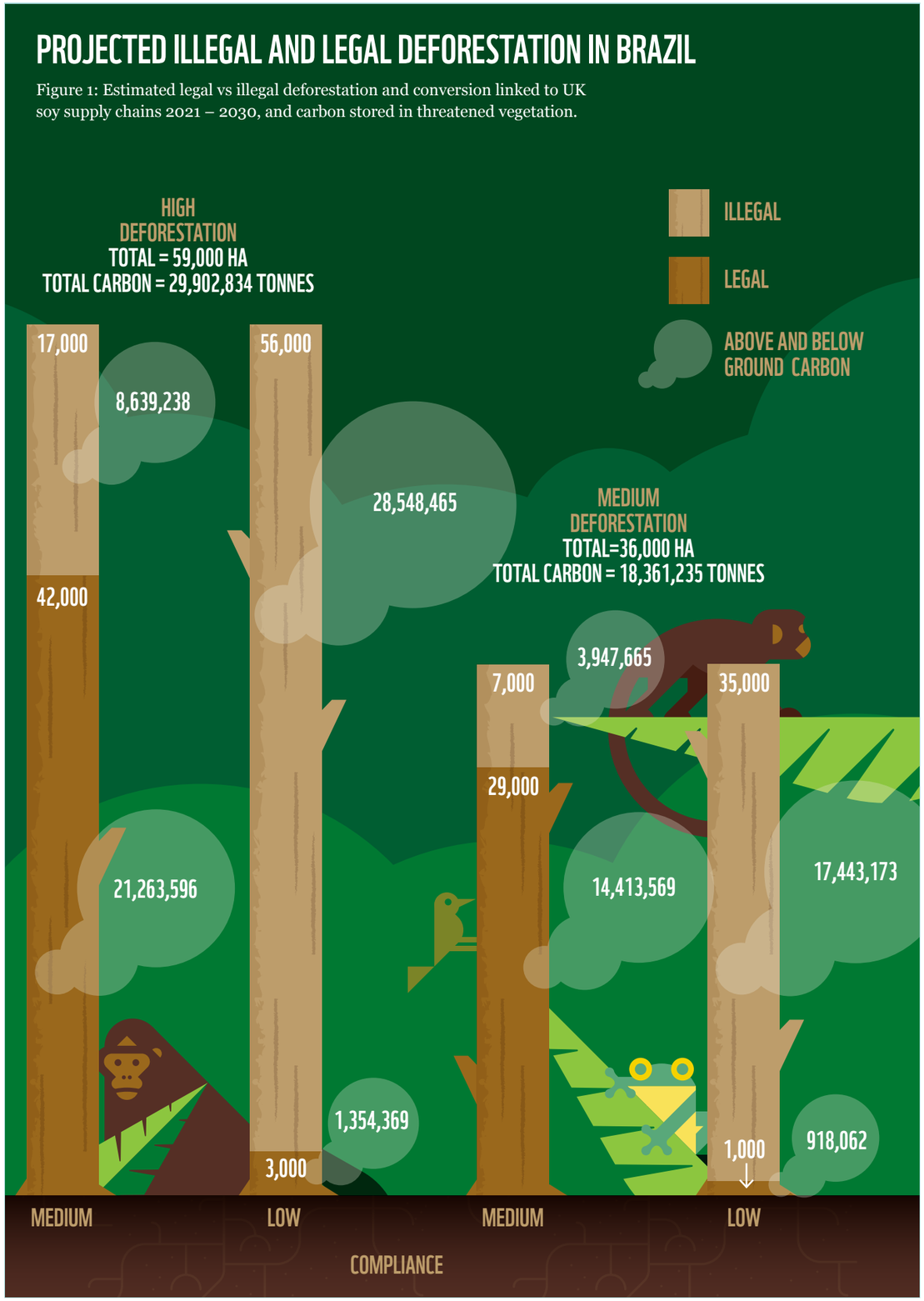
THREATENED SPECIES

Number of threatened species in Brazilian states containing municipalities studied according to IUCN Red List.



PROJECTED ILLEGAL AND LEGAL DEFORESTATION IN BRAZIL

Figure 1: Estimated legal vs illegal deforestation and conversion linked to UK soy supply chains 2021 – 2030, and carbon stored in threatened vegetation.



PALM OIL FROM INDONESIA

42%

of palm oil imported into the UK comes from Indonesia

On average 1.2 million tonnes of palm oil, palm kernel oil, derivatives and palm kernel meal were imported into the UK every year between 2016 and 2018, a 3% increase from an assessment using data from 2011-15. Forty-two per cent of this came from Indonesia, either directly or embedded within imported manufactured goods, making Indonesia the predominant supplier of oil palm products to the UK.[31]

Although 77% of the crude and refined palm oil entering the UK directly is certified according to the Roundtable on Sustainable Palm Oil (RSPO) standard, there is no data available on the certification status of palm kernel meal, derivatives, or finished goods, and so only about 28% of the total volume of oil palm products are known to be certified. The RSPO, in principle, seeks to reduce the risk of illegal and unsustainable practices. However, a large proportion of the UK's RSPO certified imports are either "mass balance" certified or have RSPO credits,[32] which means that part or all of the material imported under these mechanisms has no guarantee of being deforestation- or conversion-free.

The Indonesian oil palm sector has made considerable strides towards increased legality and sustainability, with over 2.2 million hectares of RSPO certified plantations[33] out of a total of approximately 16.4[34] million hectares in the country. In addition, the Indonesian government has made significant efforts to verify the legality of oil palm plantations, through the introduction and subsequent revision of the Indonesian Sustainable Palm Oil (ISPO) standard. While ISPO certification can provide an indication of whether legality has been met, it does not give any indication of whether this was given to a management unit that had been or is currently deforesting or that has adopted a zero deforestation commitment in its supply chain.

METHODS

Assessing the legality of deforestation and conversion in Indonesia presents a different challenge to Brazil, for two reasons. Firstly, there are a plethora of legal instruments governing forest conversion – at least 22 in Sumatra alone,[35] as well as the customary (adat) legal system. Secondly, almost no information on legal compliance is available publicly.

As a consequence, the assessment of deforestation in Indonesia focuses on a subset of specific risks of illegal deforestation, rather than assessing how much land might be converted in the future. Geographically, the focus of this study is on Sumatra and Kalimantan, areas of Indonesia that both supply significant volumes of palm oil to the UK, and which also have high rates of deforestation.[36]

The analysis combined publicly available information on the location of oil palm plantations,[37] Indonesian spatial land use plans,[38] protected areas,[39] and peat lands[40] to identify areas where there is a significant risk that plantations might have been created through illegal deforestation by being in land classes that are not designated for oil palm cultivation. This does not imply that oil palm plantations in protected areas or in areas that are specified for other land uses are illegal, nor that oil palm plantations in places designated for palm oil cultivation are in compliance with all aspects of the laws governing deforestation. It does, however, illustrate the type of process that a UK company trying to comply with a UK due diligence regulation might have to conduct to prioritise where further information may be needed to verify legality.

KEY FINDINGS

The combined oil palm maps from 2017 and 2019 suggest a total area of oil palm plantations of 4,530,200 hectares in Kalimantan and 7,802,600 hectares in Sumatra, 8% and 15% of the total land areas respectively (Figure 2).

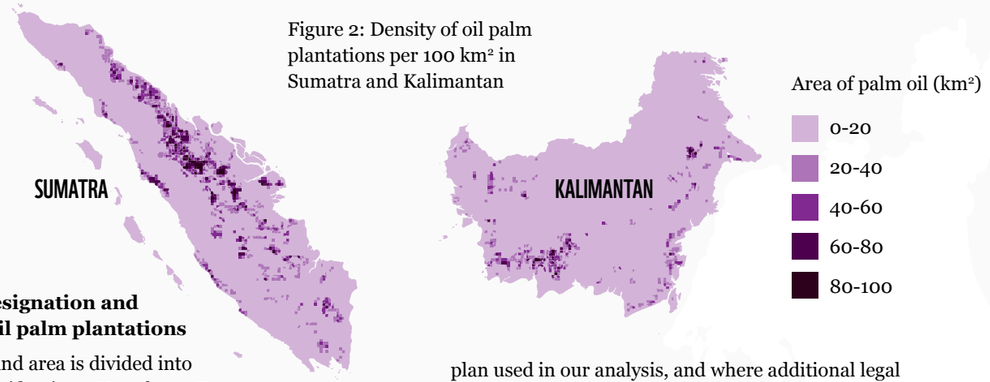


Figure 2: Density of oil palm plantations per 100 km² in Sumatra and Kalimantan

Land use designation and legality of oil palm plantations

Indonesia's land area is divided into two basic classifications: Non-forest Estate (Areal Penggunaan Lain, APL) and Forest Estate (Kawasan hutan). APL is intended for activities such as agriculture and settlement, whereas cultivating oil palm on Forest Estate lands is illegal without a decree from the Ministry of Environment and Forestry for the Forest Estate to become recategorized. In addition to the land use designation, there are numerous other laws concerning the legality of forest conversion.[41] However, data on compliance with these various additional legal instruments is not publicly available.

Non-forest areas (APL) are intended for activities such as oil palm cultivation, and therefore plantations here have a lower risk of illegality on the basis of land use designation. A total of 3,071,000 hectares (68%) of the oil palm plantations in Kalimantan and 4,097,600 hectares in Sumatra (53%) are located within APL, where oil palm cultivation is legally allowed based on land use designation, but where additional licences are required to make deforestation that may have occurred in developing the plantation legally compliant. Data on these additional legal processes is not publicly available. It should also be noted that APL in parts of Indonesia still contains extensive natural forest.

Land areas where oil palm cultivation is less likely to be legal according to land use designation include plantations on peatlands, on areas that are not designated for palm oil plantations under Indonesia's spatial land use plans, and areas that are protected for nature conservation.

A total of 1,401,800 hectares (31%) of the oil palm plantations in Kalimantan and 3,522,000 hectares in Sumatra (45%) lie within Convertible Production Forest (HPK), Permanent Production Forest (HP) or Limited Production Forest (HPT). Plantations in these land use designations, which are part of the Forest Estate, are not permitted unless the land use designation has been formally changed after the land use plan used in our analysis, and where additional legal processes are still required to make deforestation legally compliant, data on which is not publicly available. This area therefore represents the proportion of oil palm plantations where there is an elevated risk that any deforestation and/or conversion that has occurred could be illegal, not that deforestation in these areas is necessarily illegal.

Peatlands

Peat swamp forest vegetation is a critically endangered category of forested wetland characterised by deep layers of peat soil and highly acidic water. Few species are confined solely to this ecosystem, but it nonetheless provides habitat for several globally threatened species. At one time, Indonesia held approximately half of the world's tropical peatlands, but their extent has diminished through conversion for agricultural and plantation forestry. Clearance and drainage of peatlands results in the oxidation of the carbon-rich soil, which contains up to 1,550 tonnes of carbon per hectare.[42]

There are at least three legal instruments governing the conversion of peatlands to agriculture, including palm oil, in addition to the broader provisions governing forest conversion.[43] A total of 404,300 hectares of oil palm plantations in Kalimantan are on peatland (8% of the total peatland area), with a further 1,216,000 hectares in Sumatra (19%, Figure 3). Conversion of peatland to oil palm cultivation may be legal if, for example, the area is located in APL, the original peat depth was less than 3 metres, and the conversion happened before the Presidential Instruction in 2015. However, the presence of three legal instruments, including an outright suspension of new oil palm plantation permits, means that recent oil palm plantations on peatlands have an elevated risk of illegality. Legal or not, the detrimental impacts of converting peatlands, including carbon emissions and biodiversity loss, are disproportionately high.[44]

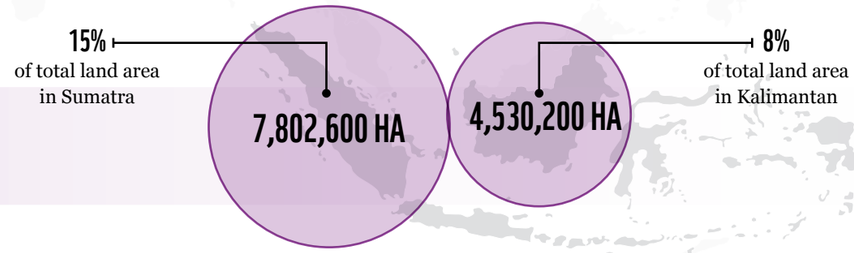
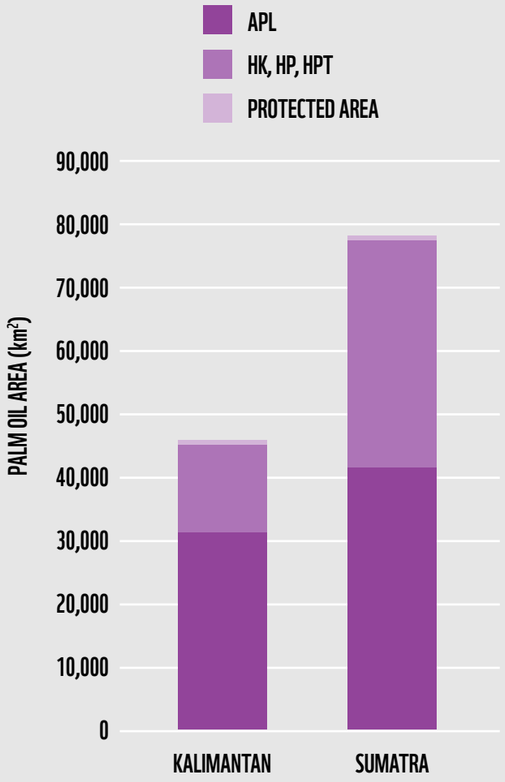


Figure 3: Oil palm areas plantations within APL, Areas not intended for cultivation (HK, HP and HPT) and Protected Areas.



Protected Areas

An estimated 56,800 hectares of oil palm plantations in Kalimantan and 186,800 hectares in Sumatra are within protected areas in the combined layer of the World Database on Protected Areas and areas designated as protected in the Indonesia legal classification (Figure 3). This represents 0.5% of Kalimantan's and 1.7% of Sumatra's total protected land areas.

WHAT COULD BE THE IMPACT OF DEFORESTATION AND CONVERSION ON CARBON EMISSIONS?

A fully mature oil palm plantation stores around 91 tonnes of carbon per hectare. If grassland, agricultural land or scrubland is converted to a plantation, the end result is likely to be no carbon loss or net carbon capture.[45] However, the picture changes dramatically if other natural vegetation types are converted to oil palm plantations, which is important because historically, the majority of oil palm plantations were established on forest.[46] Unlogged Asian tropical forests store up to 400 tonnes of carbon per hectare above ground, with additional carbon stored in mineral soils. Logged forest contains between 100-250 tonnes of carbon above ground. If the original habitat were peat swamp forest, then a soil carbon stock as high as 1,550 tonnes per hectare would be added to emissions, from the oxidisation of drained peat.[47] In short, the conversion of forest on any soil and of any vegetation on peat soil into oil palm plantations results in high carbon emissions.[48]

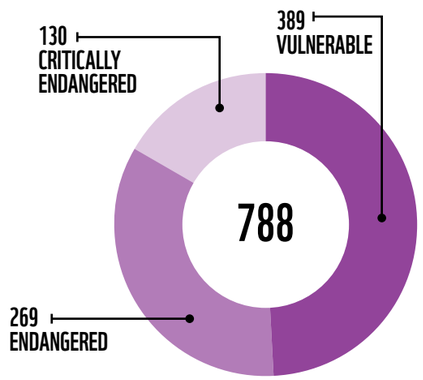
WHAT COULD BE THE IMPACT OF DEFORESTATION AND CONVERSION ON BIODIVERSITY?

Kalimantan and Sumatra are among the most biodiverse places on Earth. According to the IUCN, they contain at least 3,371 species of plants and animals. Seven hundred and ninety-one species (23%) are categorised in the highest conservation risk categories: Extinct in the Wild (3), Critically Endangered (130), Endangered (269) or Vulnerable (389). Fifteen of the Critically Endangered species are possibly extinct. The predominant threats to most of these species are habitat destruction through logging and/or the expansion of agriculture, and exploitation. Conflicts between people and wildlife which have lost habitat and food for survival have been increasing.

Among these threatened species are a number of iconic and well-known species, including the tiger (*Panthera tigris*), the Asian elephant (*Elephas maximus*), the Malay tapir (*Tapirus indicus*), the banteng (*Bos javanicus*), the Sunda clouded leopard (*Neofelis diardi*) and the titan arum (*Amorphophallus titanum*). There are also more than 498 species (15% of the total number of species) for which there is insufficient knowledge to be able to categorise their threat status. In Sumatra, extinctions of local elephant, orangutan, tiger and rhino populations have been recorded and linked to deforestation, regardless of the legality. Further conversion of habitats will exacerbate the threats to species that are already in a precarious situation.

THREATENED SPECIES

Number of threatened species in Kalimantan and Sumatra according to the IUCN Red List.




Sunda clouded leopard (*Neofelis diardi*), Kalimantan. Alain Compost / WWF

FURTHER CONVERSION OF HABITATS WILL EXACERBATE THE THREATS TO SPECIES THAT ARE ALREADY IN A PRECARIOUS SITUATION.

POLICY IMPLICATIONS

This research demonstrates that focusing a due diligence requirement on locally-defined illegal deforestation may have a marginal effect on reducing the UK's contribution to ecosystem destruction, biodiversity decline and greenhouse gas emissions abroad under the most plausible deforestation, conversion and legal compliance scenarios. The research findings have direct implications for both the formulation and implementation of a UK due diligence obligation. Moreover, the consequences of the UK implementing a narrow law could compromise its position as an environmental leader as COP president and could potentially influence other countries and the EU in lowering the ambition of their own legislative proposals.

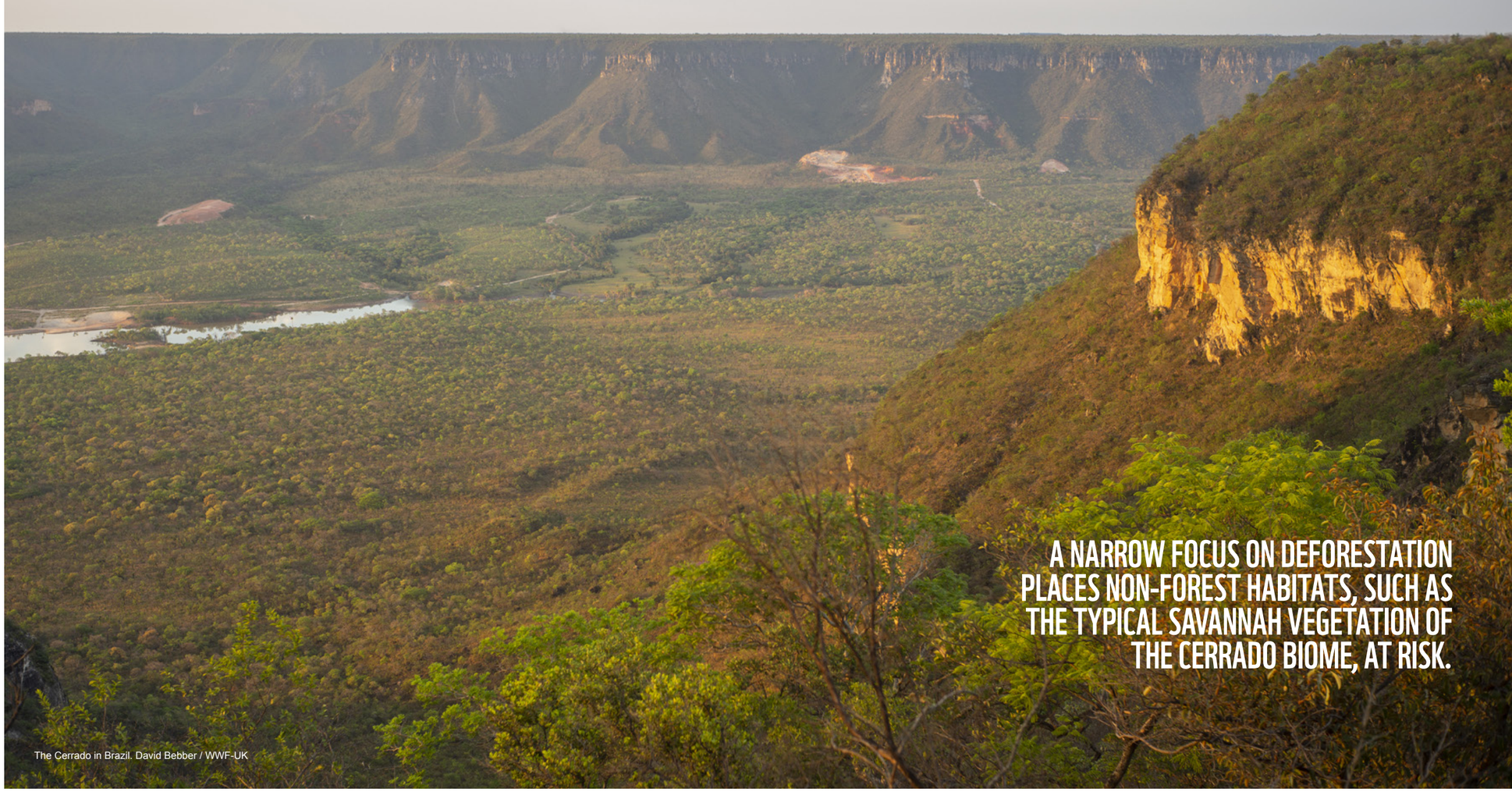
POLICY FORMULATION

Focus on conversion and degradation of *all* natural ecosystems

Forest formations account for 71% of the remaining natural vegetation in the UK's direct sourcing areas in Brazil. The majority of the rest is savannah vegetation, and this vegetation is proportionally by far the most extensive vegetation type without legal protection in the studied municipalities (47%). It is also important to note that the Brazil Forest Code does not distinguish between forest and non-forest – all natural vegetation types (forest, savannah, grassland etc.) are given identical protection within each biome (Table 1). A narrow focus on deforestation places non-forest habitats, such as the typical savannah vegetation of the Cerrado biome, at risk. A more appropriate approach would be to define the scope as deforestation and conversion of other natural ecosystems, ensuring that these are defined according to the Accountability Framework Initiative's definitions.[49] Degradation of ecosystems caused by pollution, water abstraction and other detrimental aspects associated with production of UK imports, should arguably also be covered by a due diligence obligation.

Focus on all conversion, not illegal conversion

Illegal conversion of natural vegetation could be a relatively minor part of the total conversion attributed to UK supply chains. Under the conversion and legal compliance scenarios assessed in Brazil, as much as 42,000 hectares of this conversion could be legal between 2021 and 2030, containing up to 21 million tonnes of above- and below-ground carbon (Figure 1). In Indonesia, deforestation is less likely to be illegal in 68% of Kalimantan's oil palm plantation area and 53% of Sumatra's (based on designated land use classes), but the absence of publicly available data means that the legality of deforestation cannot be definitively established. Far from promoting environmental responsibility in supply chains, a focus on illegal deforestation falls well below the existing targets and practices of many UK companies that are major users of forest- and ecosystem-risk commodities, such as soy and palm oil.



The Cerrado in Brazil. David Bebber / WWF-UK

POLICY IMPLEMENTATION

Is implementing a due diligence system on illegal conversion practical?

Conversion of ecosystems can be monitored with satellite data, relatively cheaply and in near real time. Ensuring legality, however, requires verifying information that is never wholly in the public domain. Even in Brazil, a country with unusually comprehensive public availability of information, key aspects of the Forest Code are not readily available, including information on conversion licences and compensation areas. Many countries from which the UK imports forest- and ecosystem-risk commodities have low levels of publicly available data pertaining to legality.

Legal frameworks in producer countries

Laws governing conversion of natural ecosystems are typically numerous and complex.[50] To further complicate matters, laws are also subject to change. In the last few months, a series of bills passing through the Brazilian House and Senate, would, if enacted, weaken the protection to natural vegetation given by the Forest Code, including retrospectively granting land title to hitherto illegally occupied and deforested public lands.[51] A new law issued last year in Indonesia (the Omnibus Law) makes it possible for the retrospective legalisation of some hitherto illegal oil palm plantations. The complexity of laws governing deforestation and conversion, lack of publicly available information on compliance, and changeability of laws would therefore make implementation of the regulation much more difficult for companies and enforcement more challenging for authorities. Arguably, insisting on legality of deforestation may encourage producer countries to deregulate, making legal compliance easier but doing nothing to protect natural ecosystems and biodiversity, or reduce greenhouse gas emissions from UK supply chains. This issue should be addressed on the onset of the legislation, not in two years when a first review of the effectiveness of the due diligence legislation might take place.

Real supply chains

Legality of deforestation and conversion within supply chains can only be assessed if the areas of land where materials have been produced – and hence to which the relevant laws apply – are known. However, without increased transparency it is usually difficult for UK companies to trace all forest- and ecosystem-risk commodities back to the area of land on which they were produced. For example, a major importer of Brazilian soy to the UK knows the origins of 70% of the volume to farm level, but buys the remaining 30% on the spot market, from origins unknown. Similarly, palm oil is typically bought on the spot market at each stage of processing – fresh fruit bunches, crude palm oil, refined palm oil and derivatives – and mixed with material from known sources.[52]

The practical implications for a company carrying out due diligence are likely to be either to reform the way that supply chains work specifically for the UK market to make them fully traceable from farm to shop, or rely on independently verified fully segregated or identity preserved supply chains. Both of these options are costly, and the second may not even be feasible for some commodities due to insufficient supply or inadequacy of some schemes to demonstrate that the product is deforestation and conversion-free. A third potential option would be for UK companies to move their sourcing away from places where the risk of illegality is deemed to be high. However, this course of action would remove any positive UK influence on sustainability in those areas. In Indonesia for instance, moving away from high deforestation risk areas would mean removing a market for smallholder producers for whom it is a critical livelihood – approximately 40% of Indonesia's palm oil is produced by smallholders.

RECOMMENDATIONS

WE CALL ON THE UK GOVERNMENT TO:

- Continue to pursue a mandatory due diligence regulation and other measures to remove deforestation, conversion of other natural ecosystems and human rights abuses from UK supply chains, while supporting producer countries' transition to sustainable production. This includes implementing all other recommendations from the GRI Taskforce.
- Broaden the due diligence regulation to cover all conversion (legal and illegal) of all natural ecosystems.
- Broaden the scope of the due diligence regulation to cover all commodities that are associated with deforestation and land conversion.
- Ensure that effective, dissuasive penalties for non-compliance are in place and enforceable.
- In parallel with a due diligence regulation, ensure robust environmental and social standards in trade policy, including core environmental standards.
- As COP26 president, and co-chair of the FACT Dialogue, encourage other countries to adopt due diligence and other aligned demand- and producer-side measures to halt deforestation, conversion and human rights abuses in global supply chains.

WE CALL ON COMPANIES TO:

- Set and accelerate delivery of robust policies and commitments to eliminate all deforestation and conversion of other natural ecosystems, illegal or legal, and human rights abuses, across your entire supply chain, aligned with Accountability Framework Initiative (AFi) definitions, principles and operational guidance.[53]
- Set a cut-off date[54] of 2020, or earlier than 2020 if it is the sectoral norm or your existing commitment, and a target date of no later than 2023 for your commitments and targets.
- Require and support direct and indirect suppliers to adopt and implement aligned public commitments and policies to halt deforestation and conversion and to respect human rights.
- Strengthen supplier engagement to respond to their performance and ensure compliance with commitments, by adopting AFi's guidance on supply chain management.
- Demand increased supply chain traceability throughout your entire supply chain, to enable effective elimination of conversion and other issues and supporting better practices.
- Report publicly on your forest- and ecosystem-risk commodity footprint and on progress towards implementation of policies and commitments.
- Advocate for further action among peers and other stakeholders for policies to achieve conversion-free supply chains (e.g. due diligence legislation, and robust environmental and social standards in trade deals).

WE CALL ON FINANCIAL INSTITUTIONS TO:

- UK financial institutions should adopt rigorous pre-screening and monitoring processes to ensure that lending and investments do not contribute to environmental damage (including deforestation and conversion) and human rights abuses.
- Request that companies must evidence their plans to remove deforestation and conversion from their supply chains as soon as possible and by no later than 2023.
- Report publicly on environmental and social risks and impacts and on the progress in mitigating them; and request clients to do so.
- Align all processes and reporting with the AFi's definitions and guidelines.
- Scale up financing to companies and projects that are demonstrating real progress on deforestation- and conversion-free supply chains.
- Support and advocate for new policies and legislation to remove deforestation, conversion, and human rights abuses from UK supply chains.

WE CALL ON CITIZENS TO:

- Write to your local representative to support policies and legislation for greener supply chains and further transparency and scrutiny over trade deals.
- Purchase products that use sustainable ingredients and/or meet a credible certified standard whenever possible, such as Rainforest Alliance, Forest Stewardship Council (FSC) and Fairtrade.
- Demand greater transparency and action from your supermarket and favourite brands to ensure that the products you enjoy are not associated with deforestation, conversion, or human rights abuses.
- Eat more sustainably (e.g. consider introducing more plants into your diet, eating less meat, wasting less food and, when possible, choosing locally sourced options).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Jungle canopy in Borneo. Chris J Ratcliffe / WWF-UK

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