



WWF

REPORT

EU

2015

# EATING UP FORESTS

HOW EU CONSUMPTION DRIVES DEFORESTATION AND  
LAND CONVERSION: THE CASE OF SOY FROM BRAZIL

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The massive growth in soy production over the last few decades has led to the loss of natural ecosystems in South America on a vast scale – and soy expansion remains one of the biggest threats facing the natural world today. Rio Negro Forest Reserve, Amazonas, Brazil.

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WWF is one of the world's largest and most experienced independent conservation organizations, with over 5 million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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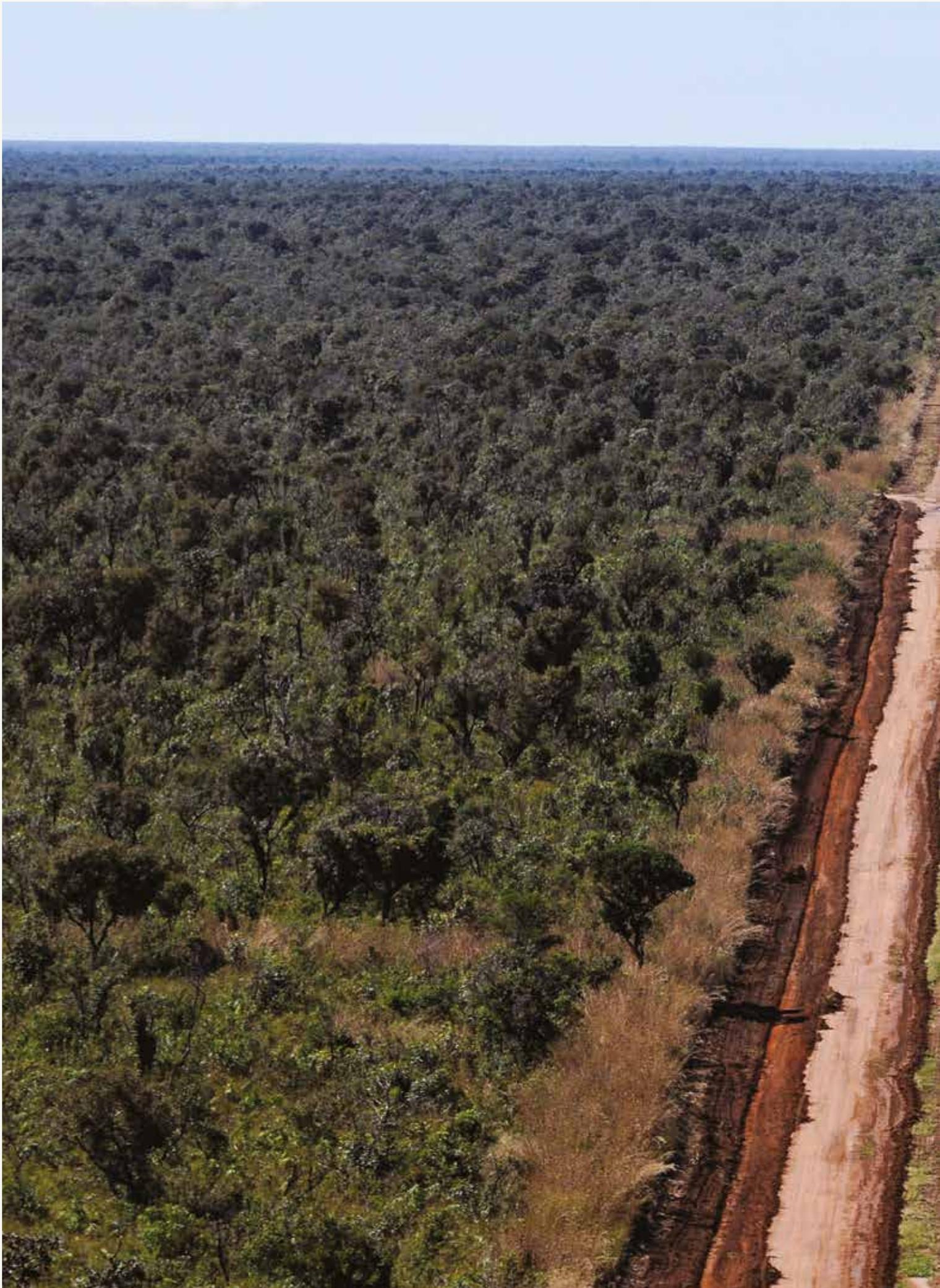


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# CONTENTS

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<b>EXECUTIVE SUMMARY</b>	<b>6</b>
<b>1. EUROPE'S OVERSIZED FOOTPRINT</b>	<b>8</b>
The EU's high dependence on natural resources from abroad causes serious environmental problems	
<b>2. DEFORESTATION: THE GLOBAL THREAT</b>	<b>12</b>
The loss of forests and other natural ecosystems is happening at a dramatic rate	
<b>3. THE EU EATING UP THE WORLD'S FORESTS</b>	<b>14</b>
Deforestation is traded around the world – and the EU is one of the leading buyers	
<b>4. FOCUS BRAZIL</b>	<b>16</b>
More than 7 million hectares of land in Brazil is used to grow soy for EU consumption	
<b>5. URGENT ACTIONS FOR THE EU</b>	<b>28</b>
What EU institutions and industries have committed to and what they need to do	
<b>ANNEX: SEI METHODOLOGY</b>	<b>34</b>
<b>ENDNOTES</b>	<b>36</b>
<b>REFERENCES</b>	<b>38</b>



## EATING UP FORESTS

In Piauí state, Brazil, an unpaved road divides a soy monoculture from native Cerrado woodland. The drivers of deforestation have become increasingly globalized.

In 2007 over 7 million hectares of land in Brazil was used to grow soy for the EU market - equivalent to the combined area of Belgium and the Netherlands. Much of this land has been converted from forests and other natural ecosystems. Soy production for export markets continues to drive deforestation in Brazil, particularly in the Cerrado and the Amazon.

The EU has committed to help end deforestation globally. Addressing the impacts of its own consumption is a vital first step.

# EXECUTIVE SUMMARY

**Humanity is using the Earth's resources unsustainably, at significant cost to**

**the natural ecosystems upon which our society and economy ultimately depend.**

## 2.6

**WE NEED 2.6 PLANETS TO MAINTAIN OUR CURRENT LIFESTYLES IN THE EU**

Globally, we use the resources of 1.5 planets. The Ecological Footprint of the EU is even higher: on average, we need 2.6 planets to maintain our current lifestyles. The EU is heavily dependent on the natural capital and resources of other countries, effectively outsourcing large parts of its footprint.

Millions of hectares of forest, savannah and grasslands around the world have been lost in recent decades, mainly due to agriculture expansion. This has destroyed biodiversity-rich habitats, depleted ecosystem services and emitted vast amounts of carbon dioxide.

The drivers of deforestation have become increasingly globalized and commercialized. Europe's excessive demand significantly contributes to global deforestation. European Commission-funded research shows that EU consumption led to the loss of 9 million hectares of forest globally during the period 1990-2008 – an area the size of Portugal. This is considerably more than the footprint of other industrialized regions. A main contributor is the consumption of oil crops, such as soy and palm oil and their derived products as well as meat consumption.

Our way of life has impacts that we do not directly see. This publication looks at the role of EU consumption beyond its borders illustrated by the EU import of soy embedded in products from Brazil. Although deforestation, forest degradation and habitat conversion have many causes, the EU's soy imports from Brazil are especially significant. Between 1990 and 2008 oil crops (mainly soy but also palm oil) were responsible for 70 per cent of deforestation imported by the EU27. Soybeans and soybean cake (soy meal) from Brazil make up the largest segment (41 per cent).



## 9 MILLION

**EU CONSUMPTION LED TO THE LOSS OF 9 MILLION HECTARES OF FOREST GLOBALLY DURING THE PERIOD 1990-2008**

A study by the Stockholm Environment Institute (SEI) commissioned by WWF showed that the EU used 20 per cent of global soy production in 2007. The total global land area required to satisfy EU demand for soy was close to 17 million hectares. As the largest source of embedded soy for EU countries, Brazil provided 43 per cent of this area, or over 7 million hectares – equivalent to the combined area of Belgium and the Netherlands.

Soy production affects forests as well as mixed landscapes, savannahs and natural grasslands. It has an impact on three of the eleven “deforestation fronts” identified by WWF where large-scale deforestation or severe degradation is projected between now and 2030 – the Amazon, the Cerrado and the Atlantic Forest/Gran Chaco. It also puts pressure on the Chiquitano dry forest in Bolivia and the Pampas in Argentina, the Uruguayan Campos and the North American prairies.

# 2020

THE 7TH  
ENVIRONMENTAL  
ACTION PROGRAMME  
OF THE EU AIMS TO  
SIGNIFICANTLY REDUCE  
THE ENVIRONMENTAL  
IMPACT OF EU  
CONSUMPTION  
BY 2020

The EU, as a signatory party to the UN Declaration on Forests, has committed to “at least halve the rate of loss of natural forests globally by 2020 and strive to end natural forest loss by 2030” and to support and help “the private sector meet the goal of eliminating deforestation from the production of agricultural commodities such as palm oil, soy, paper and beef products by no later than 2020”.

Despite acknowledging the need to address the environmental impact of its consumption, the EU<sup>2</sup> has not yet taken significant steps to address its impact abroad and to balance its consumption. The 7th Environmental Action Programme of the EU aims to significantly reduce the environmental impact of EU consumption by 2020, in particular in the food, housing and mobility sectors. It proposes the development of an EU action plan on deforestation and forest degradation. This provides a unique opportunity for EU political action.

WWF envisions a world where humanity lives within the Earth’s ecological limits and shares its resources equitably. Policy measures and industry initiatives addressing deforestation and forest degradation, as well as the loss of other valuable ecosystems, are crucial if we want to maintain a healthy living planet. A comprehensive set of measures would need engagement in a number of different sectors and policy areas including finance, development, trade, consumption and production of commodities and products. Though consumer measures are important as well, these are not the focus of this publication.

## WWF ASKS...

### For EU policymakers:

Develop political measures to address the EU’s impact beyond its borders across different policy areas and sectors. The development of an action plan on deforestation and forest degradation that combines a broad spectrum of interventions provides a good opportunity.

### For businesses:

Assess your supply chains, develop responsible purchasing policies and commit to zero deforestation for commodities most linked to forest destruction (soy, palm oil, timber, pulp and paper). Use your power to shift the market and influence policymakers.

# 1. EUROPE'S OVERSIZED FOOTPRINT

**The EU's high dependence on natural resources from abroad causes serious environmental problems.**

WWF's *Living Planet Report 2014* confirms that humanity is using the Earth's resources unsustainably, at significant cost to the natural ecosystems upon which our society and economy ultimately depend. Globally, we use the resources of 1.5 planets. The consequences of this overconsumption include diminishing resource stocks, declining biodiversity, increasing water scarcity and climate change. The ecological debt of the EU is even higher: on average, we would need 2.6 planets to maintain our current

lifestyles.<sup>3</sup> In effect, Europe outsources large parts of its ecological, water, carbon and nitrogen footprints.

According to the *Living Planet Report*, biodiversity is declining much more rapidly in middle- and low-income countries, partly as a result of richer countries importing their resources. Forests in Europe may be expanding, but EU consumption directly drives deforestation in other regions.

The EU itself is in the midst of a serious crisis. At its base is precisely the unsustainable use of all our resources – natural, financial and human. With continuing excessive footprint, rapid depletion of its environment and growing resource dependency, our EU economy is still fuelling future environmental crises that will be more damaging for people and economy until we risk living in a state of permanent crisis.<sup>4</sup>

## THE REPORT

**This publication looks at the role of EU consumption beyond its borders, using the example of soy from Brazil.**

It begins by giving an overview of global deforestation and the impact of international trade in agricultural commodities mainly taken from WWF's study *The Growth of Soy*. This is followed by a more detailed presentation of the findings of two studies. The European Commission-funded study *Impact of EU consumption on deforestation*<sup>5</sup> introduces the concept of imported or "embodied" deforestation, and highlights the impact of EU consumption particularly through the use of soy for feed. This is investigated further in a second study by the Stockholm Environment Institute (SEI), commissioned by WWF, which shows more specifically how the EU used large amounts of Brazilian land in 2007 for its own consumption. The final section of the publication proposes recommendations for EU policymakers and industry on how to address the EU's role in deforestation and forest degradation.

# 2030

THE EU HAS COMMITTED  
TO ENDING GLOBAL  
DEFORESTATION BY 2030

The findings presented here reinforce the urgent need for the EU to address the impact of its footprint beyond its borders. The EU has committed to ending global deforestation by 2030, and acknowledges the need to address the environmental impact of its consumption. However, little action has been taken to date. This publication proposes policy and industry measures against deforestation and forest degradation, including an EU action plan.

**Figure 1:** The EU's ecological deficit: our Ecological Footprint is more than two-and-a-half times greater than our planet can sustain.



Source: WWF EU



## DISAPPEARING FORESTS

In Brazil's Rio de Janeiro state, little remains of the once-great Atlantic rainforest. Protecting what remains is vital to securing the city's supply of fresh water.

Around the world, deforestation is continuing at an alarming rate. During the first decade of this century, 13 million hectares of forest were destroyed on average every year - an area the size of England. Most deforestation took place in the tropical forests of South America, Africa and Southeast Asia.

Ending deforestation is urgent if we want to avoid the worst impacts of climate change, prevent catastrophic losses of biodiversity, and safeguard the rights and livelihoods of people who depend on forests.

# 2. DEFORESTATION: THE GLOBAL THREAT

**The loss of forests and other natural ecosystems is happening at a dramatic rate.**

**Forests are vital for people and wildlife.** Four out of five

species of animals and plants on land live in forests<sup>6</sup> – the vast majority of them in the tropical forests of South America, Africa and Southeast Asia. Around 1.6 billion people, including 60 million indigenous people, depend on forests for food, shelter, fuel and livelihoods. Forests and other natural ecosystems also provide vital ecosystem services, such as regulating water cycles, preventing soil erosion and helping to keep our climate stable: growing forests absorb and store carbon, but when they are cleared, large amounts of carbon are released into the atmosphere.<sup>7</sup> According to the Intergovernmental Panel on Climate Change (IPCC), the agriculture, forestry and other land use (AFOLU) sector is responsible for just under a quarter of anthropogenic greenhouse-gas emissions.<sup>8</sup>

**Half of the world's tropical forests have been destroyed over the last century and this process is still continuing.** A UN Food and Agriculture Organization (FAO) assessment from 2010 found that around 13 million hectares of forest were converted to other uses or lost through natural causes each year in the preceding decade; South America and Africa had the largest net forest losses. Primary forests, which account for 36 per cent of the global forest area, have decreased by more than 40 million hectares since 2000.<sup>9</sup> Other threatened natural ecosystems also support high biodiversity and provide vital services such as carbon storage; these include savannahs, grasslands and mixed landscapes such as the Cerrado in Brazil and the Grand Chaco in Paraguay and Argentina.



1.6

BILLION

PEOPLE, INCLUDING 60  
MILLION INDIGENOUS  
PEOPLE, DEPEND ON  
FORESTS FOR FOOD,  
SHELTER, FUEL AND  
LIVELIHOODS

## WWF'S GOAL: ZERO NET DEFORESTATION AND DEGRADATION BY 2020

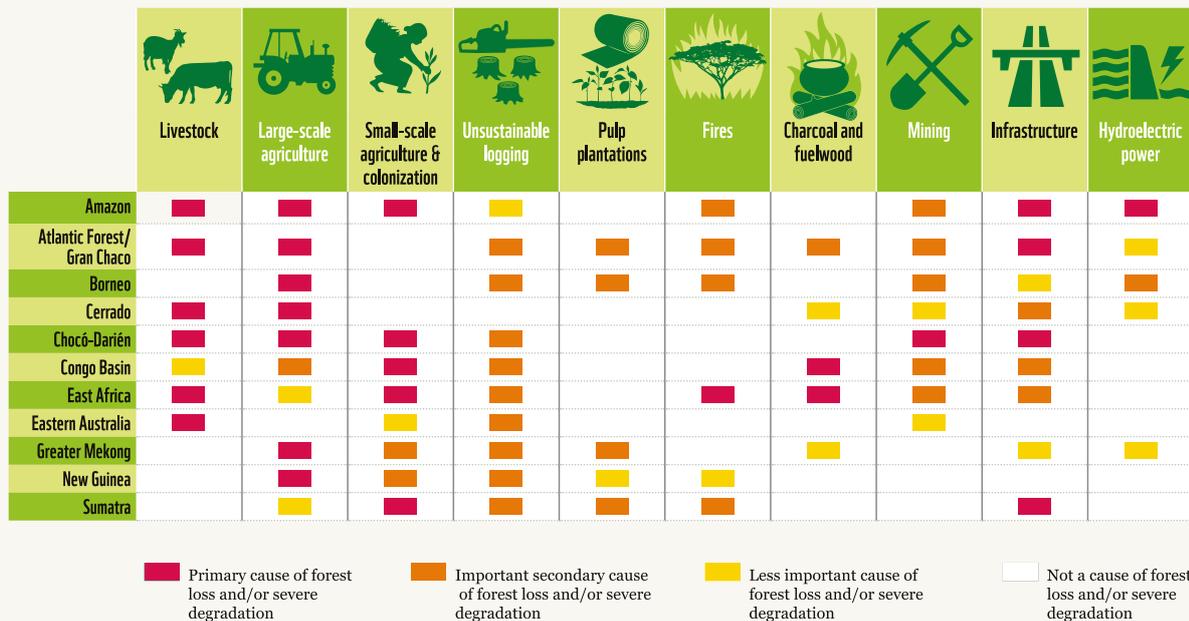
WWF envisions a world where humanity lives within the Earth's ecological limits and shares its resources equitably. We advocate Zero Net Deforestation and Degradation (ZNDD) by 2020 as a critical milestone toward this goal. Essentially, this means no net forest loss through deforestation and no net decline in forest quality through degradation, allowing for some flexibility: for example, allowing some degraded forest to be cleared to meet local needs while restoring an equivalent area in an important biodiversity corridor could be a worthwhile trade-off. Delaying this goal will mean huge and irreversible losses of biodiversity and significantly undermine efforts to keep climate change within safe limits.

## Deforestation fronts<sup>10</sup>

Deforestation is continuing, particularly in the tropics. WWF has identified 11 “deforestation fronts” where more than 80 per cent of forest loss is projected to occur: the Amazon, Atlantic Forest/Gran Chaco, Borneo, Cerrado, Chocó-Darién, Congo Basin, East Africa, Eastern Australia, Greater Mekong, New Guinea and Sumatra. Up to 166 million hectares of forest could be destroyed in these places between 2010 and 2030: equivalent to a forest stretching across Germany, France, Spain and Portugal, wiped out in just 20 years.

Different deforestation fronts face different pressures, as shown in **Figure 2**. Globally, the biggest cause of deforestation is expanding agriculture. Large-scale agriculture, including soy and palm oil, and/or livestock production, often intended for export markets, is a primary driver of deforestation on 9 of the 11 fronts.

**Figure 2:** Summary of main pressures on forests on different deforestation fronts



Source: *Living Forests Report 2015*

# 3. THE EU EATING UP THE WORLD'S FORESTS

**Deforestation is traded around the world – and the EU is one of the leading buyers.<sup>11</sup>**

In 2013, the European Commission funded a study, *The impact of EU consumption on deforestation*. This developed the concept of “embodied deforestation” – deforestation associated with the production of a good or commodity. While most of these products are

consumed in the country of origin, a significant amount of embodied deforestation is traded and consumed elsewhere.

More than half of all deforestation between 1990 and 2008 can be directly linked to conversion for cropland expansion, grazing and wood production – a total of 132 million hectares (55 per cent). Of this, about 69 million hectares (29 per cent) was directly or indirectly cleared for cropland, 58 million hectares (24 per cent) for pasture to raise livestock, and 4.5 million hectares (2 per cent) for logging.

The top five agricultural crops directly or indirectly linked to deforestation, according to the study, are soybeans (19 per cent), maize (11 per cent), oil palm (8 per cent), rice (6 per cent) and sugarcane (5 per cent). They alone caused half of the 69 million hectares of deforestation associated with cropland expansion.

Expansion of pastures is related to the consumption of livestock products, primarily meat, from ruminants such as cows, sheep and goats. The impact of logging is considered to be relatively minor, as this tends to lead to forest degradation rather than deforestation. Forest degradation was not assessed in the report, as it is very difficult to measure.

One-third of crop and livestock products associated with deforestation are traded internationally: 22.4 million hectares (33 per cent) of crops and 4.7 million hectares (8 per cent) of livestock products. The EU27 imported and consumed 36 per cent of this internationally traded deforestation.

**Effectively, EU consumption led to the loss of 9 million hectares of forest over the period 1990-2008 – an area the size of Portugal. This was considerably more than the impact of other industrialized regions: Eastern Asia, including Japan and China, imported 4.5 million hectares and North America 1.9 million hectares during the same period.**

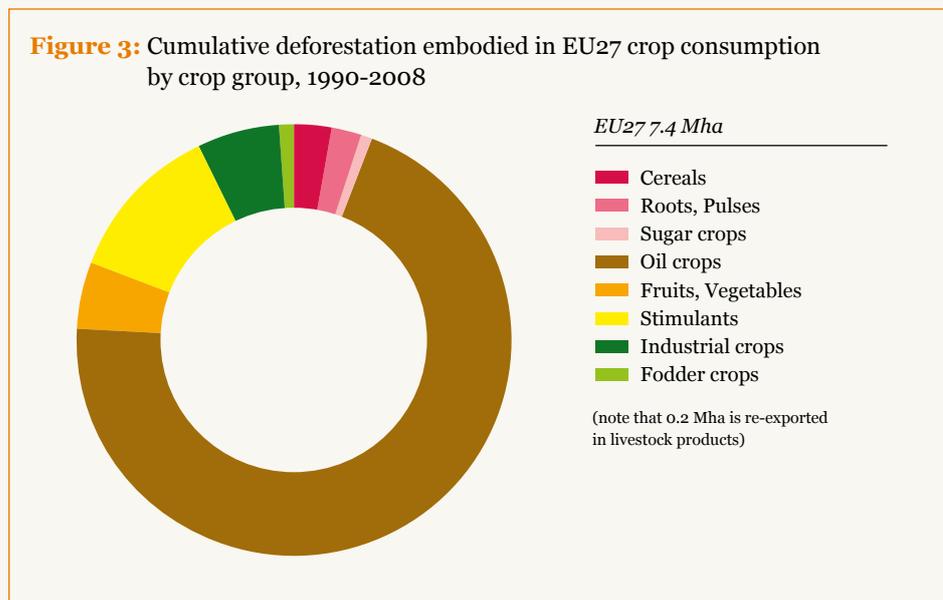
## **Crops and products consumed in the EU associated with deforestation**

Of the 22.4 million hectares of embodied deforestation in globally traded crop products, 33 per cent or 7.4 million hectares was consumed by the EU27. The import of crop products – especially oil crops such as soy and oil palm – was the main cause of the strong link between the EU27 and embodied deforestation. Oil crops (soy and palm oil) were responsible for 70 per cent of deforestation imported by the EU27.



**9 MILLION**  
EU CONSUMPTION LED TO  
THE LOSS OF 9 MILLION  
HECTARES OF FOREST  
OVER THE PERIOD 1990-  
2008 - AN AREA THE SIZE  
OF PORTUGAL

**Figure 3:** Cumulative deforestation embodied in EU27 crop consumption by crop group, 1990-2008

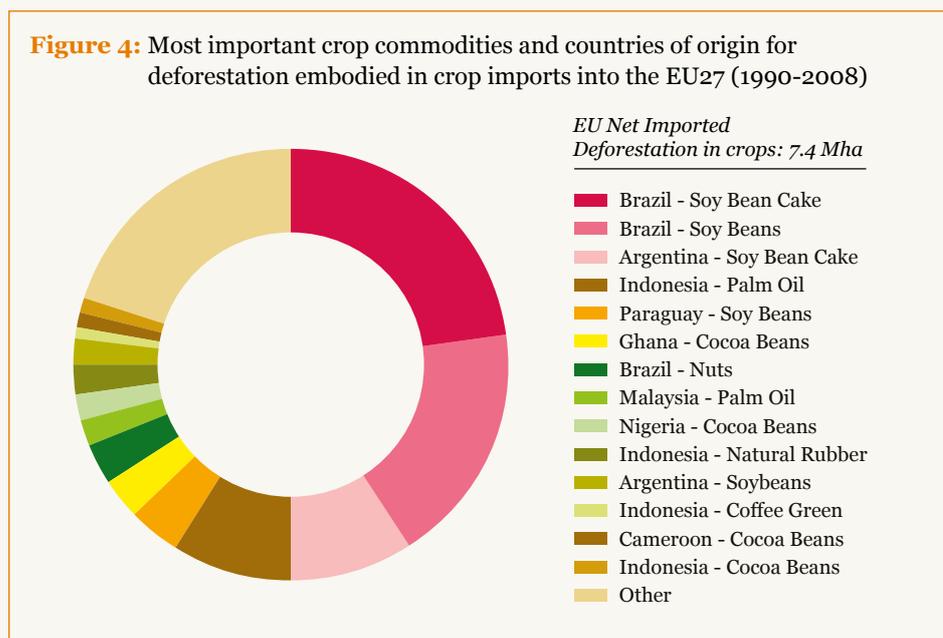


Source: European Commission. 2013. *The impact of EU consumption on deforestation.*

The regions that exported most deforestation embodied in crop products were South America (64 per cent), Southeast Asia (23 per cent) and Sub-Saharan Africa (12 per cent). These are the same regions where most deforestation takes place. However, while Sub-Saharan Africa suffers from high deforestation, its exposure to international trade is relatively low.

**Figure 4** shows the most significant crop commodity–country combinations for deforestation embodied in EU imports. Soybeans and soybean cake (soy meal) from Brazil make up the largest segment (41 per cent); this is discussed further in the next section. Other significant combinations include soybean cake from Argentina (9 per cent), palm oil from Indonesia (9 per cent) and soybeans from Paraguay (4 per cent).

**Figure 4:** Most important crop commodities and countries of origin for deforestation embodied in crop imports into the EU27 (1990-2008)



Source: European Commission. 2013. *The impact of EU consumption on deforestation.*

# 4. FOCUS BRAZIL

**More than 7 million hectares of land in Brazil is used to grow soy for EU consumption.<sup>12</sup>**

## 4.1 EU CONSUMPTION OF BRAZILIAN SOY

Soy is one of the leading drivers of deforestation and habitat conversion, particularly in South America. As outlined in the previous chapter, soy from Brazil is the single largest source of embodied deforestation consumed by the EU.

Soy is one of the world's major agricultural commodities, and one of the most profitable for producers and traders. Around 270 million tonnes were produced in 2012, of which 93 per cent came from just six countries: Brazil, the United States, Argentina, China, India and Paraguay. The main importers are the EU and China.

Soy is a source of both protein and energy, but the majority of soy production is destined for animal feed. This has contributed to a significant increase in the production of animal products over recent decades. Between 1967 and 2007 pork production rose by 294 per cent, egg production by 353 per cent and poultry meat by 711 per cent; over the same period, the relative costs of these products declined. The combination of rapidly rising production and falling costs has only been possible through the use of industrial farming: most pigs and poultry are kept indoors and rely on protein-rich feed based on soy to speed growth rate.

Soy production is expected to increase rapidly as economic development leads to higher animal protein consumption, especially in developing and emerging countries. Soy consumption in China doubled in the last decade, from 26.7 million tonnes in 2000 to 55 million tonnes in 2009, of which 41 million tonnes were imported; China's imports are projected to increase by 59 per cent by 2021-22. Markets in Africa and the Middle East are also expected to expand rapidly in the next decade.

### Sacrificed for soy

Over recent decades, soy has been undergoing the greatest expansion of any global crop. The area of land devoted to cultivating soy has grown from less than 30 million hectares in 1970 to over 100 million hectares today. In total, the area of land in South America devoted to soy grew from 17 million hectares in 1990 to 46 million hectares in 2010, mainly on land converted from natural ecosystems. Between 2000 and 2010, 24 million hectares of land was brought into cultivation in South America; soy production grew by 20 million hectares.

The initial growth of soy production in South America coincided with large areas of forest, grassland and savannah being cleared for agriculture. Today, soy continues to put pressure on forests including the Amazon and the Atlantic Forest as well as mixed landscapes, savannahs and grasslands such as the Cerrado in Brazil, the Gran Chaco, the Pampas in Argentina and the Uruguayan Campos.

Domestic and international concern has resulted in various measures to protect forests from direct conversion to soy, particularly in the Atlantic Forest in Paraguay and the Brazilian Amazon. An unfortunate side effect of these developments has been to encourage the expansion of soy into other natural ecosystems.



**270 MILLION  
TONNES  
OF SOY WERE  
PRODUCED IN 2012**

## NATURAL ECOSYSTEMS REPLACED BY SOY PRODUCTION

**Forests** are areas spanning more than 0.5ha, with trees at least 5m high and a canopy cover of at least 10 per cent (FAO). These include the Brazilian Amazon, the Atlantic Forest and the Chiquitano Dry Forest.

**Savannahs** are grassland areas with a significant number of trees and woody plants, but not so densely spaced as to form a canopy. Much of the Cerrado and the Gran Chaco fall under this category, though both also contain forest areas.

**Grasslands** are dominated by grasses and other herbaceous plants. Examples include the North American prairies, the Argentinian Pampas and the Campos in Uruguay. Natural grasslands are not the same as cultivated pastures, which have been sown with a small number of often non-native grass species.

### EU soy demand: the need for land

WWF commissioned the Stockholm Environment Institute (SEI) to assess the EU's impact on on Brazil, where a number of WWF's priority places for conservation can be found. The study analysed the production of agricultural commodities in Brazil and their route out of Brazil to consumption in the EU.

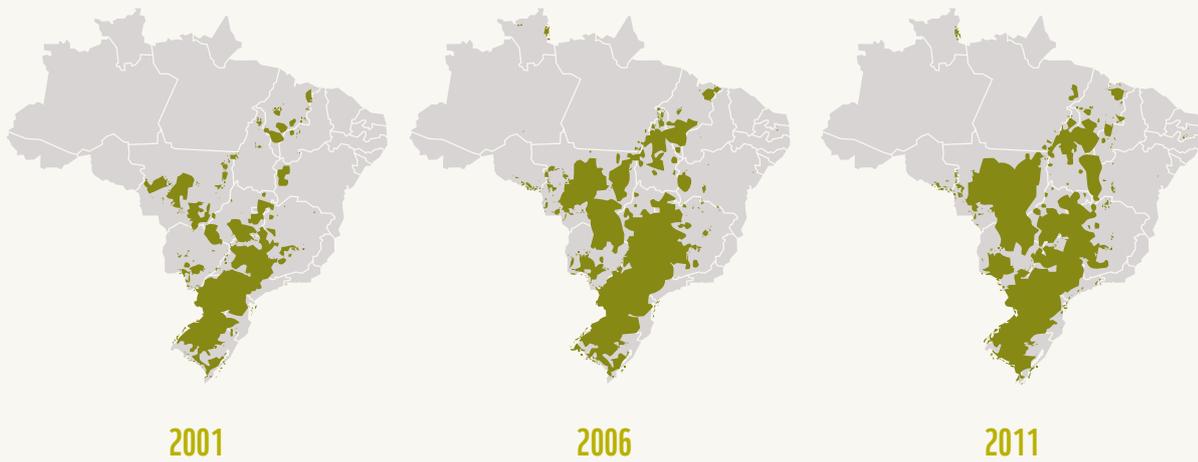
According to the SEI study, in 2007 the EU used 20 per cent of the global production of soy. The total soy land area required to satisfy the EU's demand was close to 17 million hectares. As the largest source of soy for EU countries, Brazil provided 43 per cent of this area, just over 7 million hectares – equivalent to the combined area of Belgium and the Netherlands. More than a third (35.4 per cent) of the total Brazilian land used to grow soy was to satisfy EU demand.<sup>13</sup> (**Figure 5**).

**Figure 5:** Soy production and land use globally and in Brazil for EU consumption in 2007

Total world soy production (tonnes)	Total world soy production for EU demand (tonnes)	% of total world production that goes to EU demand	Total world land requirements for EU demand (ha)	Brazil land requirement for production for EU demand (ha)	% of world land area required for EU demand that comes from Brazil	Total soy land area harvested in whole country (Brazil)	% of Brazilian soy land used to satisfy EU demand
219,676,859	45,639,117	20.8%	16,854,598	7,282,069	43%	20,565,300	35.4%

Source: Input-Output Trade Analysis (IOTA) model, SEI<sup>14</sup>

**Figure 6:** Where in Brazil is soy produced for the EU?



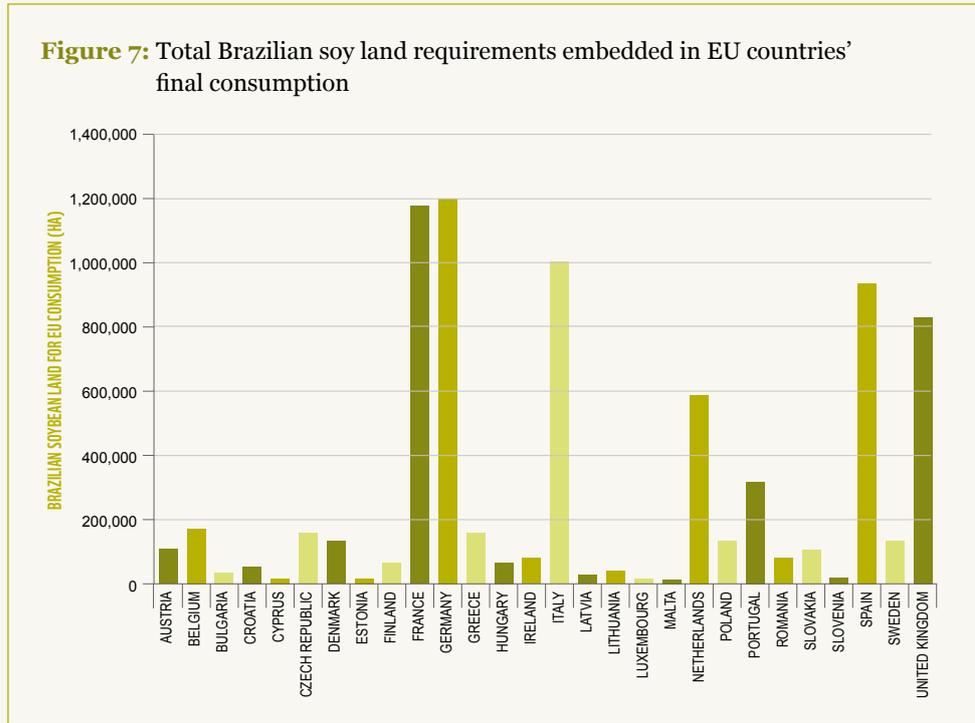
Source: Spatially Explicit Information on Producer to Consumer Systems (SEI-PCS) model, SEI

Additional analysis using the detailed model of municipal production to export shows that the EU purchases soy from some sensitive regions in Brazil, including the Cerrado and the Amazon. The municipalities from which soy was exported to the EU are highlighted in green.

### How much soy do EU countries consume?

The area of land in Brazil required to supply EU final consumption can be further divided by country. The SEI study shows that Germany consumed the largest area of Brazilian soy, using 1,196,614 hectares in 2007, followed by France (1,171,473 hectares), Italy, Spain and the UK.

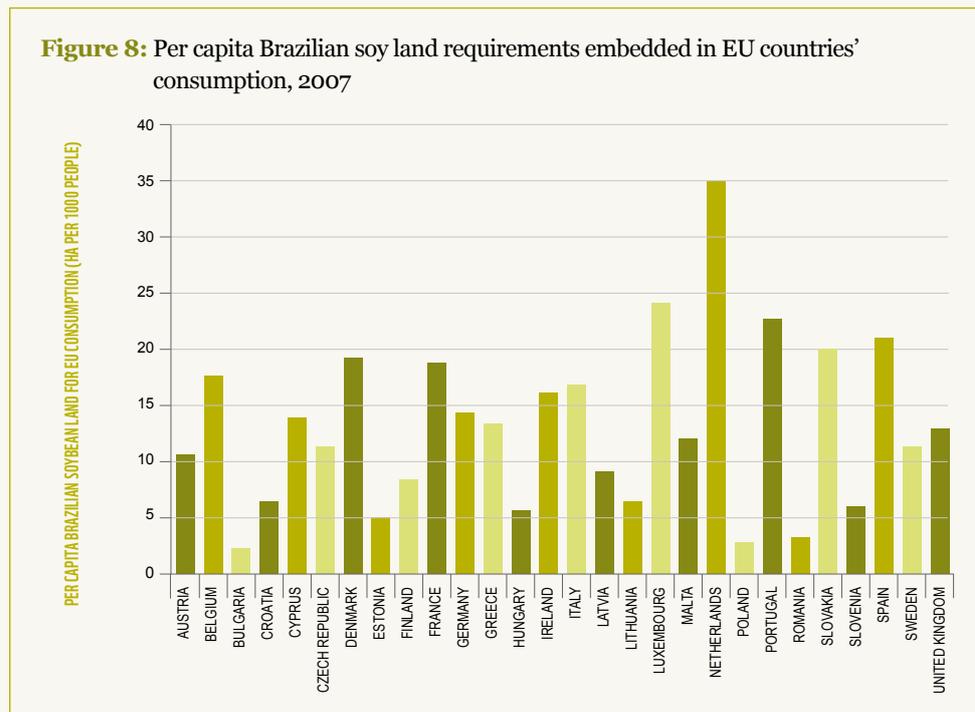
**Figure 7:** Total Brazilian soy land requirements embedded in EU countries' final consumption



Source: IOTA model

If broken down into final consumption per person, Brazilian soy embedded in EU consumption was highest in the Netherlands, which used 35 hectares per 100 people, followed by Portugal and Luxembourg with 27 and 24 hectares per 100 people.

**Figure 8:** Per capita Brazilian soy land requirements embedded in EU countries' consumption, 2007



Source: IOTA model

## 4.2. IMPACTS OF SOY PRODUCTION IN BRAZIL<sup>15</sup>

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With a Gross Domestic Product (GDP) of US\$2.253 trillion in 2012, Brazil is the world's seventh wealthiest economy. It is also the largest country in area and population in Latin America.<sup>16</sup> Brazil's agricultural area of 275 million<sup>17</sup> hectares is much larger than the combined EU27 agricultural area of 174 million hectares.<sup>18</sup> The EU is one of the largest importers of Brazilian agricultural products. The EU is Brazil's largest trading partner, accounting for over a fifth (21.4 per cent) of its total trade; Brazil is the EU's ninth largest trading partner, accounting for 2.1 per cent of total EU trade (2013-2014).<sup>19</sup>

A third of Brazil's territory (275 million hectares) has already been deforested for food production – an area the size of Argentina.<sup>20</sup> However, Brazil remains rich in natural capital. Forest covers around 515 million hectares, comprising a third of the world's remaining tropical forests. The country boasts some of the most biodiverse regions in the world, including the Amazon, the Cerrado, the Atlantic Forest and the Pantanal. Brazil also has some of the world's largest reserves of fresh water; the Amazon is the world's largest river, contributing more than 15 per cent of total global freshwater flows to the ocean.<sup>21</sup>

In Brazil, the most rapid expansion and intensification of soy production currently takes place in the Cerrado, while production in Amazonia is increasing more slowly. The majority of the land used for soy in the Cerrado and Amazon in Brazil is controlled by a few major owners, with many farms averaging 1,000 hectares and some reaching 10,000-50,000 hectares.

As well as direct conversion of forest to soy, much soy expansion in Brazil now occurs on land previously used for cattle grazing. While this can be a way of using degraded or underutilized pasture land more efficiently, there is a danger that it can contribute indirectly to deforestation by pushing cattle production – the leading cause of deforestation in the Amazon – into the forest and the Cerrado.



© ADRANO GAMBARINI / WWF-BRAZIL

Aerial view of unpaved roads dividing a soy (*Glycine max*) monoculture from the native Cerrado, in the region of Ribeiro Gonçalves, Piauí, Brazil.

## AMAZON AND CERRADO: ECOSYSTEMS UNDER THREAT

### The Cerrado

A vast, diverse mosaic of dry grassland, woodland, forests and wetlands, the Cerrado once covered nearly one quarter of Brazil. It holds around 5 per cent of the world's biodiversity including over 800 bird species. Giant anteaters and armadillos are among its 60 vulnerable animal species, 12 of which are critically endangered. Of its more than 11,000 plant species, nearly half are found nowhere else on Earth, and many are used for food, medicine and handicrafts. It is also extremely important as a source of water. Of 12 major hydrological regions in Brazil, six have sources in the Cerrado, including the Pantanal, the world's largest wetland.

But the Cerrado's unique biodiversity and vital ecosystem services are suffering under the continued march of soy. Around half the natural vegetation that once covered over 200 million hectares has been lost since the late 1950s, when the ultra-modernist capital Brasilia was conjured out of the heart of the region. According to the Brazilian government, 53 per cent remains relatively intact, though other estimates are lower, and there are few contiguous areas over 1,000 hectares. The eastern Cerrado region, in the states of Maranhão, Piauí, Tocantins, and Bahia (Mapitoba) has become Brazil's newest agricultural hotspot, where between 2007 and 2013 nearly 40 per cent of total soy expansion occurred at the expense of native vegetation.<sup>22</sup> In the Cerrado, just over 11 million hectares are under protection, though less than 3 million hectares – 1.4 per cent of the total area – are classified under the strictest levels of protection.



Deforestation along the Rio Branco in the Brazilian Amazon.

## The Amazon

One-third of the world's tropical forest is found in the Amazon, which stretches across parts of Brazil, Bolivia, Peru, Ecuador, Colombia, Venezuela, Guyana, Suriname and French Guiana. It is home to more than 100,000 types of insects and nearly 40,000 plant species as well as of endangered mammals such as jaguars and the pink river dolphin. As Earth's largest river basin, the Amazon is the source of around one-sixth of all the water that flows into the sea from the world's rivers. The Amazon also plays a huge role in the Earth's climate – not just as a massive store of carbon, but in the way it affects rainfall patterns. Climate models suggest Amazon deforestation could lead to droughts and crop failures across the Americas, and possibly in other agricultural regions as far away as Europe. Until recently, the Amazon was considered unsuitable for soy production, but crop breeding and other advances have increased production potential.

Rapidly growing soy production has been identified as a driver of forest conversion, mainly in Brazil and Bolivia. In 2013 the total area deforested in the Brazilian Amazon was about 76 million hectares – one-fifth of the original standing forest.<sup>23</sup> Deforestation rates fell from 2,777,200 hectares in 2004 to 589,100 hectares in 2013, the second lowest rate ever recorded by the National Space Research Institute (Inpe). However, recent data shows rates rising again. According to information released by Inpe in September 2014, 589,100 hectares of Amazon forest were cleared from August 2012 to July 2013 – an increase of 29 per cent on the year before.<sup>24</sup>

## ENVIRONMENTAL AND SOCIAL IMPACTS OF SOY PRODUCTION

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The WWF report *The Growth of Soy* (2014) outlines a number of environmental and social issues linked to soy production:

### Environmental impacts

Cutting down forests can have dramatic impacts, seriously affecting the climate, the regional water regime and species diversity.

**Soil erosion and water contamination:** A change from natural vegetation or grazing lands to crops is likely to increase soil erosion and change the hydrological cycle.

**Agrochemicals:** An estimated 35 per cent of all pesticides used in Brazil are for soy farming. Agrochemicals contaminate soil and water courses, with huge impacts on freshwater biodiversity. Agrochemical use can also affect human health.

**Monoculture:** Soy monocultures minimize ecological services and become more dependent on chemicals to control pests such as insects and fungi. The scale of the monoculture itself creates ecological risks, including new or growing pest and disease problems such as soybean rust, which has risen dramatically in Brazil.

### Social impacts

Large-scale land-use change creates social change that is not always beneficial for all, raising fundamental questions about costs and benefits of development.

**Land concentration:** Most soybean production in Brazil operates on an industrial scale, which tends to disadvantage smallholders – although efficient cooperative systems in some areas allow smallholders to remain competitive.

**Employment changes:** Employment opportunities are likely to be higher in soy farming than in cattle ranching, but lower where soybean displaces traditional cultivation activities. In the Americas, although exceptions exist, income tends to benefit a small group of larger enterprises rather than a large number of smaller farms.

**Human rights violations:** Local and international NGOs have reported land evictions, misuse of pesticides and other violations of human rights. Greenpeace has documented illegality and use of slaves in soy farms in the Amazon region, with workers being duped into coming to ranches where their papers are taken away and they are forced to work.

## Deforestation and political developments

Brazil has officially committed to significant reductions in its greenhouse-gas emissions by 2020, and reducing forest loss is crucial to achieving this goal. The country has various laws protecting forests and natural vegetation. For public land, there is an extensive protected area network in the Amazon, and much smaller protected area systems in the Cerrado and the Atlantic Forest. Clearing of the Atlantic Forest has been banned for 20 years, and restoration projects are attempting to link remaining fragments together.

In the Brazilian Amazon, a voluntary private moratorium on soy grown on newly cleared land has resulted in a sharp downturn in deforestation directly related to soy. In the Amazon, new legal controls have contributed to the deforestation rate declining by 70 per cent, to 0.7 million hectares per year in 2009.

## Brazil's legal framework: The Forest Code<sup>25</sup>

The most important set of laws relating to private farms is the Forest Code. This requires landowners to maintain 80 per cent forest cover in the Amazon, and at least 20 per cent native vegetation on their land in the Cerrado. In 2012, Brazil's Forest Code was amended – the subject of bitter dispute between the agricultural sector and the environmental sector, including NGOs, researchers, politicians, the forest sector and society in general. In theory, the changes demand less conservation than the previous Forest Code did in most cases.

Strict and consistent enforcement of the code, even though it has been watered down, would be an improvement on the current reality of relatively uncontrolled expansion of soy and cattle ranching into forest ecosystems. However, millions of hectares of native vegetation could still be legally cleared under the Forest Code, as a recent article in *Science* points out<sup>26</sup>. In the Amazon biome, an estimated 14.2 million hectares of unprotected tropical forest is considered suitable for soy production: up to 2 million hectares of this forest could be cleared legally under the Forest Code. The Cerrado is even more vulnerable: of more than 20 million hectares of natural vegetation considered suitable for soy expansion, up to 11 million hectares could be legally converted.

## The soy moratorium<sup>27</sup>

Advocacy from NGOs and pressure from companies and European consumers led Brazil's soy industry to take voluntary action against Amazon deforestation. In 2006, two associations that represent around 80 per cent of soybean processors and exporters in Brazil – the Brazilian Association of Vegetable Oil Industries (ABIOVE) and the National Association of Cereal Exporters (ANEC) – pledged that their members would not buy soy produced on any Amazon farmland deforested after 24 June 2006.

Initially the moratorium was set for two years, but it has been renewed every year since, and enforcement has improved. It is monitored annually by overlaying maps derived from satellite images of deforestation with registered farms known to be producing soy. Between the 2007-08 and 2012-13 crops, only 18,100 hectares of the total 2.1 million hectares of soy cultivated in the Amazon (less than 1 per cent) was in recently deforested areas. The moratorium was an important step toward reducing Amazon deforestation, and indeed many companies take their moratorium obligations seriously. There is, however, a danger that because of the success of the moratorium and the publicity it has attracted, the market now considers the problem of soy and deforestation to be solved. This is very far from being the case.

The moratorium was recently renewed to May 2016. The cut-off date was stretched to 2008, but new conditions were added on better management practices and implementing the Forest Code. WWF wants to see the moratorium continue beyond this date, and to be expanded to include the Cerrado and other ecosystems, until deforestation-free soy becomes the market norm.



## WHAT NEXT?

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Soy and sky stretch as far as the eye can see - Bahia state, in Brazil's Atlantic rainforest region.

The EU needs land beyond its borders to satisfy demand as in the case of soy from Brazil. EU institutions and industry have a responsibility to address the negative environmental and social impacts of this consumption. Commitments have been made, and progress is happening but much more needs to be done.

# 5. URGENT ACTIONS FOR THE EU

## What EU institutions and businesses have committed to and what they need to do.

A recent WWF report, *From crisis to opportunity: five steps for sustainable European economies*,<sup>28</sup> argues that the

EU is in the midst of crisis. At its base is the unsustainable use of all our resources – natural, financial and human. With continuing excessive footprint, rapid depletion of natural capital and growing resource dependency, the EU economy is fuelling future crises that will be more damaging until we risk living in a state of permanent crisis. Instead of taking steps toward a more sustainable economic path, the EU is still supporting business as usual.

The EU needs land outside its own borders to satisfy demand. The use of soy from Brazil is only one example of this exported footprint. The EU must take responsibility for addressing the potential negative environmental and social impacts its actions have on other regions. This is necessary for the EU's own future resource security. Addressing deforestation, forest degradation and other land-use change is also an urgent priority in tackling climate change.

### What are the commitments made?

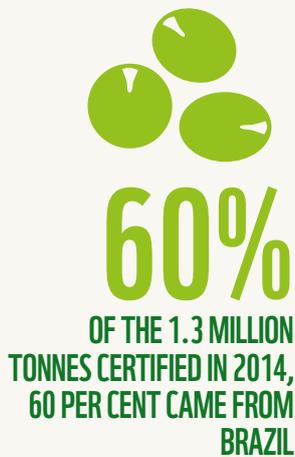
Some of the world's largest retailers, brands, traders and producers have committed to eradicate deforestation from their operations and supply chains.<sup>29</sup>

The Consumer Goods Forum, an organization representing more than 400 companies, has committed to mobilize resources to help achieve zero net deforestation by 2020, through individual company initiatives and by working collectively.<sup>30</sup> The Banking Environment Initiative has entered into a "Soft Commodities Compact" with the Forum to support achievement of this target.<sup>31</sup> In 2012, the Tropical Forest Alliance was formed to mobilize key private sector, governmental and civil society entities to help achieve zero net deforestation in tropical forest countries by 2020.<sup>32</sup>

Certification systems such as those managed by the Forest Stewardship Council, the Roundtable on Sustainable Palm Oil (RSPO), the Round Table on Responsible Soy (RTRS) and the Roundtable on Sustainable Biomaterials (RSB) all have safeguards on forest clearing and degradation. However, these vary and some may need to be strengthened to qualify as verifiers of deforestation-free production as consensus emerges on what this means. Certification systems have a role to play in addressing deforestation and forest degradation, but complementary legislative and policy measures to drive industry engagement are needed.



**ZERO**  
NET DEFORESTATION  
AND FOREST  
DEGRADATION BY 2020



## VOLUNTARY CERTIFICATION – A WAY OF IMPROVING MARKETS

### Soy certification

In 2006 the Round Table on Responsible Soy (RTRS) was set up as a mainstream voluntary scheme to certify soy produced in a more responsible way, without conversion of forests and other high conservation value areas. The first Brazilian farmer was RTRS certified in June 2011, and the certified amount is increasing yearly. Of the 1.3 million tonnes certified in 2014, 60 per cent came from Brazil. The ProTerra certification programme was created in the same year, and excludes conversion of valuable habitat and genetically modified soy. ProTerra certified soy, mostly from Brazil, has stabilized at around 4 million tonnes per year.

European companies are the main buyers of RTRS and ProTerra certified soy. However, WWF's Soy Report Card, an assessment of 88 companies in five countries, showed disappointing results. Some progressive companies have made strong commitments to stop sourcing irresponsible soy and have actually started buying soy from responsible producers. The majority, however, are lagging behind in both commitments and concrete actions.

**Companies that have made commitments now need to live up to them and stop fuelling deforestation and forest degradation. Other companies, from producers to traders, retailers and brands, need to follow the frontrunners in setting up policies to delink their sourcing of commodities from conversion of natural habitats.**

**While some companies are pledging to cut their impact on deforestation, governments are failing to support this ambition through decisive action. We believe the EU should take action now to match these efforts with policies and regulatory measures, boosting the pledges made, holding companies accountable for implementing their commitments, and raising the environmental, social and human rights standards for all companies.**

At the UN Climate Summit in September 2014, a large group of companies and governments, including the EU, signed the **New York Declaration on Forests**. The EU, as a signatory party to the UN Declaration on Forests, has pledged to “at least halve the rate of loss of natural forests globally by 2020 and strive to end natural forest loss by 2030” and to support and help “the private sector meet the goal of eliminating deforestation from the production of agricultural commodities such as palm oil, soy, paper and beef products by no later than 2020”.

A commitment is, however, only worthwhile if it is followed by action. And the EU needs to act urgently. The EU now needs to live up to these commitments.

The 7th Environmental Action Programme of the European Union acknowledges the need to address the environmental impact of EU consumption of food and non-food commodities. It proposes the development of an EU action plan on deforestation and forest degradation. This provides a good opportunity for EU political action.

The EU Council has also pledged to provide financing for reducing emissions from deforestation and forest degradation (REDD+). These commitments need to be followed up urgently ahead of the upcoming UN climate conference in Paris later this year.

## EU MEASURES TO ADDRESS ITS IMPACTS ABROAD

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The recommendations below should form part of EU measures to address its potential negative environmental and social impacts abroad. They should be included in an action plan on deforestation and forest degradation, or be taken up separately. These recommendations represent an early stage of discussion; WWF expects to adapt its position in the light of upcoming political developments.

## WWF RECOMMENDATIONS FOR EU INSTITUTIONS

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EU policymakers need to develop measures to tackle deforestation and forest degradation and effects on other ecosystems, addressing both the demand and the supply side – in the EU and in countries supplying the EU.

### Better sourcing of products

The EU needs to ensure that the products it sources are not harmful to the environment and our natural resource base and do not lead to deforestation or further forest degradation. It should also explore ways to address the impact on other ecosystems. Resource efficiency should be improved for production and processing along the supply chains. Strong international demand for sustainably sourced commodities will send a critical signal to affected countries and producer companies. The EU should:

- **Support producer countries in tackling the causes of deforestation and forest degradation in their own territories.**

Producer countries need support to address the problems related to deforestation and forest degradation. Development assistance needs to be provided to countries aspiring to reduce deforestation under the post-2015 Sustainable Development Goals, particularly in deforestation fronts.

Improved national governance, law enforcement, improved local livelihoods and tenure security are important elements as well as land use; effective land-use policies, agreed by all stakeholders, are critical to decouple deforestation from agricultural production. The review of the EU Action Plan on Forest Law Enforcement, Governance and Trade in 2015 provides a first opportunity to address the environmental and social impacts of timber and other commodities.

- **Develop and implement new financial regulations and mechanisms that incentivize and redirect public and private investments to support sustainable technologies and practices to protect, maintain and restore forest ecosystems.**

Natural capital and ecosystem services need to be better supported and valued. New and additional financing for conservation and restoration of natural capital needs to be provided. Stringent environmental and social safeguards need to be included into all types of investments and notably infrastructure development. Public financial institutions need to show leadership with enhanced environmental and social conditionality.

**2015**  
PROVIDES A FIRST  
OPPORTUNITY  
TO ADDRESS THE  
ENVIRONMENTAL AND  
SOCIAL IMPACTS OF  
TIMBER AND OTHER  
COMMODITIES

## Better consumption policies

The EU should use policy, regulatory, fiscal and financial instruments to halt deforestation and forest degradation by encouraging better consumption practices. Options on how to address the impact on other ecosystems should also be explored. Where possible, existing policy instruments should be used. The EU should:



DEFORESTATION

### ■ Establish mandatory measures for consumption and production to end deforestation and forest degradation

Regulate the placing of products on the EU market when the market or current policy tools are ineffective or insufficient and devise proactive and effective regulations and standards. Numerous businesses have made pledges to get their supply chains deforestation-free but these pledges need to be supported and complemented with policy measures.

### ■ Develop measures to stop waste and overconsumption and reduce pressure on land

One third of food intended for the European market is lost or wasted. Cutting out food waste would result in lower agricultural pressure on remaining land and forests. Furthermore, encouraging less and better consumption of animal products would significantly reduce unsustainable European demand for soy and pressure on agricultural lands, while also having important positive benefits on public health, agricultural emissions, water use and quality, and animal welfare.<sup>34</sup>

Food prices in the EU need to include the cost to the environment and society: smart resource pricing, fair wages, equal standards and an honest price development through the value chain are needed, as well as measures to reduce waste of food in processing and consumption.



AGRICULTURAL EMISSIONS

### ■ Use existing and develop new trade measures to reduce the EU's negative impact abroad

Include binding forest-specific provisions in EU trade and investment agreements and in EU global investments and ensure proper implementation of existing provisions.

Ensure a meaningful implementation of the sustainability chapter of existing trade agreements, especially in the timber and agriculture sector but also for other commodities. Assess the feasibility of trade instruments such as tariffs in addressing deforestation and forest degradation.



SUSTAINABILITY

### ■ Address money flows in economic sectors that contribute to deforestation and forest degradation

Transparency and information disclosure need to be improved to empower consumers. Pollution and resource-depleting activities need to be made an expensive business.

### ■ Ensure the full, proper and effective enforcement of EU policies and legislation designed to combat the illegal timber trade

For example, the implementation of the EU Timber Regulation has shortcomings that need to be addressed in order to effectively eliminate the impact of EU consumption on illegal logging.



ILLEGAL LOGGING

## MORE PROTEIN THAN WE NEED?

The average EU citizen consumes about 70 per cent more protein than recommended for a healthy diet, and citizens in all EU member states on average eat more than sufficient protein. The consumption of animal protein (meat, fish, eggs and dairy) constitutes nearly 60 per cent of the total. However, both total protein consumption and the share of animal protein vary between countries.<sup>34</sup>

Since most soy is used for livestock feed, cutting back on consumption of animal protein is one way of reducing the EU's impact on forests. Healthy nutrition does not require protein to be of animal sources, showing the large potential of both bringing back protein consumption in diets to recommended levels and to substitute a part of the excessive consumption of animal protein with plant-based sources. The LiveWell for LIFE project demonstrated model diets in four European countries, showing that large environmental and health improvements are possible through relatively minor changes in diets.<sup>35</sup>

According to an indicative foresight scenario for food consumption in the EU27, Europe's animal protein consumption could have a significant impact on future trends in forests and land use. If per capita meat and dairy consumption in the EU stabilized around 2007 levels, then by 2020 an additional 2.8 million hectares of land would be needed to meet the demands of a slightly growing population. But if the EU diet were to become increasingly meat and dairy intensive, the amount of extra land needed would be 15.6 million hectares by 2020 – the size of England and Wales. Conversely, if all Europeans abstained from animal products for one day a week, it could free up around 5 million hectares by 2020.<sup>36</sup>

There would also be significant reductions in greenhouse-gas emissions and nitrogen pollution, and improvements in public health.



**70%**

**EU CITIZENS CONSUME ABOUT 70 PER CENT MORE PROTEIN THAN RECOMMENDED**



**60%**

**ANIMAL PROTEIN MAKES UP NEARLY 60 PER CENT ON AVERAGE, BUT VARIES BETWEEN COUNTRIES**



**5M HA**

**IF EUROPEANS WENT WITHOUT ANIMAL PRODUCTS FOR ONE DAY EACH WEEK, IT COULD FREE UP 5 MILLION HECTARES OF LAND**

## WWF RECOMMENDATIONS FOR EU BUSINESSES

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To keep their resource base healthy, businesses should ensure that the products they source are not harmful to the environment and do not lead to deforestation, forest degradation or the destruction of other ecosystems. Businesses should:

- **Commit to deforestation-free supply chains and investments** as a tangible step toward the conservation and sustainable use of forests and other ecosystems. These commitments should incorporate, at a minimum, the following safeguards:
  - No forest is cleared on local people's land without their free, prior and informed consent.
  - High conservation values are maintained and enhanced and no forest loss occurs in areas needed to maintain such values.
  - No forest is cleared in contravention of the law.
  - Forest-dependent peoples and communities have the right to:
    - Access forest resources and enjoy a fair share of the benefits from their use or commercial exploitation;
    - Give or withhold free, prior and informed consent to activities affecting their territories;
    - Receive fair compensation for conservation measures or commercial land uses that impinge on their rights and livelihoods.
  - Measures to avoid creating additional pressures (leakage) that lead to the loss or degradation of non-forest ecosystems.
  
- **Develop and implement responsible, traceable and transparent sourcing policies, using credible certification systems, and promote these sector-wide.**
  - Understand who your suppliers are and where the greatest sustainability risks lie in your supply chains.
  - Eliminate sourcing associated with forest destruction from your supply chains by **developing policies and time-bound action plans** for the commodities most linked to destruction of forests and other valuable natural habitats (soy, palm oil, beef, timber, pulp and paper).
  - **Only buy from responsible suppliers** that have made long-term commitments to best practice. Knowing your sources will help to reduce risk and identify potential problems at an early stage.
  - **Join credible certification schemes and source credible certified commodities** as collaboration between companies within the supply chain is the only way to effectively deliver transformation of the wider industry.
  
- **Report on your progress against your commitments made.** Transparency about the progress made and the challenges faced will improve your performance and your credibility.
  
- **Reduce waste of material, food and energy along your supply chain.** Being more effective and efficient in the use of your resources will bring economic benefits.
  
- **Use your power:**
  - Your role gives you the potential to shift the market toward greater responsibility.
  - Ask politicians to develop new policies for responsible production and consumption that can support your own commitments and initiatives.

# ANNEX: SEI METHODOLOGY

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WWF European Policy Office commissioned the Stockholm Environment Institute (SEI) to assess the EU's impact on Brazil – home to a number of WWF's priority places for conservation. The study analysed the production of agricultural

commodities in Brazil and their route out of Brazil to consumption in the EU.

The methodology used in the SEI study compares soybean production and trade from three sources: (1) the Food and Agriculture Organization (FAO, FAOSTAT database); (2) SEI's IOTA model; and (3) SEI-PCS model.

The FAO data show the basic trade statistics for soybean (country-level production, imports and exports).

SEI runs two types of detailed trade models. SEI's IOTA model tracks the commodity from production country all the way to the final consumer, as in soy embedded in meat and dairy products consumed in the EU (called final consumption).<sup>37</sup> The SEI-PCS model traces site level production from individual municipalities in Brazil, to export and then onto processors and industry in the EU (termed intermediate consumption).<sup>38</sup>

Together these models can shed light on the complex interactions between production at the local level, traders, exporters, processing sectors, importers and final consuming countries. This approach is a significant advance on the basic country-to-country trade statistics. In areas such as the EU, much more soy may be consumed indirectly through meat, dairy and leather products than would be evident from looking only at the import and export of soy. And rather than simply showing national statistics, the SEI model enables us to trace production down to the municipal level – which is important in a country as large and varied as Brazil.

The IOTA model uses FAO data and a multi-regional input-output model to calculate the soybean embedded in final consumption, tracing soybean from production, along various processing and transportation stages, all the way to the final consumer in the EU. The economic model includes data on what each industrial sector in the economy buys and sells from all other industrial sectors and the products that they then sell on to final consumers. As this model uses industrial inputs and industrial outputs it is named "input-output" analysis. When many countries are included it is termed "multi-regional input-output analysis". Outputs are measured by their economic value, enabling us to see the amount of soy required to produce, for example, a dollar's worth of "bovine meat product" rather than to produce a kilo of minced beef.

The SEI-PCS model (Spatially Explicit Information on Production to Consumption Systems) shows the local-level soybean production in Brazil, and where this is transported to and finally exported from to the first users (soybean importers outside of Brazil).

In future, these tools will be developed to combine IOTA and SEI-PCS, linking local-level (municipality-level) production to final consumers.



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This farm, in Paraná, Brazil, uses no-till cultivation, which can improve soil quality and carbon levels, and reduce erosion and chemical inputs.

# ENDNOTES

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- 1 Europe in the context of this report is used as the European Union, mostly referring to the EU 27 member states, in some cases to the EU 28 member states.
- 2 The 7th Environmental Action Programme was adopted by the EU parliament and Council in 2013 and defines EU policy action on environment and climate until 2020. See [ec.europa.eu/environment/newprg](http://ec.europa.eu/environment/newprg)
- 3 WWF. 2014. *Living Planet Report: People and Places, Species and Spaces*.
- 4 WWF. 2015. *From crisis to opportunity: 5 steps to European sustainable economies*.
- 5 European Commission. 2013. *The impact of EU consumption on deforestation*.
- 6 Costanza et al. 1997. The value of the world's ecosystem services and natural capital.
- 7 WWF. 2014. *The Growth of Soy*.
- 8 IPCC. 2014. Agriculture, Forestry and Other Land Use (AFOLU)
- 9 FAO. 2010. Global Forest Resource Assessment 2010.
- 10 WWF. 2015. *Living Forests Report*. Chapter 5: Saving forests at risk.
- 11 Unless otherwise stated, data in this chapter is taken from European Commission. 2013. *The impact of EU consumption on deforestation*.
- 12 Unless otherwise stated, information in this section is taken from WWF's 2014 report *The Growth of Soy*, which includes full references to original data.
- 13 "EU demand" or "EU final consumption" in this model refers to all of the things that citizens of the EU consume, from basic foodstuffs to complex processed goods and even services. The underlying model is a macro-economic model of the global economy, so it includes everything that is made and consumed in an economy. This means that it is possible to estimate the consumption of soy itself, alongside the soy land embedded in processed products like meat and dairy which account for the majority of soy consumption; but it also captures even small amounts of soy that may be embedded in long supply chains of purchases less obviously related to soy, like expenditure on hotels and restaurants. More information can be found in the Annex or on the SEI website at: [www.sei-international.org/sei-pcs](http://www.sei-international.org/sei-pcs)
- 14 Godar et al. 2015. *Towards more accurate and policy relevant footprint analyses: Tracing fine-scale socio-environmental impacts of production to consumption*.
- 15 Unless otherwise stated, data in this section comes from WWF's *The Growth of Soy* report 2014.
- 16 See [www.worldbank.org/en/country/brazil/overview](http://www.worldbank.org/en/country/brazil/overview)
- 17 FAO estimate 2012: [www.fao.org/countryprofiles/index/en/?iso3=BRA](http://www.fao.org/countryprofiles/index/en/?iso3=BRA)
- 18 See [ec.europa.eu/agriculture/statistics/agricultural/2013/pdf/b0-1-2\\_en.pdf](http://ec.europa.eu/agriculture/statistics/agricultural/2013/pdf/b0-1-2_en.pdf)
- 19 See [ec.europa.eu/trade/policy/countries-and-regions/countries/brazil](http://ec.europa.eu/trade/policy/countries-and-regions/countries/brazil)
- 20 Sparovek et al. 2011. *A revisão do Código Florestal brasileiro*.
- 21 See [wwf.panda.org/who\\_we\\_are/wwf\\_offices/brazil/about\\_brazil](http://wwf.panda.org/who_we_are/wwf_offices/brazil/about_brazil)

- 22** Gibbs et al. 2015. *Brazil's Soy Moratorium*.
- 23** WWF. 2015. *The Brazilian Amazon: challenges to an effective policy to curb deforestation*.
- 24** Ibid.
- 25** See WWF. 2014. *The Growth of Soy*
- 26** Gibbs et al. 2015. *Brazil's Soy Moratorium*.
- 27** WWF. 2014. *The Growth of Soy*.
- 28** WWF. 2015. *The Brazilian Amazon: challenges to an effective policy to curb deforestation*.
- 29** Commitments of companies and other organisations are tracked at Supply Change – Commitments that Count ([supply-change.org](http://supply-change.org)) and Global Canopy Programme's Forest 500 ([www.globalcanopy.org/forest500](http://www.globalcanopy.org/forest500)).
- 30** Consumer Goods Forum. 2010. Board Resolution on Deforestation.
- 31** Banking Environment Initiative and Consumer Goods Forum. 2014. Soft Commodities Compact.
- 32** See [www.tfa2020.com](http://www.tfa2020.com)
- 33** WWF. 2015. *On our plate today – Healthy, sustainable food choices*. LiveWell for LIFE concluding report.
- 34** Westhoek et al., 2011. *The Protein Puzzle*.
- 35** See [www.livewellforlife.eu](http://www.livewellforlife.eu)
- 36** European Commission. 2013. *The impact of EU consumption on deforestation*.
- 37** [www.sei-international.org/iota](http://www.sei-international.org/iota)
- 38** [www.sei-international.org/sei-pcs](http://www.sei-international.org/sei-pcs)

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# EATING UP FORESTS IN NUMBERS

100%  
RECYCLED



## 9 MILLION

EU consumption led to the loss of 9 million hectares of forest globally during the period 1990-2008

## 50%

Half of the world's tropical forests have been destroyed over the last century and this process is still continuing



## 2.6

If everyone lived like the average EU citizen, we would need 2.6 Planet Earths to support ourselves

## 5%

The Brazilian Cerrado holds 5 per cent of the world's biodiversity but is threatened by soy production



### Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

[wwf.eu](http://wwf.eu)