An aerial photograph showing a dense green forest on the left and a cleared pasture on the right. A herd of cattle is grazing in the pasture, which is separated from the forest by a narrow dirt path. The top of the image has a solid orange horizontal bar.

# Cattle, Cleared Forests, and Climate Change

*Scoring America's Top Brands on Their Deforestation-Free  
Beef Commitments and Practices*

# Each year, tropical forests are destroyed to clear land that is ultimately used for beef production, making beef the largest driver of tropical deforestation globally. South America’s forests are “ground zero” for beef-driven deforestation.

Here, ranchers clear tropical forests and other ecosystems such as native grasslands and woodlands to create pastures, in the process releasing enormous amounts of heat-trapping gases, destroying the habitat of wildlife such as jaguars and sloths, and encroaching on the homes of vulnerable indigenous peoples.

The Union of Concerned Scientists (UCS) evaluated 13 consumer goods companies in the fast food, retail, and food manufacturing sectors that have the power to help stop this destruction. They each source beef from South America and should work with their South American suppliers to help change practices in order to ensure that the beef in their products is not causing deforestation. UCS has found that even companies taking action on this issue have major gaps in their policies and practices that mean they may be profiting from selling “deforestation-risk beef,” or beef produced without safeguards that would prevent deforestation.

Nine of the 13 companies we scored lack any public policies or plans detailing how they intend to completely eliminate deforestation associated with their beef purchases. Of these nine, four did not receive a single point on our scorecard: Burger King, ConAgra, Kroger, and Pizza Hut. Subway earned only five points. Four others—Hormel, Jack Link’s, Safeway, and Wendy’s—source their beef from suppliers implementing some practices to prevent deforestation in South America, but these companies should work with their suppliers to address the limitations of these practices and also publicly demonstrate that they have strong deforestation-free policies and action plans of their own in place. Nestlé has a deforestation-free beef commitment but needs to make more progress implementing it.

The companies making the most progress in adopting and implementing deforestation-free beef commitments and practices are Mars, McDonald’s, and Walmart, but they also have much room for improvement. First, not all of their supplying ranches are traced and monitored for deforestation, which means every company we scored cannot guarantee

that its beef is truly deforestation-free. Second, each of these companies with a commitment focuses implementation only on the Brazilian Amazon, even though many other ecosystems are also at risk. All companies also lack adequate transparency, which leaves consumers and investors in the dark about whether companies are carefully monitoring and evaluating their supply chains for tropical deforestation.

Beef can be produced without deforestation. The companies scored in this report have the power to help save forests and our climate. Thanks to consumer demand, government action, and nongovernmental organization (NGO) advocacy, some companies and their suppliers have taken steps to address this risk, but all the companies scored lack sufficient policies and practices to ensure the beef in their products is not connected to tropical deforestation in South America. Consumers can help save forests by demanding that these 13 companies take deforestation off their menus and out of their ingredients by working with their suppliers to implement verified deforestation-free practices. When consumers speak, companies listen and act.

## Why Beef?

Beef production is the number-one driver of tropical deforestation in South America and worldwide (De Sy et al. 2015; Henders, Persson, and Kastner 2015). Analysis of nations with high rates of tropical deforestation has shown that the amount of deforestation fueled by beef production is more than twice as large as the combined amount resulting from the production of soy, palm oil, and wood products—the next three largest drivers of tropical deforestation (Henders, Persson, and Kastner 2015). In South America, beef production was responsible for 71 percent of total deforestation between 1990 and 2005 (De Sy et al. 2015). Cattle are raised primarily for meat and dairy products, but the industry also produces a number of other cattle products, such as fats, leather, and gelatin, which can be found in everything from lotion to shoes.



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Forests are also cleared to produce soybeans, which are used as animal feed in poultry, pork, and beef operations.

Soy, the second largest driver of deforestation, also heavily affects the South American landscape. Every year, around half a million hectares are deforested for soy in major soy-producing tropical nations (Henders, Persson, and Kastner 2015). The majority of soy is used as animal feed; around 70 to 75 percent of the world's soy ends up as feed for cows, chickens, pigs, and farmed fish (Brack, Glover, and Wellesley 2016). Thus, soy is also connected to South America's largest meatpackers, which use large amounts of animal feed in their beef, poultry, and pork operations. While some progress has been made in tackling deforestation resulting from production

of these two commodities, forests are still disappearing to make room for soy and pastureland expansion.

Forest destruction leads to the release of massive amounts of heat-trapping gases and the subsequent effects on climate, along with reduced biodiversity. When forests are cut down or set on fire to make way for agriculture, the vegetation decomposes or burns, releasing carbon into the atmosphere. In total, around 10 percent of annual global carbon dioxide emissions result from tropical deforestation (UCS 2013). Forest destruction also leads to habitat loss for a variety of species. Tropical forests contain some two-thirds of the planet's land species (Gardner et al. 2009), and forests in South America provide habitat for species such as jaguars, harpy eagles, and sloths. In addition, tropical forests help clean the air and water and regulate local temperatures and precipitation. If deforestation continues at current rates, regional climate changes such as reduced precipitation could lower pasture productivity in the Brazilian Amazon up to 33 percent by 2050 (Oliveira et al. 2013). Thus, deforestation can be a lose-lose situation for all of us who rely on a stable climate and for the ranchers whose livelihoods depend on sufficiently productive land.

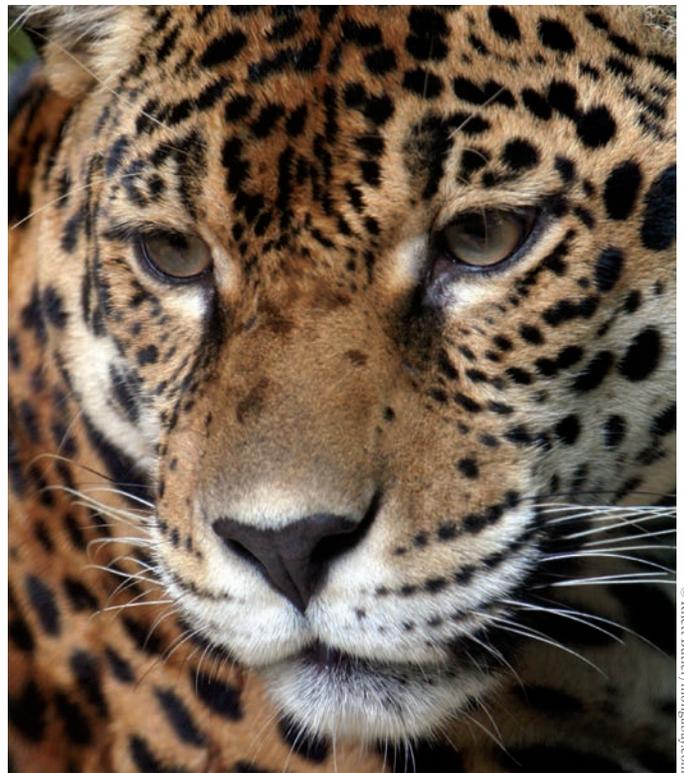
Around one billion people worldwide rely on forests to some extent for their livelihoods. Deforestation for pastureland expansion can therefore harm local communities and indigenous peoples by depriving them of this resource (Chao

***Forest destruction leads to the release of massive amounts of heat-trapping gases and the subsequent effects on climate, along with reduced biodiversity.***

2012). Insecure land rights have also led to land grabbing, deforestation, and conflict over land ownership (Chao 2012; Puppim de Oliveira 2008). Protecting the rights of local communities and indigenous peoples can have positive outcomes for forests. The rate of deforestation is 7 to 11 times lower in the Brazilian Amazon in protected areas and on lands where indigenous peoples hold effective land ownership than in other regions (Ricketts et al. 2010). These areas create a crucial barrier, backed by force of law, which can help alleviate agriculture-driven deforestation occurring in surrounding areas.

This report discusses the problem of beef as a driver of tropical deforestation and recommends solutions. Beef can be produced in several different ways, each with its own implications for animal welfare, public health, workers, local communities, and the environment. There are a number of reasons consumers might consider reducing their consumption of beef. Studies have shown that overconsumption of beef leads to an increased chance of developing cardiovascular disease, certain cancers, and other health conditions (Sinha et al. 2009). Beef production also involves much greater land and water use and global warming emissions compared with other protein sources (Ranganathan et al. 2016). Livestock production emits roughly 14.5 percent of all global warming emissions, with cattle responsible for the majority of this pollution (Gerber et al. 2013). Beef production causes global warming through its effects on deforestation, both directly through pasture expansion and indirectly through its use of feed, which can be produced in ways that drive deforestation and climate change. Cattle also release methane, a powerful heat-trapping gas, through the function of their digestive systems. This report focuses exclusively on the impacts of the South American beef industry as it relates to tropical deforestation, the consequent global warming emissions, and what multinational consumer goods companies can do to address this issue.

While expansion of pastureland has also driven deforestation in regions outside South America, this report focuses on South America because of its sizable forest loss due to pastureland expansion and because of South American beef's connection to the global marketplace (Henders, Persson, and Kastner 2015). Additionally, although many other cattle products, such as tallow, leather, gelatin, and glycerol, may be linked to deforestation risk in South America, these products are not a focus of our report.\* However, we did award points to companies if they had a commitment to ensure their beef and all other cattle products do not fuel deforestation.



*Tropical forests contain some two-thirds of the planet's land species. Destruction of forests for expansion of cattle pasture leads to habitat loss for a variety of species, such as jaguars.*

## Deforestation-Risk Beef and the US Market

The United States has historically had bans on fresh and frozen beef from Argentina and Brazil—the beef-exporting powerhouses of South America—because of foot-and-mouth disease concerns. However, the United States Department of Agriculture has begun the process of lifting these bans. Consumption by Americans of deforestation-risk beef in the form of hamburgers, steaks, and the like is therefore becoming increasingly likely. Yet deforestation-risk beef has already made its way into the US market in the form of processed beef, such as beef jerky sold by Jack Link's and canned corned beef sold by Kroger and Safeway. In 2015, the United States was the top destination for processed beef exports from Brazil (ABIEC 2016). The United States is also one of the largest importers of leather goods, and it imports many of these products from countries that receive hides from South America (United Nations Comtrade Database 2015). Therefore, leather products such as jackets, car upholstery, and boots sold in the United States may also be connected to deforestation in South America.

\* In this report, we define beef to include fresh and frozen beef (typically consumed as steaks and hamburgers, for instance), beef jerky, offal (often found in pet food), and canned corned beef. Cattle products include beef and such by-products and co-products as tallow, leather, gelatin, and glycerol.

However, with some exceptions (such as Paraguay), beef is most often consumed in the country of production; thus, most South American deforestation-risk beef is consumed within South America (FAO Statistics Division 2010). But many US-based companies, including global fast food restaurants such as Burger King and Pizza Hut, operate in South America and sell beef produced there to their South American customers.

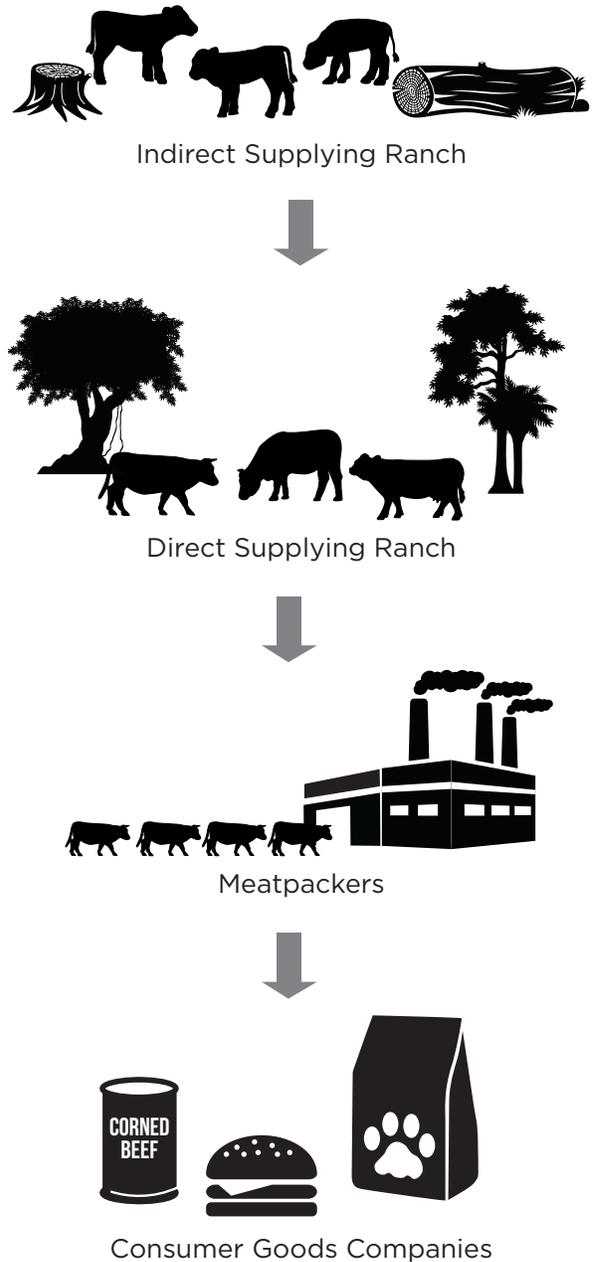
### Understanding the Beef Supply Chain

The beef supply chain in South America is complex. Cattle eventually end up at a direct supplying ranch—a ranch that sells directly to the meatpacker (slaughterhouse). A few meatpackers monitor their supply chain, though they monitor only the direct supplying ranches for deforestation. But before cattle reach the direct supplying ranch, ranchers often move them to different ranches for different stages of production. The three stages of production are: breeding, raising, and fattening. Cattle are also frequently relocated to different ranches via intervening actors and transactions such as traders and auctions. Any of these indirect supplying ranches (ranches through which cattle travel before arriving at the direct supplying ranch) may be associated with deforestation. But, because the meatpacker monitors only the direct supplying ranch, it does not actually know whether the cattle it buys are associated with deforestation on an indirect supplying ranch. Meatpackers process the cattle into fresh beef, frozen beef, processed beef, and other products. Given the huge volume of beef they process, their relationships with cattle ranchers, and the control they exert over market access, meatpackers can play a pivotal role in stemming deforestation resulting from beef production.

After processing, meatpackers sell the cattle products directly to consumer goods companies or to a secondary processor that then sells the finished goods to consumer goods companies. Consumer goods companies, such as ConAgra, Jack Link’s, Kroger, Mars, Nestlé, and Safeway, then sell these finished cattle products to US consumers; these products end up on our plates or in our cosmetics, handbags, or pet food. The South American operations of US companies—including fast food restaurants such as Burger King, McDonald’s, Pizza Hut, Subway, and Wendy’s and retailers such as Walmart—also receive beef from these meatpackers, which is then sold to South American consumers in the form of burgers, pizza toppings, and sandwich meat, for example.

Currently, all 13 of the scored companies in this report lack sufficient policies and practices to ensure they are not purchasing beef sourced from ranches associated with recent deforestation. These companies have a responsibility to work

FIGURE 1. How Deforestation Can Hide in the Beef Supply Chain



*This is one example of how deforestation-risk beef enters the supply chain—through a meatpacker’s indirect supplying ranches. Indirect supplying ranches are often not monitored for deforestation. However, many meatpackers do not monitor their direct supplying ranches for deforestation either.*



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*The best way for US consumers to reduce tropical deforestation is to demand that multinational consumer goods companies such as those profiled in this report purchase beef only from meatpackers that buy and process deforestation-free cattle exclusively.*

with their South American supplying meatpackers, which have enormous influence over the beef supply chain, to adopt robust deforestation-free policies and practices. And we, as consumers, have a critical role to play by demanding they do so and showing we are unwilling to support companies buying deforestation-risk beef. Calls from consumers and investors for companies to buy only zero-deforestation palm oil established responsible palm oil policies as the industry norm. While more work is needed to convert such policies into responsible production practices at palm oil plantations across the globe, there is huge potential to replicate this success by using the same approach to reduce tropical deforestation driven by cattle ranching in South America.

### **Beef Can Be Produced without Deforestation**

Some progress in reducing rates of tropical deforestation has been made in recent years, with the majority of the reduction occurring in the Brazilian Amazon thanks to collaboration between the public and private sector. Between 2005 and 2014, deforestation rates in the Brazilian Amazon dropped by about 70 percent (Lapola et al. 2014). Because pasture expansion has been responsible for the vast majority of Amazon deforestation in recent years, the drop in overall deforestation is an indication that deforestation associated with beef dropped as well (Boucher et al. 2014). A variety of factors is responsible. During this period, strong social and environmental movements erupted and Brazil's political leadership

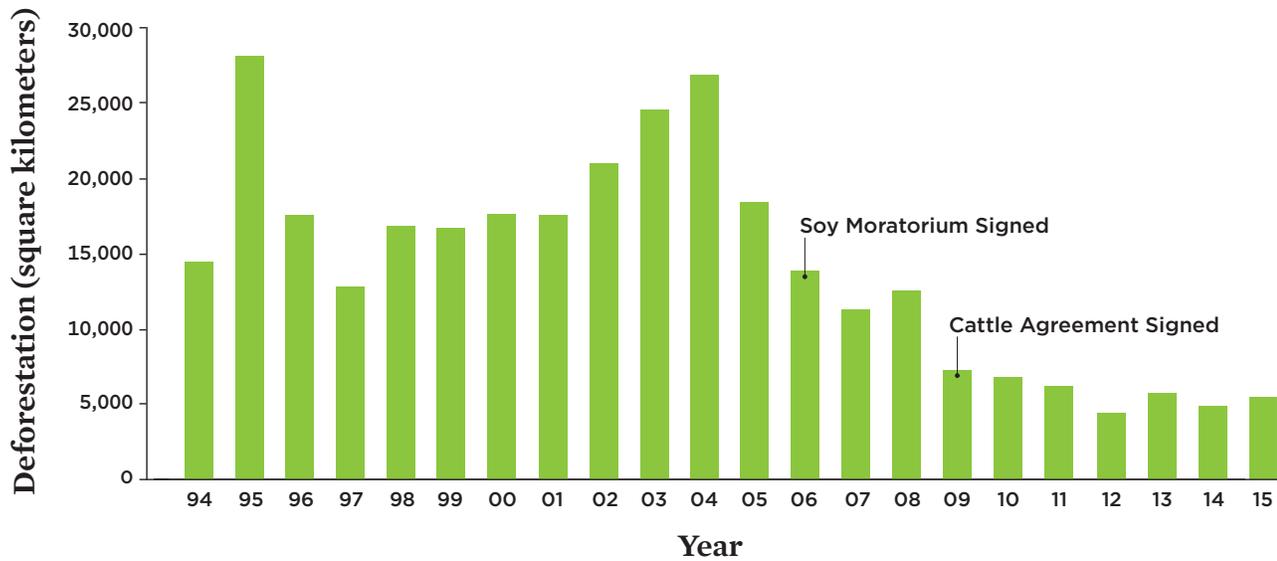
prioritized the conservation of the Amazon forest (Boucher et al. 2014); this led to zero-deforestation private sector agreements and several government measures passing. These zero-deforestation private sector agreements and policies have proven critical in addressing deforestation in the Brazilian Amazon given the Brazilian government's recent weakening of some forest protection laws and gaps in its policies that allow some deforestation (Soares-Filho et al. 2014).

Responding to NGO pressure—such as Greenpeace's 2009 report *Slaughtering the Amazon*, which shed light on corporations linked to forest destruction—and international pressure, the four largest meatpackers in Brazil signed the Minimum Criteria for Industrial Scale Cattle Operations in the Brazilian Amazon Biome agreement. Better known as the G4 Agreement or the Cattle Agreement, it required the signing meatpackers—Bertin, JBS, Marfrig, and Minerva—to ascertain in ways that can be monitored, verified, and reported that their supplying ranches are not linked to deforestation. However, the Cattle Agreement's influence is limited. It currently applies only to the three largest meatpackers (Bertin was later bought by JBS) and protects only the Brazilian Amazon. And meatpackers have so far stalled in implementing the requirement that all cattle ranches in the meatpackers' supply chains be monitored, including indirect supplying ranches. Consumer goods companies therefore must work with their supplying meatpackers to make more progress in addressing risk at all ranches in their supply chains, including those outside the Brazilian Amazon. Nevertheless, the agreement has been a historic step toward corporate actors taking responsibility for their role in driving deforestation.

In places where the Cattle Agreement has been coupled with strong government policies, evidence of changes in practices has emerged. For instance, meatpackers operating in the Brazilian state of Pará, after being sued by the federal public

**Currently, all 13 of the scored companies in this report lack sufficient policies and practices to ensure they are not purchasing beef sourced from ranches associated with recent deforestation.**

FIGURE 2. Deforestation in the Brazilian Amazon



In addition to government policies and regulations, two voluntary agreements have contributed to the reduction of deforestation in the Brazilian Amazon: the Soy Moratorium, signed by some of the largest soybean traders, and the Cattle Agreement, signed by some of the largest meatpackers in the cattle industry. By signing them, major soybean traders and meatpackers pledged to ensure their production of soy and beef respectively do not fuel deforestation in the Brazilian Amazon.

SOURCE: MONGABAY 2016.

prosecutor’s office, signed Terms of Adjustment of Conduct (MPF-TAC) agreements, which legally pushed meatpackers and ranches to begin addressing deforestation in their supply chains and on their properties, respectively. After signing the MPF-TAC and Cattle Agreement, the meatpacker JBS changed its purchasing behavior to buy only from direct supplying ranches not associated with deforestation. Moreover, JBS’s direct supplying ranches registered their properties with the government faster than did other ranches, and the rate of deforestation associated with these ranches dropped more significantly than did the rates associated with other ranches (Gibbs et al. 2016). In this case, government policies and pressure from NGOs played a crucial role in meatpackers and ranchers taking steps to reduce deforestation.

Progress in reducing soy-driven deforestation in the Brazilian Amazon has also occurred. In 2006, three years before the Cattle Agreement, major players in the soy industry agreed to avoid purchasing any soy linked to deforestation in the Brazilian Amazon through an agreement known as the Soy Moratorium. The moratorium has proven to be successful, with only about 1 percent of soy expansion occurring in native vegetation in the Brazilian Amazon as of 2014 (Gibbs et al. 2015). In May 2016, the Soy Moratorium was indefinitely

extended. This is good news. But although the moratorium has helped achieve reduced deforestation in the Brazilian Amazon, other critical forests and ecosystems in South America lack protection and deserve attention from consumer goods companies and their suppliers.

While deforestation rates in the Brazilian Amazon have remained consistent rather than decreased in recent years (National Institute for Space Research 2015), and recent weakening of forest protection laws by the Brazilian government (Soares-Filho et al. 2014) are concerning, the preceding examples in the cattle and soy sectors show what is possible when government and industry work together.

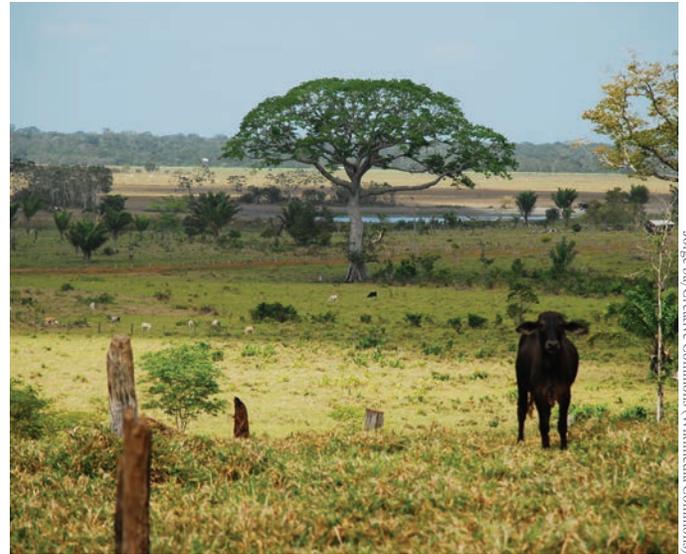
Multiple private sector initiatives have also emerged, allowing collaboration in setting a new deforestation-free standard for business. Consumer goods companies can now join multistakeholder forums such as the Global Roundtable for Sustainable Beef and the Brazilian Roundtable on Sustainable Livestock. However, measurable progress can happen only when companies use these tools to support collaborative, large-scale industry transformation. It is crucial that companies go beyond the lowest common denominator approach, which can result when attempting to implement large-scale change by securing buy-in from a diverse range of parties.

This usually results in weak standards. Certification schemes can also drive change when standards are strong and audits robust. Ranches can receive certifications from organizations such as Rainforest Alliance that indicate they adhere to certain sustainability practices.

## What Companies Can Do Now

### ENSURE POLICIES AND PRACTICES ARE GLOBAL IN SCOPE

In order to ensure all critical ecosystems are protected during beef production, companies should have global policies inclusive of all forests. As noted above, while the Cattle Agreement has led to significant efforts to curb deforestation, it applies only to three meatpackers in Brazil and those meatpackers are addressing only the Brazilian Amazon. Many consumer goods companies' policies also address only the Brazilian Amazon. Thus, even though these companies may claim to be protecting forests, their beef supply chains may still be linked to forest clearance and associated global warming elsewhere in Brazil and South America (Figure 3). For example, clearance for agriculture production and pasture development in the Cerrado (in Brazil) and Chaco (in Argentina, Bolivia, Brazil, and Paraguay) is occurring at alarming rates. The Cerrado is a region of tropical savanna and woodlands where nearly 60,000 square kilometers—an area almost the size of West Virginia—have been cleared for agriculture since 2003 (Gibbs et al. 2015). From 2003 to 2008, cutting and burning in the Cerrado released 1,449 megatons of carbon dioxide equivalent, equal to the annual emissions of about 306 million cars, with conversion to pastures responsible for more than half of these emissions (Bustamante et al. 2012). Meanwhile, the rate of forest clearance is growing rapidly in the Chaco, with the Paraguayan Chaco experiencing some of the highest deforestation rates in the world (Jobbagy et al. 2015). Although beef and soy have been implicated as primary drivers of expansion in the Cerrado and Chaco (Baldi et al. 2015; Gibbs et al. 2015; Vallejos et al. 2015), companies have stalled in addressing these vulnerable areas. Forest clearance for cattle is also a threat in the Chiquitano forest in Bolivia (Müller et al.



Cattle ranchers have cleared ecosystems outside the Brazilian Amazon, including in the non-Brazilian Amazon, the Chaco, the Chiquitano, and the Cerrado (pictured here), for expansion of cattle pasture.

2012). And regions of the Amazon biome found outside Brazil, for example in Bolivia, have also been deforested to make room for soy and pastureland (Steininger et al. 2001). To help end the destruction of vulnerable forests, companies should therefore have policies and deforestation-free practices that cover ecosystems beyond the Brazilian Amazon, and they should require the same of their supplying meatpackers.

### TRACE AND MONITOR ALL SUPPLYING RANCHES

For consumer goods companies and their supplying meatpackers to guarantee that all their cattle products are deforestation-free, traceability and map-based monitoring systems should extend to all ranches involved in the beef supply chain, not just meatpackers' direct supplying ranches. Although meatpackers pledged in the Cattle Agreement to ensure indirect supplying ranches are not causing deforestation, only final, direct supplying ranches are currently monitored. Thus, although a direct supplying ranch may comply with this pledge while cattle are in its custody, these same cattle may have moved through indirect supplying ranches, any one of which—or even all of which—may have been associated with deforestation. A number of solutions have been put forward, such as creating entire zero-deforestation jurisdictions or landscapes, tagging and tracking individual cows from birth to slaughter, and obtaining the names and locations of all indirect supplying ranches. One existing tool that could be used to implement deforestation-free policies is the Animal Transit Guide (GTA), which currently traces cattle origins for the purpose of ensuring animal vaccination. The

**Measurable progress can happen only when companies support collaborative, large-scale industry transformation.**

FIGURE 3. Forested Areas at Risk of Conversion for Pastureland Expansion



*A number of forested ecosystems across South America remain at risk for conversion to cattle pasture, including (but not limited to) regions within the Amazon, the Cerrado, the Chaco, and the Chiquitano.*

***Although meatpackers pledged in the Cattle Agreement to ensure indirect supplying ranches are not causing deforestation, only final, direct supplying ranches are currently monitored.***

Rural Environmental Registry (CAR) systems in Brazil, which require ranchers to register their property boundaries with the government, also hold promise as a way to monitor deforestation on indirect supplying ranches. More work and investment is needed to scale up these methods of tracing and monitoring indirect supplying ranches.

Moreover, many meatpackers that were not involved in the agreement are neither tracing nor monitoring direct supplying ranches, let alone attempting to trace or monitor indirect supplying ranches. Consumer goods companies should require their supplying meatpackers in South America to extend their deforestation-free policies and practices to cover all ranches in the supply chain. Otherwise, companies and their supplying meatpackers will never be able to guarantee their supply chain is deforestation-free.

#### **RESPECT HUMAN RIGHTS**

Given the history of human rights abuses in the cattle industry and in frontier regions where agriculture leads to forest loss, companies need to require their meatpackers in South America to recognize, respect, and uphold indigenous peoples' and workers' rights. Concrete steps—some of which have already been taken in Brazil, where government, NGO, and business partnerships have created mechanisms to identify and reduce these risks—include overlaying maps of indigenous land with maps of supplying ranches in Brazil to ensure supplying ranches are not encroaching on indigenous lands. Companies should also ensure that ranches are not on the Brazilian labor ministry's list of those having been caught using slave labor. The list is obtained and published by the NGO Repórter Brasil and the Brazilian Institute to Eradicate Slave Labor (InPACTO) through freedom of information requests; it details ranches the government has fined for using slavelike labor. The beef industry has been linked to conditions analogous to slave labor more than has any other industry in

Brazil (Phillips and Sakamoto 2012), making this issue paramount for companies to address.

Workers, indigenous peoples, and local communities should have access to a credible, independent grievance mechanism that allows them to report safely and resolve violations of their rights and of deforestation-free policies. Companies along the supply chain should also ensure that their global operations comply with local, national, and international laws and human rights norms, including the United Nations (UN) Universal Declaration on Human Rights; UN Declaration on the Rights of Indigenous Peoples; Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests; UN Guiding Principles on Business and Human Rights; and Core Conventions of the International Labor Organization (ILO). While a full discussion of what companies should do to respect human rights is more complex than we can cover here, global corporations have moral and legal obligations to ensure that violence, social conflicts, land rights conflicts, and other human rights violations do not result from production of their goods.

#### **IMPROVE PASTURELAND MANAGEMENT**

Improved pastureland management can offer benefits to forests and the climate by reducing the need for expansion. Analysis suggests that improving management and increasing productivity on current pastureland in Brazil would meet demand for meat, crops, wood products, and biofuels until at least 2040 (Strassburg et al. 2014). Better management includes grazing appropriate numbers of cattle per unit of land (Boucher et al. 2011). It also includes grazing management that responds to changing conditions, using high-quality and high-yielding pasture crops that support efficient animal growth, and increasing the use of cattle breeds more suitable for tropical regions (Latawiec et al. 2014; UCS 2011; Steinfeld et al. 2010; Herrero et al. 2009). Using best management practices on pastureland has the potential to reduce heat-trapping emissions from beef production, boost carbon sequestration in soil and plants, and offer other environmental benefits such as reduced pollution and increased biodiversity (UCS 2011). These benefits can be achieved without confined animal feeding operations (i.e., “factory farms”), which often negatively affect the environment and animal welfare (Boucher et al. 2011).

It is important to note that moderate intensification in frontier regions where agriculture leads to deforestation may cause increased agricultural expansion into forests through a phenomenon known as the rebound effect. As efficiency increases, resulting in lower prices, consumption of the good can rise, thereby increasing the demand on land (Lambin and

Meyfroidt 2011). Strong policies are needed to mitigate this effect. These policies could include creation of protected areas, incentives for ranchers to conserve forests (Latawiec et al. 2014; Lambin and Meyfroidt 2011), and encouragement of better pastureland management away from frontier regions (Boucher et al. 2011).

## The Scorecard Criteria

UCS evaluated companies in five different categories: ambition of deforestation-free commitment; time-bound implementation plan; compliance; transparency; and traceability, monitoring, and verification. For companies to ensure their products do not drive tropical deforestation, they need to make progress in each of these areas. The appendix details specific requirements companies need to have and fulfill to ensure that global beef sourcing policies protect forests.

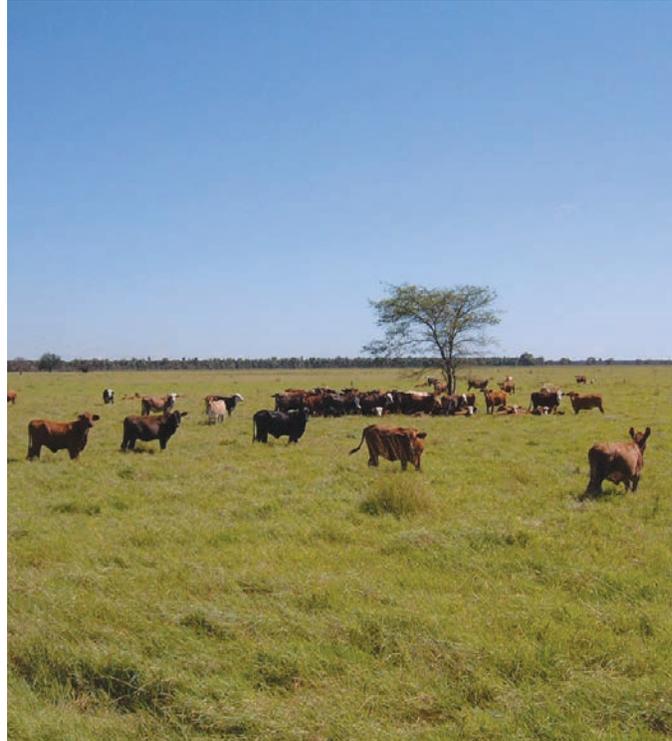
### AMBITION OF DEFORESTATION-FREE COMMITMENT

Companies should have strong cross-commodity and beef-specific deforestation-free commitments. Companies should have commitments that are as comprehensive as possible; they should be global, protect primary and secondary (degraded or regenerating) forests, and cover all forest-risk commodities in their supply chains. Companies should also require their supplying meatpackers to have a zero-deforestation commitment; supplying meatpackers will then sell deforestation-free beef not only to the company making this commitment, but also to all of their customer companies, creating widespread market transformation.

### TIME-BOUND IMPLEMENTATION PLAN

For companies to demonstrate they take their commitment seriously, they need to have a time-bound implementation

**Global corporations have moral and legal obligations to ensure that violence, social conflicts, land rights conflicts, and other human rights violations do not result from production of their goods.**



*When paired with strong environmental policies, using best management practices and moderately increasing productivity on ranches can reduce the need to expand into forests.*

plan with clear deadlines and intermediate steps to indicate progress and success throughout a process of long-term change. Companies should adopt the most ambitious timeline possible for full implementation of their policies. Keeping to these deadlines and achieving intermediate steps are a key way companies can show their commitments are not just words on paper.

### COMPLIANCE

Without compliance to deforestation-free policies from meatpackers and ranchers, consumer goods companies cannot create real change on the ground. Companies should signal to their supplying meatpackers that noncompliance with their deforestation-free policies is a serious matter. They need to have public protocols that detail the consequences of violating their policies to supplying meatpackers. These protocols are essential to returning supplying meatpackers to compliance and to cutting off those that decline to comply in a timely manner. Additionally, in order for true progress to be made, ranchers should be given adequate technical and financial support to change their practices so they can comply with a new deforestation-free standard. This transition is

often costly for small ranchers. Many small ranchers depend on clearing small areas of forest for their livelihood because it is often easier than optimizing their production systems.

#### TRANSPARENCY

Transparency allows NGOs, consumers, investors, and governments to monitor and verify that a company is making progress toward its deforestation-free goals. Key transparency elements include disclosing the geographies and suppliers from which a company sources its beef and releasing annual reports that state the amount of beef purchased that has been verified as meeting a company's deforestation-free criteria. Transparency also means releasing information about the tools and data a company uses to determine whether deforestation is occurring in its supply chain. In addition to increasing their own transparency, consumer goods companies need to demand increased transparency from their South American supplying meatpackers in order for outside parties to evaluate whether progress is being made in achieving zero-deforestation beef production.

#### TRACEABILITY, MONITORING, AND VERIFICATION

Traceability, monitoring, and verification are vital to ensuring actual implementation of company policies. Complete traceability means that companies can follow a beef purchase back to the ranch where the calf was born. Only by knowing the origin of their beef and all the steps thereafter can companies ensure that their cattle products do not contribute to deforestation anywhere along the supply chain. Monitoring means using satellite images to look for forest loss to ensure deforestation does not occur on supplying ranches. Satellite monitoring can be paired with someone physically verifying deforestation is or is not occurring for further accuracy. Last, third-party audits should occur and the results made public for complete verification of zero-deforestation policy implementation. Audits that evaluate whether and to what extent a company is meeting its zero-deforestation and social policies ought to be performed by a credible third party to ensure that evaluations are as unbiased as possible. By establishing robust traceability and monitoring and verification systems for all direct and indirect supplying ranches, companies can ensure that their products do not drive tropical forest destruction.

### Company Results

All 13 of the large consumer goods companies we scored need to strengthen their deforestation-free beef policies and practices. Not a single company currently has strong policies and



*All 13 of the large consumer goods companies we scored are failing to ensure their beef products are not fueling tropical deforestation.*

practices. Further details on the individual company scores, our methodology, and how UCS chose the companies featured in the scorecard can be found at [www.ucsusa.org/beefscorecard](http://www.ucsusa.org/beefscorecard).

While all the companies scored fail to guarantee that their cattle products are not linked to deforestation, some companies have made much more progress than others. Companies generally fell into three groups: (1) those that have public policies and are taking some actions; (2) those that have not adopted policies but do work with meatpackers that have adopted some practices aimed at eliminating deforestation in their supply chain; and (3) those that lack a deforestation-free policy and also do not publicly report on action aimed at eliminating deforestation caused by their supply chain.

#### COMPANIES LACKING MEANINGFUL DEFORESTATION-FREE BEEF POLICIES AND PRACTICES

Companies that have failed to make any notable progress and therefore received a zero in the scorecard are Burger King, ConAgra, Kroger, and Pizza Hut. Subway received a mere five points, given only because it discloses the geographic locations from which it sources its South American beef. These companies need to take immediate action by adopting deforestation-free beef sourcing policies and practices that will prevent their cattle products from fueling forest destruction and human rights violations.

Hormel, Jack Link's, Nestlé, Safeway, and Wendy's buy beef from at least some meatpackers in South America that have implemented some protections for forests in the Brazilian Amazon. However, this will not protect other crucial ecosystems or cover all indirect supplying ranches. These

companies should demonstrate that they are working with their supplying meatpackers to close the gaps. Three of these companies—Jack Link’s, Safeway, and Wendy’s—also lack strong deforestation-free policies and practices, and none have made a public commitment to deforestation-free beef. Meanwhile, Hormel has publicly released limited details on some of the deforestation-free practices of their supplying meatpackers and their audit requirements, but must release a strong zero deforestation policy and action plan. In contrast, Nestlé has strong cross-commodity and beef-specific deforestation-free commitments in place, though it lacks a public plan to implement its commitment to deforestation-free beef. All five of these companies should release time-bound implementation plans, noncompliance protocols for their deforestation-free policies, plans or requirements for supporting small ranchers, and annual reports on progress. They also should require that traceability and monitoring systems be public, extend tracing and monitoring to indirect supplying ranches, and require third-party audits that release public results.

Hormel publicly confirms it sources from suppliers with some deforestation-free practices in place, but must work with its suppliers to strengthen them. It also requires independent audits of them; however, it needs to require that the results of these audits are made public. It should also publish more information proving its working to ensure that the beef it sells is completely deforestation-free and adopt strong cross-commodity and beef-specific deforestation-free policies.

Jack Link’s, one of the largest beef jerky companies, does not publicly communicate how it ensures that its products are not causing deforestation. It lacks critical public commitments and policies that would hold its supplying meatpackers accountable. However, all its supplying meatpackers in Brazil have adopted the Cattle Agreement or equivalent safeguards, meaning they are making some progress toward implementing deforestation-free practices in the Brazilian Amazon. Jack Link’s needs to do much more to ensure and publicly report that it is adequately addressing deforestation risk.

Similarly, Wendy’s does not make public its deforestation standards, but in correspondence with UCS, Wendy’s confirmed that it has some protocols. The company indicated it buys from a meatpacker that is tracing and monitoring direct supplying ranches and conducting third-party audits in the Brazilian Amazon. However, Wendy’s does not have a cross-commodity or a beef-specific deforestation-free commitment or any formal, public requirements and protocols for its supplying meatpackers. Wendy’s should increase its transparency, adopt global cross-commodity and beef-specific zero-deforestation policies, and publish information that demonstrates that the beef it sells in South America is deforestation-free.

## Company Scores

Company	Example Brands/Products	Total Score (out of 100)
	fresh, frozen and processed beef products	52
	burgers	48
	pet food	37
	corned beef	27
	Purina pet food	23
	corned beef	22
	burgers	22
	beef jerky	16
	sandwich meat	5
	burgers	0
	Libby’s corned beef	0
	corned beef and beef jerky	0
	beef pizza toppings	0

- Strong Deforestation-Free Beef Policies and Practices
- Limited Deforestation-Free Beef Policies and Practices
- Very Limited Deforestation-Free Beef Policies and Practices

*All 13 of the large consumer goods companies we scored need to strengthen their deforestation-free beef policies and practices. As shown here, not a single company currently has strong policies and practices. Further details on the individual company scores, our methodology, and how UCS chose the companies featured in the scorecard can be found at [www.ucsusa.org/beefscorecard](http://www.ucsusa.org/beefscorecard).*

Nestlé has a strong global cross-commodity deforestation-free commitment, but it should require a deforestation-free commitment from its supplying meatpackers. It also needs to provide more public details about how it specifically plans to address potential deforestation resulting from production of beef for its products, as it currently provides no publicly available details on how it implements its commitment. Nestlé provides limited information about its supplying meatpackers, some of which are signatories to the Cattle Agreement and have some forest protections in place. However, it could improve its transparency by naming all of them, by publicly reporting on progress, and by providing more information about the traceability and monitoring systems of all supplying meatpackers.

Safeway confirmed that it sources its beef from Brazil from a Cattle Agreement signatory, meaning that its supplying meatpacker maintains some level of traceability, monitoring, and verification in the Brazilian Amazon. However, it should make progress on other crucial deforestation-free elements, such as global cross-commodity and beef-specific zero-deforestation policies and increased transparency to the public.

While Hormel, Jack Link's, Nestlé, Safeway, and Wendy's perform better than the companies that received a total score of zero to five, they must do much more to demonstrate that they will keep deforestation-risk beef out of their supply chains.

#### COMPANIES WITH LIMITED DEFORESTATION-FREE BEEF POLICIES AND PRACTICES

The companies that received the most points in our scorecard are Mars, McDonald's, and Walmart. However, they all have limited deforestation-free beef policies and practices. They all need to improve, particularly in terms of the ambition of their commitments and their transparency, traceability, monitor-

***These companies need to require their supplying meatpackers to adopt and implement deforestation-free policies in line with their own, thereby helping to create widespread market change.***



Neil Palmer (CIAP)/Creative Commons (Wikimedia Commons)

*To ensure that forested landscapes like the one pictured here are not destroyed, we can all make a difference today by demanding that consumer goods companies work with their supplying meatpackers to create a new norm of zero deforestation across all company operations.*

ing, and verification. First, they should extend implementation of their deforestation-free beef policies and practices to critical ecosystems outside the Brazilian Amazon. These companies also need to require their supplying meatpackers to adopt and implement deforestation-free policies in line with their own, thereby helping to create widespread market change. They should increase their transparency. Although they annually report on progress, they should disclose more information about the traceability and monitoring systems they use. Furthermore, while they have worked with meatpackers to make significant progress in tracing and monitoring direct supplying ranches, they need to extend these systems to cover indirect supplying ranches. They should ensure these systems are verified by third-party audits resulting in publicly available reports.

These strengths and weaknesses are common to these three companies. Each needs to implement specific improvements.

Mars stands out in that it has a relatively strong cross-commodity deforestation-free commitment and an implementation plan that includes intermediate benchmarks. But it should demonstrate how it plans to help small ranchers fulfill this commitment. Furthermore, while it makes public some information about its supplying meatpackers, it has not disclosed how much of its total product currently meets its deforestation-free criteria.

McDonald's has a strong global cross-commodity deforestation-free policy. But it should release a time-bound implementation plan to achieve a deforestation-free beef supply chain, particularly for at-risk regions outside the Brazilian Amazon. While it has a public noncompliance protocol for supplying meatpackers, it does not make public how it plans to support small ranchers. McDonald's should disclose

information on its supplying meatpackers and on how much of the beef it sources meets its deforestation-free criteria.

Walmart has made significant progress implementing its deforestation-free policy for fresh and frozen beef sold in its Brazilian stores to ensure that it does not drive Brazilian Amazon forest destruction. Walmart Brazil also recently expanded its commitment to cover other ecosystems in Brazil beyond the Amazon, though this commitment has not yet been announced by Walmart International. Walmart also stands out in that it has programs that provide support to small ranchers transitioning to more sustainable ranching practices, thereby helping achieve real change on the ground. However, Walmart needs to adopt a strict zero-deforestation policy that applies to all beef products, including processed beef. This policy needs to apply also to all forest-risk commodities, to all forests—not just those in Brazil—and to all of Walmart’s stores.

#### **THE SOLUTION: GLOBAL CROSS-COMMODITY ZERO-DEFORESTATION POLICIES**

Consumer goods companies can and should do more to stop beef-driven tropical deforestation. Beef is the leading driver of deforestation and a major source of global warming emissions. As corporate citizens, companies need to guarantee that the beef in their products is not causing tropical forest destruction and require the same of their supplying meatpackers. Consumers and investors are increasingly demanding that the companies they purchase from and finance address deforestation risk in their supply chains and take part in setting the industry standard for deforestation-free beef. We can all make a difference today by demanding that consumer goods companies work with meatpackers to create a new norm of zero deforestation across all company operations. To learn more and join UCS in pursuing this important goal, visit [www.ucsusa.org/beefscorecard](http://www.ucsusa.org/beefscorecard).

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## **Appendix: UCS-Recommended Key Forest Protection Provisions for Global Beef Sourcing Policies**

Consumer goods companies should source 100 percent of their South American beef and cattle products from meatpackers that have adopted a zero-deforestation policy that applies to all supplying ranches, including indirect suppliers, and that implement the following practices across their global operations and subsidiaries:

- Allow no deforestation of primary or secondary forests
- Allow no sourcing from protected areas or indigenous lands
- Conduct property-level supply-chain mapping for all direct and indirect supplying ranches, from birth to slaughter, and use monitoring systems to exclude purchases from ranches with deforestation
- Use only deforestation-free animal feed
- Use best management practices for pasture
- Provide supplying ranches with technical assistance and support so they can achieve compliance with policy
- Prohibit the use of child and slave labor and comply with relevant local, national, and international laws as well as human rights norms, including the UN Universal Declaration on Human Rights; UN Declaration on the Rights of Indigenous Peoples; Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests; UN Guiding Principles on Business and Human Rights; and Core Conventions of the ILO

Consumer goods companies as well as their supplying meatpackers should publicly disclose the following:

- Annual reports of progress, including the volume and percentage of cattle products sourced that have been verified as compliant with the above practices
- Their deforestation policies, time-bound implementation plans with intermediate benchmarks, and verification processes, grievance mechanisms, and noncompliance protocols
- Third-party audits, covering all direct and indirect supplying ranch purchases
- Names and geographic locations of all
  - Supplying meatpackers (for consumer goods companies)
  - Direct and indirect supplying ranches (for meatpackers)

## REFERENCES

All URLs accessed on August 12, 2016.

- ABIEC. 2016. *Brazilian beef exports 2015 annual report*. Pinheiros, São Paulo, Brazil. Online at <http://www.abiec.com.br/download/relatorio-anual-2015.pdf>.
- Baldi, G., J. Houspanossian, F. Murray, and E. Jobbagy. 2015. Cultivating the dry forests of South America: Diversity of land users and imprints on ecosystem functioning. *Journal of Arid Environments* 123:47–59. Online at [https://www.researchgate.net/publication/263858098\\_Cultivating\\_the\\_dry\\_forests\\_of\\_South\\_America\\_Diversity\\_of\\_land\\_users\\_and\\_imprints\\_on\\_ecosystem\\_functioning](https://www.researchgate.net/publication/263858098_Cultivating_the_dry_forests_of_South_America_Diversity_of_land_users_and_imprints_on_ecosystem_functioning).
- Boucher, D., P. Elias, J. Faïres, and S. Smith. 2014. *Deforestation success stories: Tropical nations where forest protection and reforestation policies have worked*. Cambridge, MA: Union of Concerned Scientists. Online at [http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global\\_warming/deforestation-success-stories-2014.pdf](http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/deforestation-success-stories-2014.pdf).
- Boucher, D., P. Elias, K. Lininger, C. May-Tobin, S. Roquemore, and E. Saxon. 2011. *The root of the problem*. Cambridge, MA: Union of Concerned Scientists. Online at [http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global\\_warming/UCS\\_RootoftheProblem\\_DriversofDeforestation\\_FullReport.pdf](http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/UCS_RootoftheProblem_DriversofDeforestation_FullReport.pdf).
- Brack, D., A. Glover, and L. Wellesley. 2016. *Agricultural commodity supply chains: Trade, consumption and deforestation*. London: Chatham House. Online at <https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/2016-01-28-agricultural-commodities-brack-glover-wellesley.pdf>.
- Bustamante, M.M.C., C.A. Nobre, R. Smeraldi, A.P.D. Aguiar, L.G. Barioni, L.G. Ferreira, K. Longo, P. May, A.S. Pinto, and J.P.H.B. Ometto. 2012. Estimating greenhouse gas emissions from cattle raising in Brazil. *Climatic Change* 115:559–577. Online at [http://laboratorios.cetesb.sp.gov.br/wp-content/uploads/sites/28/2014/05/bustamante\\_estimating\\_greenhouse.pdf](http://laboratorios.cetesb.sp.gov.br/wp-content/uploads/sites/28/2014/05/bustamante_estimating_greenhouse.pdf).
- Chao, S. 2012. *Forest peoples: Numbers across the world*. Moreton-in-Marsh, UK: Forest Peoples Programme. Online at [http://www.forestpeoples.org/sites/fpp/files/publication/2012/05/forest-peoples-numbers-across-world-final\\_0.pdf](http://www.forestpeoples.org/sites/fpp/files/publication/2012/05/forest-peoples-numbers-across-world-final_0.pdf).
- De Sy, V., M. Herold, F. Achard, R. Beuchle, J.G.P.W. Clevers, E. Lindquist, and L. Verchot. 2015. Land use patterns and related carbon losses following deforestation in South America. *Environmental Research Letters* 10(12):124004. Online at <http://iopscience.iop.org/article/10.1088/1748-9326/10/12/124004/meta;jsessionid=02742B7E3B90ABC1E63EB767AC34A0D9.c2.iopscience.cld.iop.org>.
- FAO Statistics Division. 2010. *FAO statistical yearbook*. Rome: Food and Agriculture Organization (FAO) of the United Nations. Online at <http://www.fao.org/economic/ess/ess-publications/ess-yearbook/ess-yearbook2010/en/>.
- Gardner, T.A., J. Barlow, R. Chazdon, R.M. Ewers, C.A. Harvey, C.A. Peres, and N.S. Sodhi. 2009. Prospects for tropical forest biodiversity in a human-modified world. *Ecology Letters* 12:561–582. Online at <http://onlinelibrary.wiley.com/doi/10.1111/j.1461-0248.2009.01294.x/abstract>.
- Gerber, P.J., H. Steinfeld, B. Henderson, A. Mottet, C. Opio, J. Dijkman, A. Falcucci, and G. Tempio. 2013. *Tackling climate change through livestock—A global assessment of emissions and mitigation opportunities*. Rome: Food and Agriculture Organization (FAO) of the United Nations. Online at <http://www.fao.org/docrep/018/i3437e/i3437e.pdf>.
- Gibbs, H.K., J. Munger, J. L’Roe, P. Barreto, R. Pereira, M. Christie, T. Amaral, and N.F. Walker. 2016. Did ranchers and slaughterhouses respond to zero-deforestation agreements in the Brazilian Amazon? *Conservation Letters* 9:32–42. Online at <http://onlinelibrary.wiley.com/doi/10.1111/conl.12175/full>.
- Gibbs, H.K., L. Rausch, J. Munger, I. Schelly, D.C. Morton, P. Noojipady, B. Soares-Filho, P. Barreto, L. Micol, and N.F. Walker. 2015. Brazil’s Soy Moratorium. *Science* 347(6220):6220. Online at <http://science.sciencemag.org/content/347/6220/377.full?ikey=DY9/lsvOM5iQ&keytype=ref&siteid=sci>.
- Henders, S., U.M. Persson, and T. Kastner. 2015. Trading forests: Land-use change and carbon emissions embodied in production and exports of forest-risk commodities. *Environmental Research Letters* 10(12):125012. Online at <http://iopscience.iop.org/article/10.1088/1748-9326/10/12/125012/meta>.
- Herrero, M., P.K. Thornton, P. Gerber, and R.S. Reid. 2009. Livestock, livelihoods, and the environment: Understanding the trade-offs. *Current Opinion in Environmental Sustainability* 1:111–120. Online at <http://kamet.nas.edu/resources/static-assets/banr/AnimalProductionMaterials/CurrentOpinionIssue2.pdf>.
- Jobbagy, E., R. Grau, J. Paruelo, and E.F. Viglizzo. 2015. Farming the Chaco: Tales from both sides of the fence. *Journal of Arid Environments* 123:1–2. Online at [https://www.researchgate.net/profile/Esteban\\_Jobbagy/publication/283527077\\_Farming\\_the\\_Chaco\\_Tales\\_from\\_both\\_sides\\_of\\_the\\_fence/links/5641e84b08aebaaef88abb.pdf](https://www.researchgate.net/profile/Esteban_Jobbagy/publication/283527077_Farming_the_Chaco_Tales_from_both_sides_of_the_fence/links/5641e84b08aebaaef88abb.pdf).
- Lambin, E.F., and P. Meyfroidt. 2011. Global land use change, economic globalization, and the looming land scarcity. *Proceedings of the National Academy of Sciences* 108:3465–3472. Online at <http://www.pnas.org/content/108/9/3465.full>.
- Lapola, D.M., L.A. Martinelli, C.A. Peres, J.P.H.B. Ometto, M.E. Ferreira, C.A. Nobre, A.P.D. Aguiar, M.M.C. Bustamante, M.F. Cardoso, M.H. Costa, C.A. Joly, C.C. Leite, P. Moutinho, G. Sampaio, B.B.N. Strassburg, and I.C.G. Vieira. 2014. Pervasive transition of the Brazilian land use system. *Nature Climate Change* 4:27–35. Online at [https://www.researchgate.net/publication/259389071\\_Pervasive\\_transition\\_of\\_the\\_Brazilian\\_land-use\\_system](https://www.researchgate.net/publication/259389071_Pervasive_transition_of_the_Brazilian_land-use_system).
- Latawiec, A.E., B.B. Strassburg, J.F. Valentim, F. Ramos, and H.N. Alves-Pinto. 2014. Intensification of cattle ranching production systems: Socioeconomic and environmental synergies and risks in Brazil. *Animal* 8(8):1255–1263. Online at <http://www.iis-rio.org/media/archives/ANIMAL-paper.pdf>.
- Müller, R., D. Müller, F. Schierhorn, G. Gerold, and P. Pacheco. 2012. Proximate causes of deforestation in the Bolivian lowlands: An analysis of spatial dynamics. *Regional Environmental Change* 12(3):445–459. Online at <http://link.springer.com/article/10.1007/s10113-011-0259-0>.
- National Institute for Space Research. 2015. New study from the Brazilian Institute of Space Research (INPE) quantifies the role of deforestation and forest degradation in the CO<sub>2</sub> emissions until 2050. São José dos Campos, São Paulo, Brazil. Online at [http://www.inpe.br/ingles/news/news.php?Cod\\_Noticia=380](http://www.inpe.br/ingles/news/news.php?Cod_Noticia=380).
- Oliveira, L.J.C., M.H. Costa, B.S. Soares-Filho, and M.T. Coe. 2013. Large-scale expansion of agriculture in Amazonia may be a no-win scenario. *Environmental Research Letters* 8:2. Online at <http://iopscience.iop.org/article/10.1088/1748-9326/8/2/024021>.

- Phillips, N., and L. Sakamoto. 2012. Global production networks, chronic poverty and “slave labour” in Brazil. *Studies in Comparative International Development* 47(3):287–315. Online at <http://link.springer.com/article/10.1007/s12116-012-9101-z>.
- Puppim de Oliveira, J.A. 2008. Property rights, land conflicts, and deforestation in the Eastern Amazon. *Forest Policy and Economics* 10(5):303–315. Online at <http://www.sciencedirect.com/science/article/pii/S1389934107000925>.
- Ranganathan, J., D. Vennard, R. Waite, P. Dumas, B. Lipinski, T. Searchinger, and GLOBAGRI-WRR model authors. 2016. *Shifting diets for a sustainable food future*. Washington, DC: World Resources Institute. Online at [http://www.wri.org/sites/default/files/Shifting\\_Diets\\_for\\_a\\_Sustainable\\_Food\\_Future\\_0.pdf](http://www.wri.org/sites/default/files/Shifting_Diets_for_a_Sustainable_Food_Future_0.pdf).
- Ricketts, T.H., B. Soares-Filho, G.A.B. da Fonseca, D. Nepstad, A. Pfaff, A. Petsonk, A. Anderson, D. Boucher, A. Cattaneo, M. Conte, K. Creighton, L. Linden, C. Maretti, P. Moutinho, R. Ullman, and R. Victurine. 2010. Indigenous lands, protected areas, and slowing climate change. *PLoS Biology* 8:e1000331. Online at <http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1000331>.
- Sinha, R., A.J. Cross, B.I. Graubard, M.F. Leitzmann, and A. Schatzkin. 2009. Meat intake and mortality: A prospective study of over half a million people. *The Journal of the American Medical Association* 196(6):562–571. Online at <http://archinte.jamanetwork.com/article.aspx?articleid=414881>.
- Soares-Filho, B., R. Rajão, M. Macedo, A. Carneiro, W. Costa, M. Coe, H. Rodrigues, and A. Alencar. 2014. Cracking Brazil’s forest code. *Science* 344(6182):363–364. Online at [http://lerf.eco.br/img/publicacoes/Soares\\_Filho\\_etal\\_2014\\_artigo\\_Science.pdf](http://lerf.eco.br/img/publicacoes/Soares_Filho_etal_2014_artigo_Science.pdf).
- Steinfeld, H., H.A. Mooney, F. Schneider, and L.E. Neville, eds. 2010. *Livestock in a changing landscape. Vol. 1: Drivers, consequences and responses*. Washington, DC: Island Press. Online at <http://www.fao.org/docrep/013/am074e/am074e00.pdf>.
- Steininger, M.K., C.J. Tucker, J.R.G. Townshend, T.J. Killeen, A. Desch, V. Bell, and P. Ersts. 2001. Tropical deforestation in the Bolivian Amazon. *Environmental Conservation* 28(2):127–134. Online at [http://glcf.umd.edu/library/guide/ec28\\_p127.pdf](http://glcf.umd.edu/library/guide/ec28_p127.pdf).
- Strassburg, B.N., A.E. Latawiec, L.G. Barioni, C.A. Nobre, V.P. da Silva, J.F. Valentim, M. Vianna, and E.D. Assad. 2014. When enough should be enough: Improving the use of current agricultural lands could meet production demands and spare natural habitats in Brazil. *Global Environmental Change* 28:84–97. Online at [http://www.iis-rio.org/media/archives/Strassburg\\_et\\_al.\\_2014.pdf](http://www.iis-rio.org/media/archives/Strassburg_et_al._2014.pdf).
- Union of Concerned Scientists (UCS). 2013. *Measuring the role of deforestation in global warming*. Cambridge, MA. Online at [http://www.ucsusa.org/global\\_warming/solutions/stop-deforestation/deforestation-global-warming-carbon-emissions.html#.V5Y5h\\_krKHs](http://www.ucsusa.org/global_warming/solutions/stop-deforestation/deforestation-global-warming-carbon-emissions.html#.V5Y5h_krKHs).
- Union of Concerned Scientists (UCS). 2011. *Raising the steaks*. Cambridge, MA. Online at [http://www.ucsusa.org/sites/default/files/legacy/assets/documents/food\\_and\\_agriculture/global-warming-and-beef-production-summary.pdf](http://www.ucsusa.org/sites/default/files/legacy/assets/documents/food_and_agriculture/global-warming-and-beef-production-summary.pdf).
- United Nations Comtrade Database. 2015. New York. Online at <http://comtrade.un.org/>.
- Vallejos, M., J.N. Volante, M.J. Mosciaro, and M. Paruelo. 2015. Transformation dynamics of the natural cover in the Dry Chaco ecoregion: A plot level geo-database from 1976 to 2012. *Journal of Arid Environments* 123:3–11. Online at [https://www.researchgate.net/publication/275041355\\_Transformation\\_dynamics\\_of\\_the\\_natural\\_cover\\_in\\_the\\_Dry\\_Chaco\\_ecoregion\\_A\\_plot\\_level\\_geo-database\\_from\\_1976\\_to\\_2012](https://www.researchgate.net/publication/275041355_Transformation_dynamics_of_the_natural_cover_in_the_Dry_Chaco_ecoregion_A_plot_level_geo-database_from_1976_to_2012).

# Cattle, Cleared Forests, and Climate Change

*Scoring America's Top Brands on Their  
Deforestation-Free Beef Commitments  
and Practices*

***Not one of the 13 companies we scored can  
guarantee that its products do not contain beef  
that contributes to tropical deforestation.***

This new analysis scores the deforestation policies and practices of 13 global companies that buy beef from South America. Because South America is “ground zero” for beef-driven deforestation, it is imperative that companies sourcing beef from this continent ensure their products are deforestation-free.

Nine of the 13 companies lack public commitments to zero-deforestation beef: Burger King, ConAgra, Hormel, Jack Link's,

Kroger, Pizza Hut, Safeway, Subway, and Wendy's. Nestlé has a commitment, but needs to implement it. Even the companies making progress—Mars, McDonald's, and Walmart—have gaps in their policies, meaning not one of the 13 companies can guarantee it is sourcing deforestation-free beef.

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