

Slave labour in the Brazilian cattle ranching industry:

The case of the Pantanal and the European market



Protecting People and Planet

A report by the Environmental Justice Foundation



Protecting People and Planet

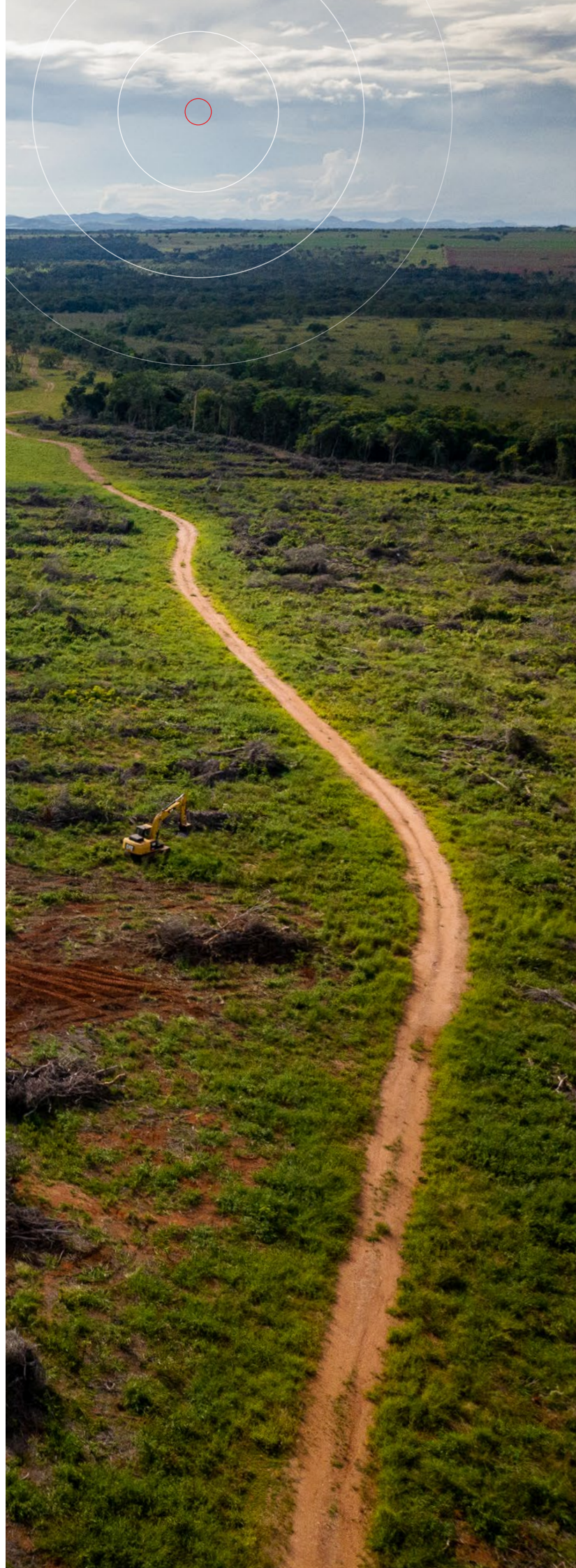
The Environmental Justice Foundation (EJF) exists to protect the natural world and defend our basic human right to a secure environment.

EJF works internationally to inform policy and drive systemic, durable reforms to protect our environment and defend human rights. We investigate and expose abuses and support environmental defenders, Indigenous peoples, communities and independent journalists on the frontlines of environmental injustice. Our campaigns aim to secure peaceful, equitable and sustainable futures.

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CAR	Cadastro Ambiental Rural (Rural Environmental Registry)	MPT	Ministério Público do Trabalho (Labour Prosecutor's Office)
CNAE	Classificação Nacional de Atividades Econômicas (National Classification of Economic Activities)	MS	Mato Grosso do Sul
CPT	Comissão Pastoral da Terra (Pastoral Land Commission)	MT	Mato Grosso
EU	European Union	MTE	Ministério de Trabalho e Emprego (Ministry of Labour and Employment)
GEFM	Grupo Especial de Fiscalização Móvel (Special Mobile Inspection Group)	PPE	Personal protective equipment
GTA	Guia de Trânsito Animal (Animal Transportation Guide)	SIF	Federal Inspection Service
IBGE	Instituto Brasileiro de Geografia e Estatística (Institute of Geography and Statistics)	SINAIT	Sindicato Nacional dos Auditores-Fiscais do Trabalho (National Union for Labour Tax Auditors)
ILO	International Labour Organization	SISBOV	Sistema Brasileiro de Identificação Individual de Bovinos e Búfalos (Brazilian Cattle and Buffalo Individual Identification System)
InPACTO	National Pact for the Eradication of Slave Labour	SIT	Secretaria de Inspeção do Trabalho (Labour Inspection Secretariat)
IUCN	International Union for Conservation of Nature	TAC	Terms of Adjustment of Conduct
MAPA	Ministério da Agricultura e Pecuária (Ministry of Agriculture and Livestock)	WWF	World Wide Fund for Nature

Key findings

- Slave labour¹ is prevalent in Brazil's cattle ranching industry. Between 1995 and 2022, the industry was responsible for almost half (46%) of detected cases of slave labour in Brazil. 2,023 individual cases of slave labour were detected within the industry over this period, with 17,444 workers rescued.
- The detection of slave labour within the cattle ranching industry has been hampered in recent years by a lack of funding for government inspections, among other issues. The prevalence of slave labour in the industry is therefore likely to be significantly higher than official figures suggest.
- Cattle ranching is the primary economic sector in the Pantanal - one of the world's largest wetlands and an ecosystem of global significance to biodiversity and climate regulation - and the leading threat to biodiversity within the biome.
- Within the states of Mato Grosso and Mato Grosso do Sul - within which the Brazilian portion of the Pantanal is entirely located - 44% of identified cases of slave labour between 1995 and 2022 took place within the cattle ranching sector.
- Since 2017, 31 individuals and companies owning cattle ranches in the two states have been listed on the government's Dirty List of slave labour, with 139 workers rescued. 18 of these 31 cases of slave labour took place on properties located within the Pantanal biome. Survivors interviewed by EJF reported that degrading working conditions were "common" across the region's cattle ranches.
- Three of the Pantanal-based properties - Fazenda Boqueirão, Fazenda Canadá, and Fazenda Nova Paradoiro - have recent histories of both high levels of deforestation and slave labour. Our findings highlight the intersection between environmental destruction and human rights abuses in the Pantanal, an observation confirmed by a representative from Brazil's Labour Prosecutor's Office (MPT).
- EJF's analysis identified trade links between 11 of the 31 entities associated with slave labour and JBS, the world's largest meat producer.² Records from JBS's traceability portal appear to show that the company's slaughterhouses received cattle deliveries from four of these properties while they were included on the Dirty List.
- This research also identified apparent links between two ranches approved for export to the European Union (EU)³ that have been included on the Dirty List since 2017 and exports of beef to EU member states. Deliveries of cattle appear to have been made from these ranches to JBS slaughterhouses authorised for export to the EU⁴ while slave labour was present on the properties. These deliveries align with the subsequent export of beef to Italy, the Netherlands, and Spain, among other EU member states.
- Due to a lack of publicly available data, EJF's analysis was not able to consider indirect suppliers of cattle to slaughterhouses authorised for export to the EU. An estimated 373 indirect supplier ranches exist within the Pantanal alone, ten times the number of direct supplier ranches approved for EU export.⁵ With human rights abuses prevalent within the cattle ranching industry in the Pantanal, there is a significant risk of cattle from non-compliant ranches being laundered through ranches approved for export to the EU and into EU supply chains.
- The EU member states receiving the highest volume of exports from JBS slaughterhouses in Mato Grosso and Mato Grosso do Sul were found to be Italy, the Netherlands, Spain and Germany, together accounting for 92.8% of imports. While this may include products originating from both labour compliant and non-compliant ranches, the figures provide an indication of the relative risk of exposure of EU member states to potential human rights abuses in imports to the EU.
- Brazil is the leading supplier of cattle-related products to the EU market by value.⁶ In 2022, the EU imported 162,748 tonnes of cattle-related products from Brazil, representing 21.5% of total EU imports of these products, with a value of €757.2 million. The EU is, in turn, Brazil's second largest export market for cattle-related products behind China, accounting for 6.8% of exports in 2022.⁷



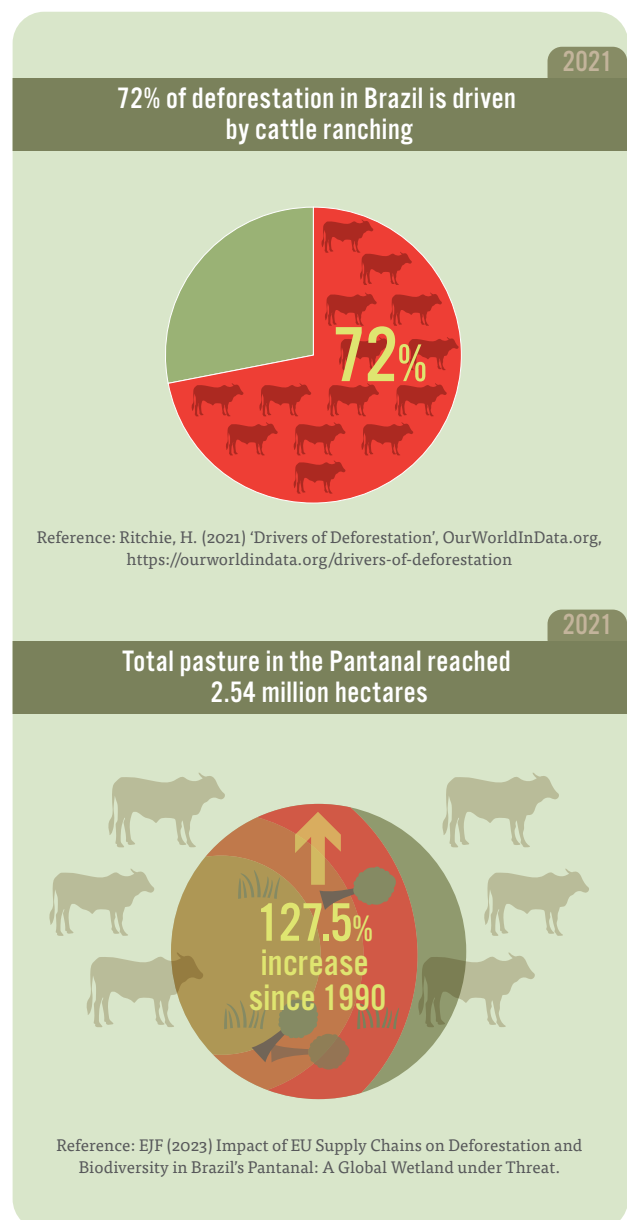
1. Introduction

Brazil's cattle ranching industry has a long history of labour abuses,⁸ and is responsible for the highest proportion of cases of slave labour in the country.⁹ Since the mid-1990s the government has taken a number of measures to address the issue of slave labour across all sectors, including the creation, in 1995, of the Special Mobile Inspection Group (GEFM) to investigate suspected cases of slave labour and, in 2003, publication of the first 'Dirty List' naming employers that have subjected workers to conditions analogous to slavery. However, despite these efforts, high levels of slave labour persist across the Brazilian economy, particularly in rural industries.¹⁰

Cattle ranching is also the leading driver of deforestation in Brazil,¹¹ which has been found to intersect with cases of slave labour. A recent study found that cattle ranches associated with slave labour tend to exhibit higher than average levels of deforestation, with deforestation often carried out illegally.¹²

Much of Brazil's cattle industry is driven by international demand, with just a few multinational companies controlling significant portions of the market. Brazil is the leading exporter of cattle-related products to the EU by value,¹³ which in turn is the largest foreign direct investor in the Brazilian economy.¹⁴

In recognition of the links between EU consumption, environmental destruction and human rights abuses, the EU is introducing legislative measures that will require companies to demonstrate that there is no forced labour or other environmental or human rights abuses in their supply chains.



These include the proposed Regulation on prohibiting products made with forced labour on the Union market (the Forced Labour Regulation)¹⁵ and the Directive on corporate sustainability due diligence.¹⁶ In addition, the EU's Regulation on deforestation-free products entered into force in June 2023.¹⁷

This briefing examines the prevalence of slave labour in the Brazilian cattle ranching sector, with a particular focus on the Pantanal biome – one of the world's largest wetlands¹⁸ and an ecosystem of global significance to biodiversity and climate regulation. The ongoing intensification of cattle ranching is a leading threat to biodiversity within the biome: despite its high ecological value, most of the Pantanal is unprotected and held as private lands, comprising 93% of the land on the Brazilian side,¹⁹ of which 80% is used for cattle ranching.²⁰

We examine how cattle products linked to slave labour may be entering the EU market, and the intersection between slave labour and environmental destruction. We provide recommendations to the Brazilian government, the EU and its member states, the Brazilian meatpacking industry, and domestic and international traders and retailers in beef and leather products from Brazil, on how to address systemic slave labour in the Brazilian cattle ranching industry, with a focus on operations within the Pantanal. In particular, we highlight how a robust EU Forced Labour Regulation – which is currently under negotiation – is urgently required to ensure products tainted with human rights and labour abuses are prohibited from entering EU supply chains.

2. Methodology

2.1 Understanding the scale of slave labour in the Brazilian cattle ranching industry

Our analysis used data from the Comissão Pastoral da Terra (CPT),²¹ a Brazilian NGO, to illustrate national and regional trends in the number of government inspections, slave labour cases and workers rescued from slave labour, both across all industries and specifically within the cattle ranching sector. A regression analysis was performed to understand the relationship between the number of inspections and the number of identified cases of slave labour over the period 1995-2022.

2.2 Identification of cattle ranches in the Pantanal associated with slave labour

The Brazilian portion of the Pantanal is located entirely within the states of Mato Grosso (35%) and Mato Grosso do Sul (65%).²² To identify cattle ranches within these states that had subjected workers to slave labour, we conducted a historic analysis of the Ministry of Labour and Employment's (MTE) Dirty Lists of slave labour published between January 2017 and October 2023 (see **Box 3**), using National Classification of Economic Activities (CNAE) codes to identify establishments operating in the cattle ranching industry.²³

Government inspection reports obtained through an access to information request and via the MTE's website provided details of individual properties and specific case information.²⁴ EJF also obtained testimony from three survivors of slave labour abuses on two ranches located within these states. Given the security risks posed to these workers by criminal groups involved in human trafficking and slave labour, their identities and the names of the ranches where they were found have been anonymised for their protection.

To understand connections between slave labour and environmental destruction for properties located within the Pantanal, we matched property identifier codes from the Brazilian Rural Environmental Registry (CAR)²⁵ for properties of interest with data on native vegetation loss from Mapbiomas's Use and Coverage and Alert platforms.²⁶

2.3 Connecting identified ranches in the Pantanal with international supply chains

To identify connections between individual cases of slave labour and domestic and international supply chains, we used data on deliveries of cattle from Dirty List ranches in Mato Grosso and Mato Grosso do Sul recorded in the traceability portals of meatpacking giants JBS²⁷ and Marfrig²⁸, two of Brazil's 'Big Four' meatpacking companies. Our analysis focused on cattle deliveries from these ranches to JBS and Marfrig slaughterhouses between January 2017 and October 2023, with a view to identifying ranches that had made deliveries of cattle to JBS and Marfrig while still included on the Dirty List.

To identify connections specifically with the EU market, we compared Dirty List ranches in Mato Grosso and Mato Grosso do Sul against the list of establishments able to export to the EU published by the Brazilian Ministry of Agriculture and Livestock (TRACES list).²⁹ See **Box 1** for further details.



Box 1: Cattle ranches and slaughterhouses authorised to export to the EU under EU food safety legislation

Only ranches that have been registered under the Brazilian Cattle and Buffalo Individual Identification System (SISBOV), which provides an official, but voluntary, system for the identification of individual animals destined for slaughter for beef, are eligible for inclusion in the list of ranches that can export to the EU (TRACES list).³⁰ Administered by Brazil's Ministry of Agriculture and Livestock (MAPA), SISBOV requires annual inspections of cattle properties, along with additional requirements to ensure accuracy of data on individual animals and their movements. Fewer than 1% of Brazil's cattle ranches are certified under the SISBOV system.

Cattle ranches that are included on the TRACES List are able to sell their cattle to any Brazilian slaughterhouse inspected by the Federal Inspection Service (SIF) that appears on the list of approved establishments within the EU's TRACES portal.³¹ Slaughterhouses are typically approved for the export of specific sub-categories of food and animal by-products.

In line with the requirements set out in Article 127 of Regulation (EU) 2017/625,³² Article 13 of Commission Delegated Regulation (EU) 2022/2292,³³ and Article 30 of Regulation (EU) No 142/2011,³⁴ the TRACES lists of both cattle ranches and slaughterhouses are proposed by Brazil, in its capacity as an approved non-EU country, and maintained by the European Commission.

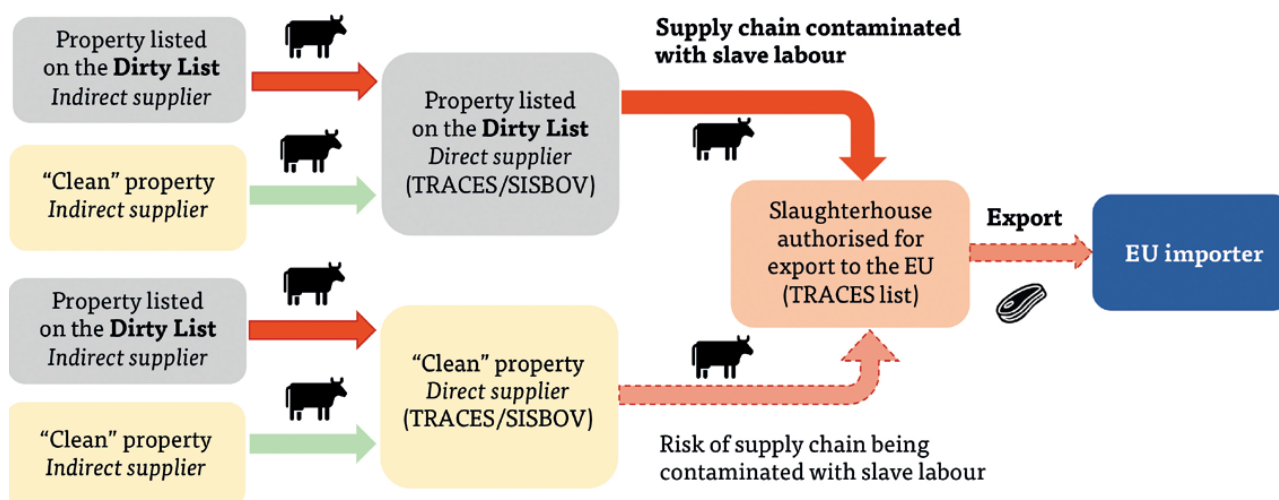
For all ranches approved for EU export and identified as having engaged in slave labour, we cross-referenced deliveries to specific slaughterhouses (based on the analyses of data recorded in the JBS and Marfrig traceability portals) against export records to EU member states recorded in the Panjiva trade database. We inferred potential links between individual deliveries and subsequent exports based on a standard slaughterhouse processing time of between 10 and 30 days.

2.4 Data limitations

Our analysis of the true scale and nature of slave labour abuses in the Brazilian cattle industry was obscured by low numbers of government inspections resulting in fewer detected cases (see **Section 3**) and extensive delays in updating the Dirty List after government inspections are completed. Owing to delays in their publication by the MTE, we were furthermore unable to access all recent government inspection reports to obtain a comprehensive overview of the nature of slave labour and types of infringements detected.

A lack of public access to Animal Transportation Guide (GTA) data precluded the identification of connections between Dirty List properties and meatpacking companies where cattle are traded via another property (indirect suppliers) (see **Figure 1**). Data published via the JBS and Marfrig traceability portals only allows for the analysis of properties that supplied cattle directly to the respective slaughterhouse (direct suppliers). In light of a recent study, which found that cattle ranches using slave labour were mainly involved in the indirect supply chain of cattle to slaughterhouses,³⁵ our analysis likely captures only a fraction of trade between major meatpacking companies and Dirty List properties.

Figure 1: Linkages between indirect and direct suppliers of cattle to slaughterhouses authorised to export cattle products to the EU



3. Prevalence of slave labour in the Brazilian cattle ranching sector

Our analysis of linkages between Dirty List properties and slaughterhouses was further limited by the lack of unique property identifiers, such as CAR numbers, within the JBS/Marfrig traceability portals. Linkages were therefore established based on the name of the property and municipality in which it is located which may be associated with a degree of error (e.g., where the names of properties are relatively common). Analysis of supply chain connections was further limited by the lack of open access traceability portals amongst other major Brazilian meatpacking companies such as Minerva.

We were unable to obtain historical lists of SISBOV cattle ranches approved for export to the EU (TRACES list) published by the Ministry of Agriculture and Livestock for comparison against historical versions of the Dirty List. It is therefore possible that ranches have since been removed from the TRACES list following their inclusion on the Dirty List. The examples presented in **Section 4.3** below may therefore represent only a subset of total Dirty List ranches previously approved for export of cattle products to the EU market.

Between 1995 and 2022, the cattle ranching sector was responsible for almost half (46%) of detected cases of slave labour in Brazil, according to estimates from the CPT based on data provided by the Federal Government. A total of 2023 cases of slave labour were identified during the period 1995-2022, leading to the rescue of 17,444 workers from the cattle ranching industry, representing 29% of total workers rescued across all sectors.³⁶ Degrading working conditions and debt bondage are particularly prevalent, identified in 75% of cases of slave labour in cattle ranches analysed in a recent study.³⁷

Between 1995 and 2022, the cattle ranching sector was responsible for almost half (46%) of detected cases of slave labour in Brazil.

“Many situations of contemporary slavery are never reported, and many complaints made to the authorities are never inspected”

Reporter Brasil (2021)³⁸

Box 2: Conditions deemed “analogous to slavery” under Brazilian law

Brazil has committed to ending slavery and forced or compulsory labour as a party to key International Labour Organization (ILO) Conventions including the 1930 Forced Labour Convention (C29) and the 1957 Convention on the Abolition of Forced Labour (C105), as well as the 1926 Slavery Convention, the American Convention on Human Rights, and the International Covenant on Civil and Political Rights. The relevant conventions to which Brazil is a party are listed in **Appendix 1**.

Slave labour is defined as a crime against human dignity under the Brazilian Penal Code.³⁹ According to Article 149 of the Code, working conditions are deemed “analogous to slavery” if any of the following four elements are present:

- **Forced labour:** workers forced to work under threats of physical or psychological violence or geographical isolation.
- **Exhaustive working hours:** working hours that go well beyond overtime and endanger workers’ physical well-being.
- **Degrading conditions:** unhealthy accommodation, no access to personal protective equipment, decent food and drinking water at work places.
- **Debt bondage:** workers tied to their jobs because of illegal debts related to transportation, food accommodation and other expenses.

Employers that are found guilty of using slave labour may be sentenced to between two and eight years’ imprisonment, in addition to a fine. However, while civil sanctions may be imposed, criminal sentences are rare in practice. Of the 2,679 individuals or companies accused of modern slavery between 2008 and 2019, only 4.2% were convicted and had their verdicts upheld on appeal.⁴⁰ The slow processing of claims often leads to cases being pushed beyond the statute of limitations, meaning that many of those accused never face trial.⁴¹

“Impunity, however, is still one of the main bottlenecks in the fight against slave labour in Brazil.”

– Reporter Brasil (2021)⁴²



Survivor of slave labour.

Box 3: Brazil's Dirty List of slave labour and industry commitments

Brazil's Dirty List of slave labour is published twice per year by the Ministry of Labour and Employment (MTE). It includes the details of employers that have been charged by the Labour Inspection Secretariat (SIT) with subjecting workers to conditions analogous to slavery. Employers may be included in the register under an administrative procedure⁴³ conducted by the Ministry of Economy (after presenting their defence), but do not necessarily need to have been convicted of a crime under Article 149 of the Penal Code.

An employer remains on the Dirty List for at least two years, after which they will be removed if all labour and security issues are resolved, historic wages are paid, and there is no recurrence of slave labour during this period.⁴⁴ However, EJP's analysis has observed that a number of individuals and companies were removed from the Dirty List before the two-year period had elapsed (see for example cases in **Box 5** and **Table 1**), with little transparency on the reasoning behind such decisions. While it is possible for entities to be delisted early following a successful court appeal,⁴⁵ powerful companies are reportedly taking additional measures to ensure that their inclusion in the List is as brief as possible. An investigation by Reuters revealed that major businesses including JBS Aves, a subsidiary of JBS, have used court injunctions to avoid being placed on the Dirty List even before a successful appeal has been completed.⁴⁶

“Labour inspectors know that a large company may not enter (the list) ... and that if it does, it will stay there only for a short period.” – State labour inspector⁴⁷

Brazilian law does not currently provide for restrictions on the sale of cattle by Dirty List properties to other ranches or slaughterhouses. However, in 2009, several meatpacking companies signed an agreement (the Terms of Adjustment of Conduct - TAC) with the Federal Prosecutor's Office, through which they committed not to buy cattle from properties included on the Dirty List.⁴⁸ The TAC includes within its scope the states of the Legal Amazon, which includes the state of Mato Grosso. Alongside the TAC is the voluntary 'G4' agreement signed between Greenpeace and Brazil's four largest meatpackers (BRF, Marfrig, Minerva Foods and JBS),⁴⁹ which stipulates that companies must sign and comply with the National Pact for the Eradication of Slave Labour (InPACTO),⁵⁰ and that their slaughterhouses within the Amazon biome⁵¹ must not purchase from ranches engaged in slave labour.⁵²

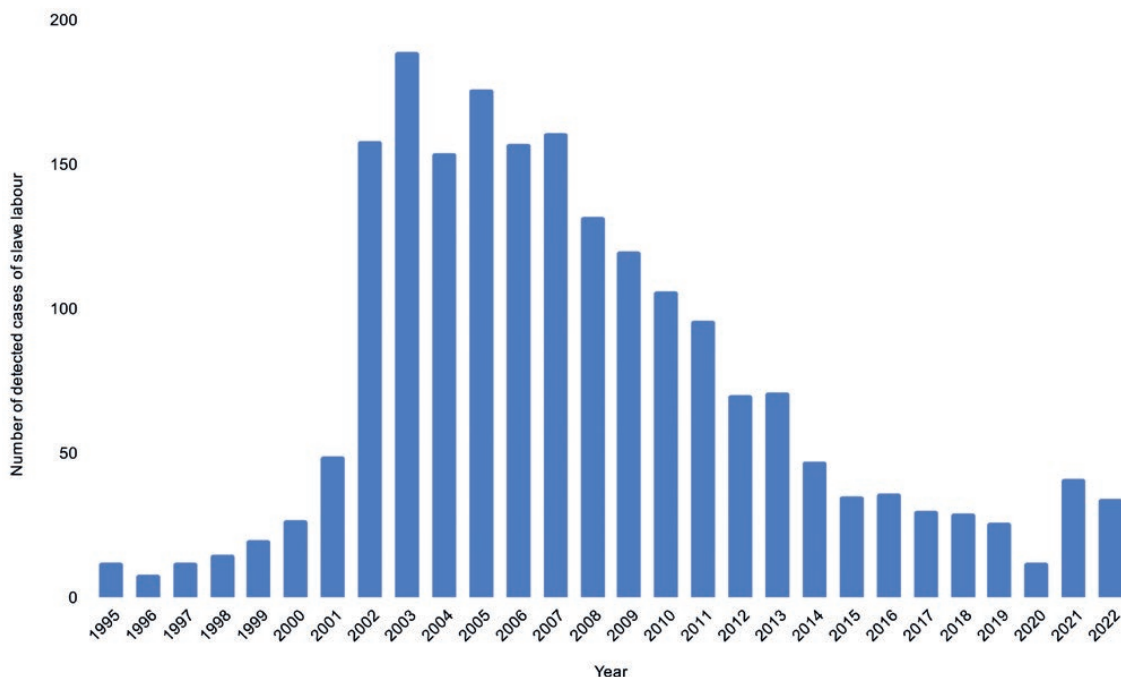
Cases of slave labour detected through government inspections likely represent only a fraction of total cases of slave labour in the country.⁵³ In the cattle ranching industry, the number of detected cases of slave labour peaked during the period 2002-2007, before declining gradually to less than 50 detected cases per year from 2014 to present (**Figure 2**). The observed decline in cases is most likely due to a reduction in the number of inspections over the past decade,⁵⁴ as opposed to a dramatic decline in prevalence of slave labour within the cattle ranching sector. Level of enforcement effort has a crucial bearing on rates of detection of slave labour: regression analysis shows a strong relationship between the number of establishments inspected and the number of detected cases ($p < 0.001$ and $R^2 = 0.74$) across all industrial sectors (**Figure 3**).

Brazil's National Union for Labour Tax Auditors (SINAIT) has registered several complaints with the ILO concerning the chronic lack of funding for labour inspections which, it asserts, is contrary to

Brazil's obligations under the 1947 Labour Inspection Convention (C81).⁵⁵ In July 2017, SINAIT reported a 70% cut in funding for inspections;⁵⁶ by August 2017, inspection operations had reportedly come to a halt due to a lack of resources.⁵⁷ During the presidency of Jair Bolsonaro (2019-2022), funds for labour inspections were cut even further, with the average annual budget for operations against modern slavery 47.3% lower than those of preceding governments.⁵⁸

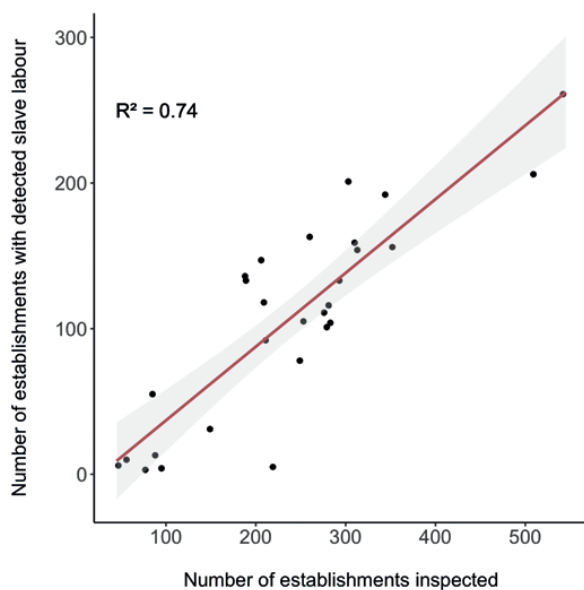
These funding cuts have had a direct effect on capacity for labour inspections. Between 2010 and 2020, the number of trained labour inspectors decreased by around a third, from 2,935 to 2,050 trained inspectors.⁵⁹ As of 4 July 2023, there were just 1,954 labour inspectors – the lowest number in 30 years – with almost half (46.4%) of positions remaining unfilled.⁶⁰ In 2012, a report by the Institute of Applied Research concluded that at least 8,000 labour inspectors would be necessary to meet the demands of the Brazilian labour market.⁶¹

Figure 2: Detected cases of slave labour in Brazil's cattle ranching industry (1995-2022)



Source: Comissão Pastoral da Terra

Figure 3: Results of a regression analysis showing the relationship between the number of inspected establishments (all industries in Brazil) and detected cases of slave labour



Source: Comissão Pastoral da Terra data and EJJ analysis

The observed decline in cases is most likely due to a reduction in the number of inspections over the past decade, as opposed to a dramatic decline in prevalence of slave labour within the cattle ranching sector.



Transport of cattle in the Pantanal.

4. Cattle ranching in the Brazilian Pantanal: where slave labour and environmental destruction intersect

“The Pantanal is now the region where we find the most cases of degrading work in Mato Grosso do Sul”

Brazilian Public Labour Prosecutor⁶²

The Pantanal wetland extends across Brazil, Paraguay and Bolivia, covering a total area of approximately 16 million hectares.⁶³ It provides critical habitat for rich and threatened biodiversity, and home and livelihoods to communities with centuries-long histories in the region (**Box 4**). Despite its importance however, less than 5% of the Brazilian Pantanal is protected,⁶⁴ leaving the majority vulnerable to deforestation at the hands of agribusiness, which has been linked to human rights violations.⁶⁵

Cattle ranching has long provided an important source of income for communities in the Pantanal. However, low-density farmers using traditional *Pantaneiro* methods have struggled to compete with the intensive techniques of Brazil’s growing agribusiness,⁶⁶ which is decimating swathes of the Pantanal to satisfy demand for cheap beef products.⁶⁷

4.1 A wetland under threat

The Pantanal is facing myriad threats, including the conversion of natural vegetation into pasture and agricultural crops, erosion and agrochemical run-off into waterways, hydroelectric power plant projects resulting in diversion and degradation of waterways, mining and the destruction of habitats through fire.⁶⁸ Between 2019 and 2022, an area the size of Barcelona was deforested in the Pantanal, with records showing the largest average area per deforestation alert of all Brazil’s biomes.⁶⁹ Illegal deforestation more than doubled in the first six months of 2020,⁷⁰ which was also a record-breaking year for fires. Approximately one third of the biome burned,⁷¹ killing more than 17 million wild vertebrates⁷² and emitting more than Belgium’s CO₂ emissions in the same year.⁷³ Fuelled by drought and strong winds, many of these fires were started by cattle ranchers in order to clear further land for cattle grazing.⁷⁴

Over 12% of the Pantanal’s native vegetation has already disappeared due to the growth of ranching and agricultural activities. Between 1990 and 2021, the area of pasture for livestock grazing more than doubled in the Pantanal, reaching a total area of 2.54 million hectares. A decade ago, scientists predicted that if high rates of deforestation persist, the Pantanal as an ecosystem could effectively disappear by 2050.

The spread of wildfires in the Pantanal has disproportionately affected Indigenous territories and conservation areas.⁷⁵ One of the worst hit has been the Guató tribe, which lost 90% of their land in the 2020 wildfires.⁷⁶ This follows centuries of displacement of Indigenous and traditional groups by agribusiness interests. In the Pantanal and surrounding areas, Indigenous peoples are now confined to just a few reserves surrounded by cattle ranches and soy plantations. Any land returned to these groups is often no longer suitable for traditional farming methods.⁷⁷

According to the IUCN Red List of Threatened Species, 177 species in the Brazilian states of Mato Grosso and Mato Grosso do Sul – within which the Brazilian Pantanal is fully contained – are directly threatened by the expansion of small-holder and agro-industry grazing, ranching and farming.⁷⁸ Over 12% of the Pantanal’s native vegetation has already disappeared due to the growth of ranching and agricultural activities.⁷⁹ Between 1990 and 2021, the area of pasture for livestock grazing more than doubled in the Pantanal, reaching a total area of 2.54 million hectares.⁸⁰ A decade ago, scientists predicted that if high rates of deforestation persist, the Pantanal as an ecosystem could effectively disappear by 2050.⁸¹



Ranchers in the Pantanal.

Box 4: The Pantanal – an ecosystem of global significance to biodiversity and climate regulation



Jaguars in the Pantanal.

Irreplaceable biodiversity

The Pantanal's unique landscape supports rich biodiversity, containing sizeable populations of a number of vulnerable and threatened species, including the giant otter (*Pteronura brasiliensis*), one of the most threatened mammals in South America and classified as endangered by the IUCN, as well as the giant anteater (*Myrmecophaga tridactyla*), giant armadillo (*Priodontes maximus*), lowland tapir (*Tapirus terrestris*), and the world's largest parrot, the hyacinth macaw (*Anodorhynchus hyacinthinus*). The Pantanal is also host to the highest density of jaguars (*Panthera onca*) in the world. In total, over 2,000 plant, 174 mammal, 580 bird, 271 fish, 131 reptile and 57 amphibian species – together with innumerable invertebrates and microorganisms – can be found within the Pantanal's borders.⁸²

Climate function

Despite covering just 1% of the Earth's surface, wetlands contribute disproportionately to carbon sequestration, storing 20% of global organic ecosystem carbon.⁸³ Globally, wetlands are disappearing three times faster than forests,⁸⁴ threatening to release vast amounts of CO₂ – according to satellite data, wildfires within the Brazilian Pantanal were responsible for 115.6 million tonnes of CO₂ emissions in 2020 alone.⁸⁵

Ecosystem services

The Pantanal performs a wealth of vital ecosystem services for its surrounding areas. Acting as a sponge, the wetlands absorb water during rainy seasons, protecting downstream ecosystems and communities from floods,⁸⁶ as well as providing a critical source of clean water by filtering out toxins and pollutants.⁸⁷ According to WWF, over 8 million people living in the wider Paraguay river basin rely on the Pantanal for these functions,⁸⁸ with one study valuing the ecosystem services performed by the Pantanal at US\$ 4,735.76 per hectare per year.⁸⁹

People and the Pantanal

The Pantanal is home to an estimated 1.2 million people,⁹⁰ including over 270 communities who depend on it for their livelihoods.⁹¹ It contains eleven Indigenous territories, including the traditional lands of the Guató, Terena, Bororo, and Kadiwéu peoples,⁹² for whom the wetlands are not only the foundation of livelihoods but also are central to identity and culture.

4.2 Prevalence of slave labour within the Pantanal

Cattle ranching is a key economic sector in Mato Grosso and Mato Grosso do Sul, which together account for 22.5% of the total cattle herd in Brazil.⁹³ The industry is also now the primary economic activity in the Pantanal, with approximately 3,000 ranches on the Brazilian side and an unknown number in Bolivia and Paraguay.⁹⁴

In the states of Mato Grosso and Mato Grosso do Sul, cattle ranching accounted for 44% of total detected cases of slave labour during the period 1995-2022, the highest of any sector.⁹⁵ A total of 9,270 workers were rescued from conditions analogous to slavery during this period (across all sectors), of which 24% were working in cattle ranching, the second highest of any industry behind only sugar cane.⁹⁶

Since 2017, 31 cattle ranch owners in Mato Grosso and Mato Grosso do Sul – representing 37 individual ranches – have had their names added to the Dirty List. These 31 cases have seen a total of 139 workers rescued from conditions of slavery. At one ranch, Fazenda Marabá, 17 workers were rescued from the property in a single operation.⁹⁷

18 of the 31 cases of slave labour identified in the states of Mato Grosso do Sul and Mato Grosso since 2017 took place on properties located within the Pantanal.⁹⁸ EJJF's analysis of government inspection reports found that workers rescued from slave labour on these farms had been subjected to a wide range of abuses, including work without pay, excessive hours and degrading working conditions (**Box 5**). On one property, Fazenda Baía do Cambará Redondo, the four workers rescued – including one who had worked at the property for 20 years – had never been paid a salary. Workers were forced to drink dirty water from nearby streams and reservoirs which were also used for bathing, lacked any place to hygienically store food, and were not provided with personal protective equipment (PPE) when carrying out their work.

Testimony obtained by EJJF from three workers rescued from Pantanal-based ranches is consistent with these reports. Workers reported poor living conditions, which were barely fit for human habitation. One worker described how he was provided with a makeshift shack with a tarpaulin for a roof and, alongside other workers, was denied access to sanitary facilities (toilets and places to wash/bathe). Workers also reported lacking access to adequate food – due to a lack of storage facilities, meat was often “crawling with bugs”, according to one survivor interviewed. Workers reported how property owners would obtain advance notice of government inspections, allowing them to send workers away from the property prior to inspection and evade punishment. Survivors reported that these types of working conditions were characteristic of many ranches in the region.

“They are all [like this] here in this region [...] [the inspectors] have already caught many people”

– Worker A from Ranch 1

One survivor was particularly concerned about speaking to EJJF due to the influential actors involved and the implications for personal security and future employment. He was reluctant to meet in person or to share more detailed testimony about his employment on the ranch concerned.

“I don’t want to mess with these types [...] they are not good people. I can’t say much about what I’ve been through. [...] I try to avoid messing with them. Ranch owners are very vindictive”

– Worker B from Ranch 2



Sleeping conditions for workers at Fazenda Canadá.



Sanitary facilities at Fazenda Morro Esperança.

Box 5: Specific cases of slave labour within the Pantanal (2017-2023)

EJF has obtained full government inspection reports for eight cases of detected slavery in the Pantanal, details from which are provided below. These cases illustrate the links between environmental destruction and human rights abuses in the region: three of the ranches associated with slave labour, Fazenda Boqueirão, Fazenda Canadá, and Fazenda Nova Paradoiro, were also found to have cleared large areas of native vegetation within their boundaries, according to EJF's analysis of data published by Mapbiomas. It is noted that, for these purposes, properties are considered within the Pantanal if they are located within the municipalities listed as forming part of the biome by the Brazilian Institute of Geography and Statistics (IBGE).⁹⁹

“Usually where you find degrading work, you find environmental crime. It’s rare that you don’t find these two things together. The Environmental Military Police almost always comes with us, because they end up encountering environmental crime situations.” – Brazilian Public Labour Prosecutor¹⁰⁰

1. Fazenda Baía do Cambará Redondo

Dates of inspection	07/02/2017 - 23/03/2017
Dates present on Dirty List	April 2018 - April 2020
Number of rescued workers	4
Case details	The four workers found in conditions of slavery on this property – including one who had worked at the property for 20 years – had never been paid a salary. Three of the workers had no access to clean water and instead were forced to collect rainwater to drink. These three workers also had no access to working sanitary facilities.



2. Fazenda Boqueirão

Dates of inspection	23/10/2017 - 03/11/2017
Dates present on Dirty List	October 2018 only
Number of rescued workers	2
Case details	The two rescued workers worked building fences. They were not offered accommodation, instead camping in an improvised shack made of wooden logs. It had a dirt floor, no doors or windows, and tarpaulin for a roof. There were no sanitary facilities.
Environmental damage	Mapbiomas data shows that 512.8 ha of deforestation occurred in this property between 2019 and 2023. ¹⁰¹



3. Fazenda Morro Esperança

Dates of inspection	24/04/2017 - 26/05/2017
Dates present on Dirty List	April 2019 - October 2020
Number of rescued workers	5
Case details	The five workers involved in this case were undertaking the construction and maintenance of fences on the property. These labourers were forced to live in an improvised wooden shack with makeshift beds that was also used to store farm equipment as well as salt and medicine for the cattle.



4. Fazenda Copacabana

Dates of inspection	29/08/2019 - 10/09/2019
Dates present on Dirty List	April 2020 - October 2021
Number of rescued workers	10
Case details	The situation discovered in this farm “showed a total disrespect for the fundamental rights” of the 10 rescued workers according to the inspection report. Workers were not registered, did not receive PPE, and lived in improvised shacks made out of tree branches and trunks. They also had no access to drinking water.

5. Fazenda Canadá

Dates of inspection	05/09/2021 - 22/12/2021
Dates present on Dirty List	October 2022 - present
Number of rescued workers	5
Case details	The five workers rescued from Fazenda Canadá lived in precarious, improvised shacks that had no walls or flooring. They also had no access to drinking water, instead having to collect dirty water from a reservoir in which alligators were found, and which they also had to use for bathing. No sanitary facilities were provided. The workers were also working informally and not given the necessary PPE to carry out their tasks safely.
Environmental damage	Between 2019 and 2023, 193.3 ha of deforestation took place within this property, equivalent to 2.6% of its total area. ¹⁰²



6. Fazenda Marabá

Dates of inspection	15/12/2020 - 30/4/2021
Dates present on Dirty List	October 2022 - present
Number of rescued workers	17
Case details	The identified workers were carrying out construction work as well as mowing pasture and applying herbicide. Workers had no PPE, no suitable accommodation, and no sanitary facilities, instead having to use vegetation for their needs. They also had no access to drinking water, instead consuming murky water from a stream that was also used for the cattle.
Environmental damage	Eraldo Dias de Castro, who is linked to Fazenda Marabá, ¹⁰³ is the owner of Fazenda São Francisco do Pau Arcado, a SISBOV-certified farm which saw 107.1 ha of native vegetation converted to pasture between 2012 and 2021, equivalent to 1.7% of its total area. ¹⁰⁴



7. Fazenda Nova Paradouro

Dates of inspection	Two separate inspections took place at this farm, both finding evidence of slave labour: 03/12/2019 - 06/03/2020 08/03/2021 - 16/04/2021
Dates present on Dirty List	April 2022 - present
Number of rescued workers	12 in total (9 in first inspection, 3 in second inspection)
Case details	<p><i>First inspection:</i></p> <p>Some of the rescued workers had built shacks for sleeping as they were not offered accommodation. Others lived in shacks with no walls or flooring. Nowhere was provided for food storage, with meat kept unrefrigerated on drying lines, exposing the food to dirt and contamination.</p> <p><i>Second inspection:</i></p> <p>Workers involved were working on the cutting, piling and loading of wood for use in the construction of cattle grids. They lived in two shacks made of tree trunks and branches, tarpaulin and with no flooring. Workers had nowhere to keep food, there was no toilet or shower/bath, and they had to wash and drink from a nearby stream.</p>
Environmental damage	Mapbiomas data shows that 834.5 ha of deforestation occurred in this property between 2019 and 2023. ¹⁰⁵



8. Fazendas Porto dos Milagres and Baía do Cambará

Dates of inspection	30/08/2021 - 01/09/2021
Dates present on Dirty List	April 2023 - present
Number of rescued workers	2
Case details	<p>The rescued labourers worked informally, and were not offered the necessary medical exams or PPE. The supplied accommodation was not habitable owing to makeshift beds, no storage facilities, and no windows or doors that offered a degree of security or shelter. There was also no place to hygienically store food, leading to contamination. There was nowhere to wash clothes and no access to drinking water - workers were instead forced to walk a kilometre from their accommodation to the River Paraguai, using old lubricant containers to transport the water.</p>



5. Linkages between slave labour in the Brazilian cattle industry and the EU market

5.1 EU imports of cattle-related products from Brazil

Brazil is the leading supplier of cattle-related products to the EU market by value, and second only to the United Kingdom by weight.¹⁰⁶ In 2022, the EU imported 162,740 tonnes of cattle-related products from Brazil, representing 21.5% of total EU imports of these products, with a value of €757.2 million. This included 66,372 tonnes of beef products¹⁰⁷ worth €537.5 million, and 96,368 tonnes of cattle hides, skins and leather¹⁰⁸ worth €219.7 million. In 2022, imports from Brazil represented 21.9% of EU beef imports and 21.4% of EU imports of cattle hides, skins and leather.

The EU is Brazil's second largest export market for cattle-related products behind China, accounting for 6.8% of exports in 2022.¹⁰⁹ Italy was the leading importer of these commodities from Brazil, accounting for 70.1% of EU imports in 2022 by weight, followed by the Netherlands (10.4%), Spain (8.9%), Germany (3.0%) and Belgium (2.8%) (**Table 1**). Italy was a particularly important destination for hides, skins and leather originating from Brazil (92.1% of EU imports), while Italy, the Netherlands, Spain, Germany and Belgium together accounted for over 90% of EU imports of beef and offal.

Table 1: Main EU member states reporting imports of cattle-related products from Brazil in 2022¹¹⁰

EU member state	Meat and offal (tonnes)	% of EU imports	Hides, skins and leather (tonnes)	% of EU imports	All cattle-related products (tonnes)	% of EU imports
Italy	25,286	38.1	88,801	92.1	114,087	70.1
Netherlands	16,545	24.9	418	0.4	16,963	10.4
Spain	9,330	14.1	5,193	5.4	14,523	8.9
Germany	4,523	6.8	412	0.4	4,935	3.0
Belgium	4,540	6.8	0	0.0	4,540	2.8
France	2,277	3.4	179	0.2	2,456	1.5
Portugal	1,377	2.1	939	1.0	2,316	1.4
Sweden	1,564	2.4	0	0.0	1,564	1.0



Cattle, JBS slaughterhouse outside Campo Grande, MS, Brazil.

5.2 Trade between ranches associated with slave labour and international meatpacking companies

EJF's analysis of data from the JBS and Marfrig traceability portals identified apparent direct trade links between JBS slaughterhouses and 11 of the 31 entities in Mato Grosso and Mato Grosso do Sul that appeared on the Dirty List between January 2017 and October 2023. Records from JBS's traceability portal suggest that the company's slaughterhouses received deliveries of cattle from 4 of these 11 properties while they were included on the Dirty List. Our analysis did not identify any deliveries to Marfrig slaughterhouses from the 31 listed entities during the above period. Further details of relevant deliveries are set out in **Table 2**.

Until ranches are removed from the Dirty List and all outstanding issues are resolved, trade with these properties is associated with a high risk of cattle products being produced by slave labour. That JBS continued to source cattle from ranches after their inclusion on the Dirty List would appear at odds with both: (i) the company's undertakings under the G4 agreement and (ii) its obligations as a signatory of the TAC with the Federal Prosecutor's Office¹¹¹ (see **Box 3**).

EJF provided JBS with the opportunity to comment on the findings of this report. Their response is reproduced in **Appendices 2 and 3**.

Table 2: Overview of apparent deliveries to JBS slaughterhouses from cattle ranches in Mato Grosso (MT) and Mato Grosso do Sul (MS) listed on the Dirty List between 2017 and 2023¹¹²

Property	Owner	State	Dates present on Dirty List	Trade with JBS	Trade with JBS whilst on Dirty List ¹¹³
Fazendas Taiaçu, Roma and São Lucas	Luiz Alfredo Feresin de Abreu	MT	March 2017 - November 2017	<ul style="list-style-type: none"> • 58 deliveries from Fazendas Roma and São Lucas to JBS's slaughterhouse in Confresa between 2017 and 2022. • 1 delivery took place whilst the property was on the Dirty List. 	Yes
Fazenda Bragatti III	Natal Bragatti	MT	October 2017 - October 2019	<ul style="list-style-type: none"> • 8 deliveries between October 2017 and April 2018 to JBS Alta Floresta, all of which took place whilst this property was on the Dirty List. 	Yes
Fazendas Flexas and Piuva	Antônio Carlos Zanin	MS	October 2017 - October 2019	<ul style="list-style-type: none"> • 3 deliveries from Fazenda Flexas to JBS Pedra Preta in June and July 2019 whilst the property was on the Dirty List. 	Yes
Fazenda Marabá	Rosario Alem Eireli [service provider]	MS	October 2022 - present	<ul style="list-style-type: none"> • 150 deliveries to JBS's slaughterhouses in Anastácio, Campo Grande, Naviraí, and Ponta Porã between January 2017 and August 2023. • 28 deliveries since the property's addition to the Dirty List. 	Yes
Fazendas 3P and Beira Rio	Paulo Roberto Cândido	MT	December 2019 - April 2021	<ul style="list-style-type: none"> • 32 deliveries from Fazenda Beira Rio to JBS's slaughterhouse in Colider between March 2017 and March 2023. 	No
Fazenda Copacabana	Fernanda Taques Thomazelli	MS	April 2020 - April 2022	<ul style="list-style-type: none"> • 15 deliveries to JBS's slaughterhouses in Anastácio and Campo Grande between January 2017 and January 2020. 	No
Fazenda Rodoserv IV	Amarildo Martini	MS	April 2021 - October 2021	<ul style="list-style-type: none"> • 48 deliveries of cattle to JBS slaughterhouses in Anastácio, Campo Grande, Naviraí and Ponta Porã between January 2017 and March 2023. 	No
Fazenda Canadá	Lourdes Coelho Barbosa	MS	October 2022 - present	<ul style="list-style-type: none"> • 165 deliveries to JBS slaughterhouses in Anastácio, Campo Grande, Naviraí and Ponta Porã between January 2017 and July 2022. 	No
Fazenda Três Poderes	Rosangela da Rosa	MT	April 2023 - present	<ul style="list-style-type: none"> • 1 delivery to JBS Colider in February 2018. 	No
Fazenda Lontra Cinco	Fernando Carlos Barboza	MS	October 2023 - present	<ul style="list-style-type: none"> • 73 deliveries to JBS slaughterhouses in Anastácio, Campo Grande, Naviraí and Ponta Porã between January 2017 and August 2023. 	No
Fazenda Estância Marupá	Mercídio Panosso	MT	October 2023 - present	<ul style="list-style-type: none"> • 67 deliveries to JBS slaughterhouses in Alta Floresta and Colider between January 2017 and September 2023. 	No

5.3 Linking Brazilian beef tainted with human rights abuses to the EU market

EJF's analysis of government, industry and trade data has uncovered evidence that links human rights abuses in the Brazilian cattle ranching sector with EU supply chains. We identified two cases where apparent deliveries from Dirty List ranches to slaughterhouses (authorised for EU export) were subsequently aligned with exports of beef to EU member states including Italy, the Netherlands, and Spain. The first ranch, Fazenda Canadá, is located in the state of Mato Grosso, on the southwest border of the Pantanal, and was listed on the Dirty List in October 2022. The second

ranch, Fazenda Santa Adelaide, is located in Goiás, a state bordering both Mato Grosso and Mato Grosso do Sul. See **Box 6** for timelines and further details.

Our analysis also revealed how ranches on the Dirty List may be connected through ownership to ranches approved for export to the EU. Eraldo Dias de Castro, who is listed as the registrant of Fazenda Marabá,¹¹⁴ a ranch in the Pantanal which was included on the Dirty List in October 2022, is also the owner of Fazenda São Francisco do Pau Arcado, a SISBOV-certified farm approved for export to the EU based in Mato Grosso do Sul. See **Box 5** for further information.



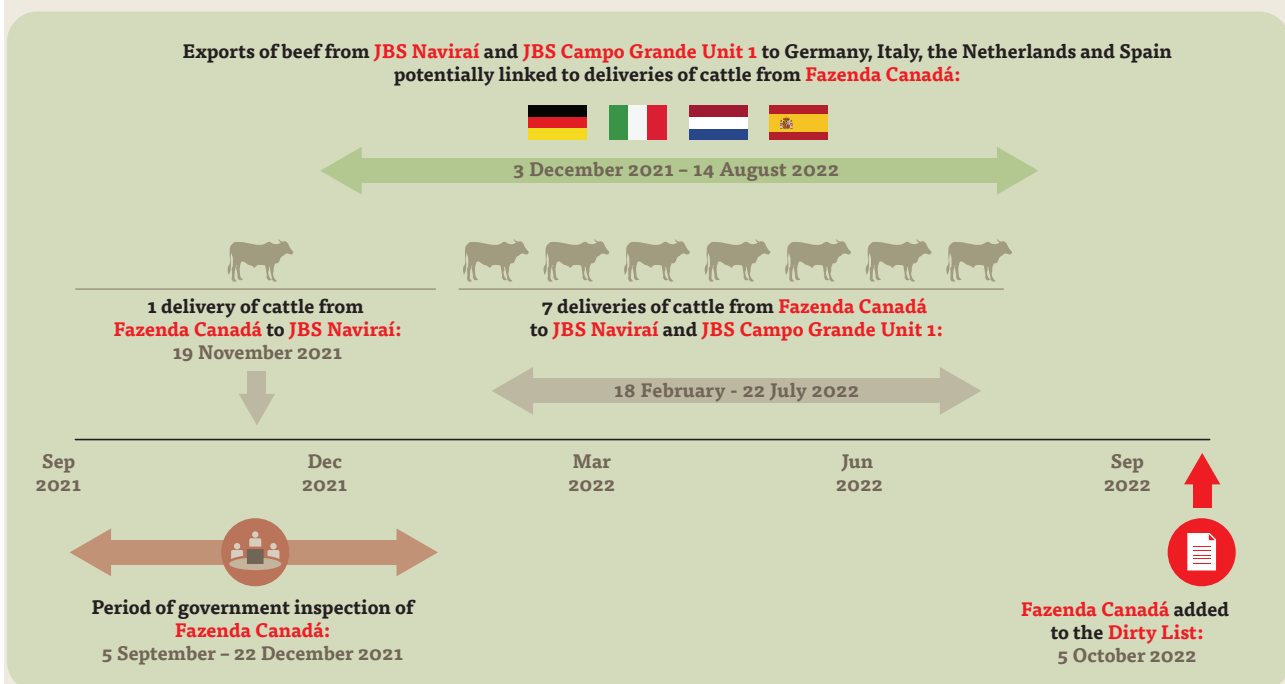
Aerial image of land cleared for cattle pasture at Fazenda Canadá (property to the left of image).

Box 6: Trade involving fazendas approved for export to the EU and listed on the Dirty List since 2017

Fazenda Canadá

- A 2021 inspection by the MTE found that five fazenda workers in Fazenda Canadá, a cattle ranch approved for export to the EU located in Porto Murtinho, Mato Grosso, had been subjected to conditions analogous to slavery, including a lack of access to shelter, water, sanitation, and food storage and preparation areas.¹¹⁵
- The inspection of working conditions within Fazenda Canadá by the Brazilian authorities was active between 5th September and 22nd December 2021.
- Up until mid-2022, this property continued to deliver cattle to JBS's Campo Grande Unit 1 and Navirai slaughterhouses, both of which are authorised for export to the EU (see **Figure 4**).
- One delivery of cattle to these slaughterhouses took place during the inspection period and a further seven in the period after its completion, though deliveries ceased once the property was added to the Dirty List on 5th October 2022.¹¹⁶
- All eight of these deliveries were aligned with the timing of EU exports. Based on standard slaughterhouse processing timelines, deliveries of cattle contaminated with slave labour from this ranch to JBS Navirai and JBS Campo Grande Unit 1 between 19th November 2021 and 22nd July 2022 could have supplied beef for export to Germany, Italy, the Netherlands and Spain.
- Fazenda Canadá also has links to environmental destruction, with data from Mapbiomas Alerta showing that a total area of 193.3 hectares was deforested on this property between 2019 and 2023.¹¹⁷

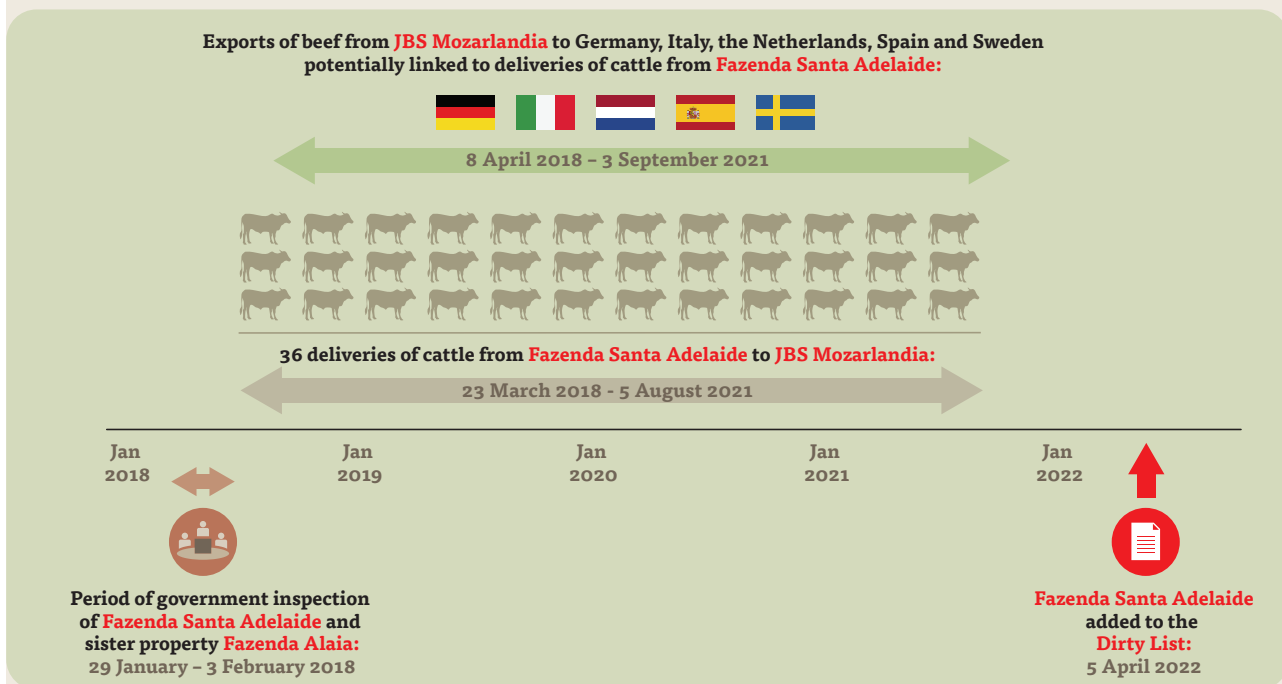
Figure 4: Timeline of government inspection and listing of Fazenda Canadá on the Dirty List in relation to deliveries to JBS slaughterhouses and subsequent exports to EU member states



Fazenda Santa Adelaide

- The dual inspection of this ranch and its sister property Fazenda Alaia, which took place between 29th January and 3rd February 2018, resulted in the rescue of 15 workers from degrading working conditions, including a number of workers forced to stay in makeshift accommodation without doors or windows.¹¹⁸
- Fazenda Santa Adelaide made 45 deliveries to JBS's Mozarlândia slaughterhouse, which is authorised for export to the EU, between January 2017 and August 2021.
- While these deliveries pre-date the ranch's eventual entry onto the Dirty List on 5th April 2022,¹¹⁹ 36 deliveries to JBS took place in the period following the government inspection (see **Figure 5**).
- 34 of these deliveries were aligned with the timing of EU exports. Based on standard slaughterhouse processing timelines, deliveries of cattle contaminated with slave labour from this ranch to JBS Mozarlândia between 28th March 2018 and 5th August 2021 could have supplied beef for export to Germany, Italy, the Netherlands, Spain and Sweden.

Figure 5: Timeline of government inspection and listing of Fazenda Santa Adelaide on the Dirty List in relation to deliveries to JBS Mozarlandia slaughterhouse and subsequent exports to EU member states



The scale of human rights abuses within EU beef supply chains linked to the Pantanal is likely far greater than available data suggests. As outlined in **Section 2.4**, our analysis was severely restricted by a lack of access to GTA data and it is highly likely that further connections between slave labour and the EU market remain undetected within Brazil's wider cattle supply chain. Cattle are frequently moved between ranches for different stages of their growth and are only required to spend 40 days at a SISBOV-certified ranch prior to their slaughter to be eligible for EU export.¹²⁰ Our analysis was not able to consider indirect suppliers of cattle to slaughterhouses authorised for EU export (see **Figure 1**), of which an estimated 373 exist within the Pantanal alone (ten times the number of direct suppliers approved for export to the EU).¹²¹ With human rights abuses prevalent within the cattle ranching industry in the Pantanal (see **Section 4.2**) there is a significant risk of cattle from non-compliant ranches being laundered through SISBOV-ranches and into EU supply chains.

Table 3 provides an indication of the relative risk of exposure of EU member states to potential human

rights abuses in beef exports to the EU. The table focuses specifically on exports from JBS slaughterhouses, as it was established in **Sections 5.2** and **5.3** that JBS appears to have traded with properties suspected of engaging in slave labour both following government inspections and following listing on the Dirty List. According to InPACTO, JBS is currently facing allegations of slave labour in its supply chains and, as a result, is at risk of having its membership of the Pact suspended (see letters from InPACTO to EJF dated 9 and 10 November 2023 in **Appendices 4** and **5**).

We rank EU member states based on the tonnage of cattle-related products imported during the period January 2017 to August 2023, that originated from: (i) all JBS slaughterhouses located within the states of Mato Grosso and Mato Grosso do Sul; and (ii) JBS slaughterhouses within Mato Grosso and Mato Grosso do Sul that appeared to have received deliveries from ranches listed in the Dirty List. The EU member states receiving the highest volume of exports from these facilities were found to be Italy, the Netherlands and Spain, together accounting for 84.8% of imports.

Table 3: Risk of exposure of EU member states to potential human rights abuses in exports of cattle-related products to the EU based on exports from JBS slaughterhouses during the period January 2017 to August 2023¹²²

EU member state	Tonnes of cattle-related products imported from JBS slaughterhouses in MT and MS	% of total imports	Tonnes of cattle-related products from JBS slaughterhouses in MT and MS that have received deliveries from ranches in the Dirty List	% of total imports
Italy	59,841.2	51.7%	40,022.2	57.6%
Netherlands	19,804.2	17.1%	9,114.5	13.1%
Spain	19,784.3	17.1%	9,843.5	14.2%
Germany	8,009.0	6.9%	4,083.5	5.9%
Sweden	3,416.6	3.0%	3,305.9	4.8%
Poland	1,874.9	1.6%	1,346.8	1.9%
Portugal	1,360.3	1.2%	870.8	1.3%
Belgium	513.3	0.4%	428.6	0.6%
Greece	460.0	0.4%	186.7	0.3%
Cyprus	218.4	0.2%	80.2	0.1%
France	186.9	0.2%	157.9	0.2%
Denmark	162.5	0.1%	51.9	0.1%
Romania	25.9	0.0%	25.9	0.0%

6. Conclusions and recommendations

This briefing has provided evidence of systemic slave labour in Brazil's cattle ranching sector and demonstrated a significant risk that beef and leather products produced using slave labour may be entering EU supply chains.

While our analysis establishes links between properties associated with slave labour and the EU market, the lack of publicly available GTA data on cattle movements between ranches, and between ranches and slaughterhouses, precluded attempts to map the full extent of this network and links to EU supply chains. Our analysis focused solely on direct trade from properties listed on the government's Dirty List of slave labour to slaughterhouses, which excluded many more transactions that take place indirectly via intermediary farms where abuses have not been detected.

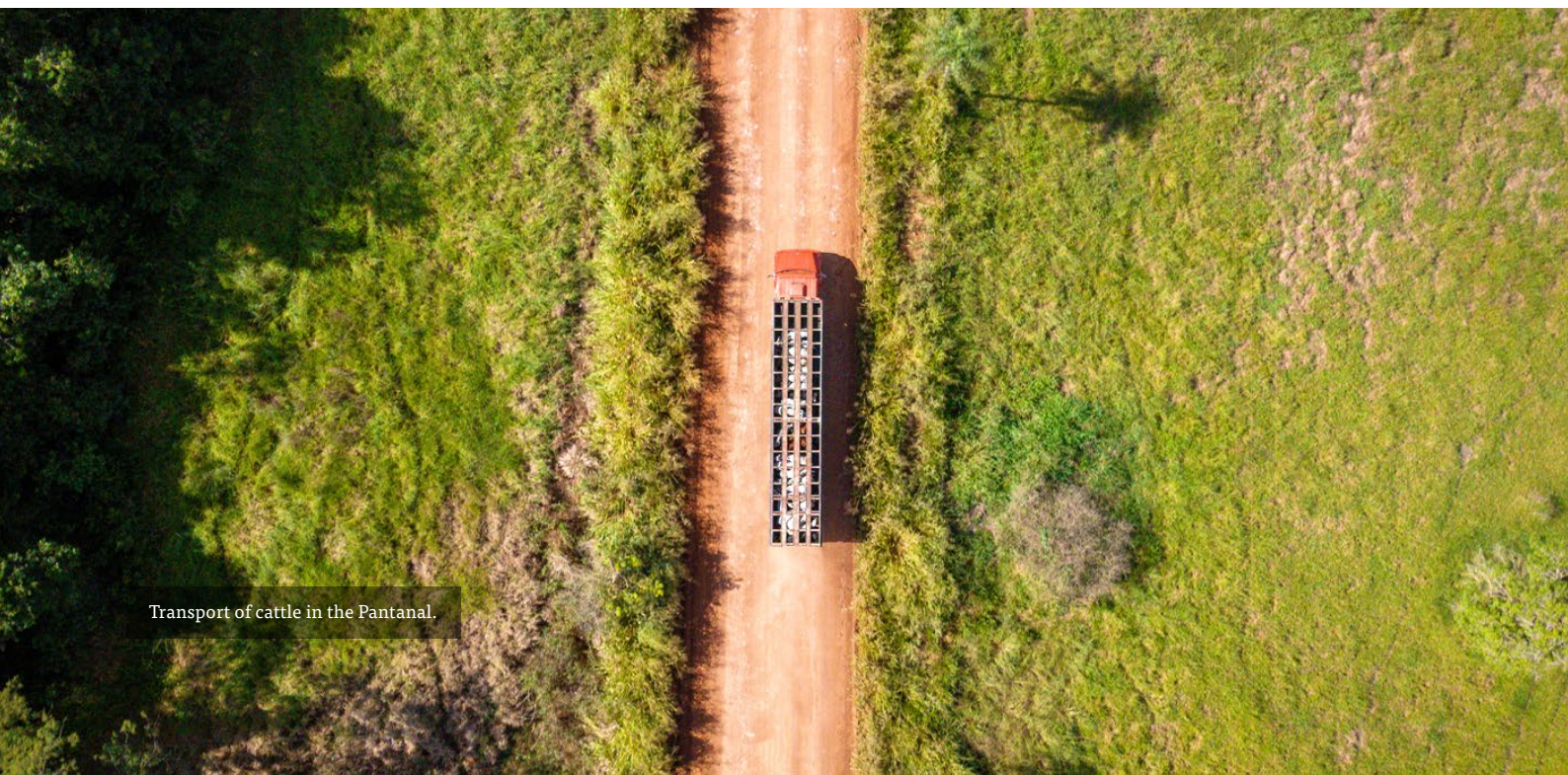
The evidence presented in this briefing likely represents just a fraction of abuses within the cattle ranching sector. Due to low inspection rates, the prevalence of slave labour is likely to be significantly higher than official figures suggest. Available data is nevertheless indicative of widespread and systemic abuse, with current efforts failing to ensure that entities subjecting workers to slave labour within the cattle industry are effectively identified, monitored and punished.

The Brazilian government must urgently step up efforts to address slave labour in the cattle ranching industry, in line with its obligations under national and international law. Federal Government action over the past two decades has been largely insufficient to end these abuses. The fight against slave labour has been compromised by,

among other things, low rates of inspection as a result of cuts in funding and numbers of inspectors, a lack of political will, low rates of prosecutions, and inadequate penalties that fail to serve as a deterrent for offenders.

Industry efforts to eradicate abuses from their supply chains have also fallen short. To date, meatpacking companies have largely focused on ensuring compliance by direct suppliers of cattle to their slaughterhouses, using the government's Dirty List to identify properties associated with slave labour. This raises a number of concerns. While EJJ has indeed identified slave labour within direct supply chains, research suggests that slave labour is likely to be even more prevalent within indirect suppliers of cattle to slaughterhouses,¹²³ which are not currently subject to scrutiny by major exporters of beef to the EU.¹²⁴ This stems, in part, from the current lack of access to relevant government data that would allow for the tracing of indirect suppliers of cattle to slaughterhouses that serve both domestic and international markets. Furthermore, due to low rates of inspection, the Dirty List likely includes only a fraction of cases of slave labour in the cattle ranching industry and is insufficient as a tool to ensure supply chains are free of abuse. Even where cases are detected through government inspections, there are often delays in adding offending properties to the Dirty List.

The EU is a leading market for beef and leather products from Brazil and has a responsibility to ensure that goods produced using forced labour are prevented from entering EU supply chains. The adoption of a robust Forced Labour Regulation would be an important step forward in this regard, imposing obligations on industry to ensure their supply chains are free from forced labour, which would include indirect suppliers of cattle to slaughterhouses in Brazil.



Transport of cattle in the Pantanal.

Action from all stakeholders, including the EU as a major market for beef and leather products from Brazil, is urgently required to put an end to the systemic use of slave labour in the Brazilian cattle ranching industry. **In this regard, EJF calls on:**

The Brazilian government to:

1. Increase funding for the Labour Inspection Secretariat (SIT). While EJF recognises and commends the efforts made by the incumbent administration to recruit new Labour Inspectors (AFTs),¹²⁵ additional funding should be allocated to the Secretariat to improve staffing in line with the recommendations of the Institute for Applied Research and SINAIT.¹²⁶
2. Combat the entrenched culture of slave labour within the cattle industry by strengthening slave labour laws and ensuring appropriate consequences for those that break the law to discourage reoffending.
3. Implement the Proposed Constitutional Amendments 14/2017¹²⁷ and 21/2011¹²⁸, in order to establish the act of subjecting someone to conditions analogous to slavery as a crime that is not bound by the statute of limitations, and to make human trafficking¹²⁹ a non-bailable offence that is not subject to grace or amnesty.
4. Expedite the passage of bill (PL) no. 5970/2019,¹³⁰ which seeks to regulate the expropriation of rural and urban properties where slave labour abuses occur in line with Article 243 of the Brazilian Federal Constitution, with the purpose of reallocating these areas for agrarian reform and affordable housing programs, without compensation to the owner and without prejudice to other sanctions.
5. Establish a multi-ministerial task force (including at a minimum representatives from the Ministry of Labour and Employment, the Ministry for the Environment, the Ministry for Human Rights, and the Ministry for Indigenous Peoples) with the purpose of integrating distinct government data sets and platforms¹³¹ into a single national cattle industry traceability platform. This portal should provide access to ranch-level information on both direct and indirect links to human rights abuses and deforestation.
6. Make access to such a traceability platform available to public authorities, private companies and the third sector and consumers, ensuring that the information provided is sufficiently comprehensive whilst protecting producers' personal data.
7. Engage with experts and key stakeholders both during the process of producing the traceability portal and after, to ensure that the information is sufficient to combat environmental and human rights abuses in cattle supply chains in Brazil.

The EU and its member states to:

1. Urgently pass and implement an ambitious sustainable corporate governance due diligence framework and EU Forced Labour Regulation, with robust enforcement and transparency mechanisms, to eradicate human rights and environmental abuses from EU value chains.
2. Ensure a robust and enforceable EU Forced Labour Regulation that allows for cases of systemic forced labour to be addressed by:
 - a. enabling EU market prohibitions to apply to groups of products or products stemming from entities where forced labour is prevalent, such as all cattle-related products from an individual cattle ranch or collection of ranches under the same ownership, or from a specific region;
 - b. enabling the setting up of ad hoc, dedicated and structured formal dialogues between the European Commission, supported and guided by member states, and third countries where systemic forced labour issues have been identified, with the possibility to introduce a wider ban (e.g. on groups of products or products from an entity or a group of entities) if forced labour practices are not being addressed; and
 - c. enhancing the role of the European Commission to be able to take decisions on behalf of the Union related to the prohibition of groups of products where forced labour is systemic.
3. Expand the protections afforded by the EU Regulation on deforestation-free products to Other Wooded Land and Other Natural Ecosystems, thereby preventing deforestation leakage and ensuring that EU supply chains do not contribute to the destruction of ecosystems of global significance to biodiversity and climate regulation, such as the Pantanal.¹³²
4. Negotiate robust environmental and human rights protections into any potential EU-Mercosur free trade agreement or bilateral agreement negotiated with Brazil, accompanied by effective enforcement mechanisms and sufficient deterrent sanctions.

The Brazilian meatpacking industry, as well as domestic and international traders and retailers, to:

1. Strengthen due diligence and risk processes by investigating supply chains for environmental and human rights violations, with priority afforded to high-risk sectors and geographies, explicitly including the Brazilian cattle ranching sector and the Pantanal.
2. Suspend business relationships with any entity found to be engaged in environmental or human rights violations, until it can be demonstrated through robust, verifiable evidence that all compliance-related issues have been resolved.
3. Develop internal processes to ensure fully transparent and traceable supply chains. These should prioritise the mapping of indirect suppliers, with a view to achieving full supply chain traceability for Brazilian beef and leather products. Publish full supply chain data in an accessible format that allows for independent scrutiny, including by civil society.
4. By the end of 2024, implement systems to proactively identify and monitor environmental and human rights risks within cattle supply chains, which go beyond the use of the official Dirty List to identify potential cases of slave labour. Publish information on performance, including actions taken against non-compliant suppliers.
5. Implement robust measures to prevent, mitigate and report on environmental and human rights risks within supply chains, including through the creation of grievance mechanisms and commissioning of annual, independent audits with the results published in full. Provide redress and remedy for affected workers, communities or ecosystems where damage could not be prevented.
6. Work with verified suppliers of beef and leather products whose provenance is independently and robustly verified, or support existing suppliers in transitioning to legal, sustainable supply chains.



JBS facility in Dourados, MS.

Appendix 1: Ratification by Brazil of key regional and international instruments relevant to slavery and forced labour in the cattle ranching sector

Instrument	Status
International Human Rights Instruments	
International Covenant on Economic Social and Cultural Rights (1976)	Ratified: 1992
Optional Protocol to the International Covenant on Economic, Social and Cultural Rights (2013)	Not ratified
International Covenant on Civil and Political Rights (1976)	Ratified: 1992
Optional Protocol to the International Covenant on Civil and Political Rights (1976)	Ratified: 2000
Slavery Convention (1926)	Accession: 1966
Regional Conventions	
American Convention on Human Rights	Ratified: 1992
Fundamental ILO Conventions	
C29 – Forced Labour Convention, 1930	Ratified: 1957
PO29 – Protocol of 2014 to the Forced Labour Convention, 1930	Not ratified
C105 – Abolition of Forced Labour Convention, 1957	Ratified: 1965
Other relevant ILO Conventions	
CO81 – Labour Inspection Convention, 1947	Ratified: 1989

Appendix 2: Reply received from JBS on 4 December 2023 in response to the opportunity to comment on the findings of EJF's report



04/12/2023 (Original)

Para garantir uma cadeia de fornecimento sustentável, a JBS mantém, há quase 15 anos, um sistema de monitoramento geoespacial que garante que 70 mil potenciais fornecedores diretos de bovinos no Brasil não atuem em áreas de desmatamento ilegal, terras indígenas, unidades de conservação ambiental ou territórios quilombolas; não possuam embargos ambientais, nem utilizem mão de obra análoga à escravidão.

O desafio de todas as empresas do setor é o de estender esse mesmo controle aos fornecedores de seus fornecedores. Isso porque as empresas processadoras de carne bovina não possuem acesso às Guias de Trânsito Animal, o documento que permitiria ter visibilidade a todos os elos da cadeia.

Para superar esse obstáculo setorial, a JBS implantou a Plataforma Pecuária Transparente. Com o uso de blockchain, a ferramenta torna possível estender a rastreabilidade da cadeia respeitando a confidencialidade dos produtores determinada pela Lei Geral de Proteção de Dados. Atualmente, 62% da base da produção da JBS já está cadastrada nela. Até o final de 2025, toda a cadeia de fornecimento da empresa deverá estar nessa ferramenta.

Seguindo o que está estabelecido na Política de Compra Responsável de Matéria-Prima da JBS e no Protocolo de Monitoramento de Fornecedores de Gado do Ministério Público Federal e do Imaflora (Boi na Linha), assim que um produtor é incluído na Lista Suja do Trabalho Escravo, a Companhia o bloqueia imediatamente. Assim foi feito com os casos citados pela EJF que constavam na base de fornecedores da JBS, os quais permaneceram bloqueados durante todo o período em que estiveram na Lista Suja. O cadastro de Antônio Carlos Zanin só foi efetuado após sua exclusão da Lista do Trabalho Escravo. Rosario Alem Eireli não é fornecedor da JBS. Importante destacar que seria um equívoco ligar a JBS a fazendas produtoras com base apenas "no nome da propriedade e no município em que ela está localizada".



04/12/2023 (Translation)

To guarantee a sustainable supply chain, JBS has had a geospatial monitoring system in place for almost 15 years to ensure that 70,000 potential direct beef suppliers in Brazil do not operate in areas of illegal deforestation, indigenous lands, environmental conservation units or quilombola territories; that they are not under environmental embargoes, nor do they use labour analogous to slavery.

The challenge for all companies in the sector is to extend this same control to their suppliers' suppliers. This is because beef processors do not have access to Animal Transportation Guide (GTA) data, which would allow them to have visibility of all links in the chain.

To overcome this sectoral obstacle, JBS implemented the Plataforma Pecuária Transparente (Transparent Livestock Platform). Using blockchain, the tool makes it possible to extend the chain's traceability while respecting the confidentiality of producers as determined by the General Data Protection Law. Currently, 62 per cent of JBS's production base is already registered on it. By the end of 2025, the company's entire supply chain should be in this tool.

In accordance with JBS's Responsible Raw Material Purchasing Policy and the Monitoring Protocol for Cattle Suppliers issued by the Federal Public Prosecutor's Office and Imaflora (Boi na Linha), as soon as a producer is included on the Dirty List of slave labour, the company immediately blocks it. This was the case with the cases cited by EJJ that were included in JBS's supplier database, which remained blocked for the entire period they were on the Dirty List. Antônio Carlos Zanin was only registered after his exclusion from the Slave Labour List. Rosario Alem Eireli is not a JBS supplier. It is important to emphasise that it would be a mistake to link JBS to producer ranches based solely on "the name of the property and the municipality in which it is located".

Appendix 3: Reply received from JBS on 5 December 2023 in response to a series of follow up questions from EJF on JBS' initial reply (see Appendix 2)



05/12/2023 (Original)

Gostaríamos de esclarecer algumas partes de sua resposta, com referência ao banco de dados de entregas que lhe enviamos em nosso e-mail inicial (em anexo):

1. *'Assim foi feito com os casos citados pela EJF que constavam na base de fornecedores da JBS, os quais permaneceram bloqueados durante todo o período em que estiveram na Lista Suja'.*
 - a. Pode confirmar se a entrega de gado da Fazenda Roma (CNPJ/CPF: 152.347.111-53) à JBS Confresa no dia 5 de abril de 2017 (enquanto a propriedade estava na lista suja) de fato ocorreu?
 - b. Pode confirmar se as oito entregas de gado da Fazenda Bragatti III (CNPJ/CPF: 197.469.469-00) à JBS Alta Floresta entre os dias 6 de outubro de 2017 e 18 de abril de 2018 (enquanto a propriedade estava na lista suja) de fato ocorreram?
 - c. Caso alguma das entregas mencionadas em 1a e 1b não tenha ocorrido, você poderia fornecer uma explicação da razão pela qual elas aparecem no portal da Friboi ou os detalhes da fazenda com o mesmo nome que fez essas entregas?
 - d. Caso as entregas tenham ocorrido, você poderia explicar melhor sua declaração (1) acima?
2. *'O cadastro de Antônio Carlos Zanin só foi efetuado após sua exclusão da Lista do Trabalho Escravo'.*
 - a. Pode confirmar que as três entregas de gado da Fazenda Flexas (CNPJ/CPF: 528.530.049-53) à JBS Pedra Preta nos dias 10 de junho de 2019 (duas entregas) e 29 de julho de 2019 (uma entrega) não ocorreram?
 - b. Caso alguma dessas entregas não tenha ocorrido, você poderia fornecer uma explicação da razão pela qual elas aparecem no portal da Friboi ou os detalhes da fazenda com o mesmo nome que fez essas entregas?
 - c. Caso as entregas tenham ocorrido, você poderia explicar melhor sua declaração (2) acima?
3. *'Rosario Alem Eireli não é fornecedor da JBS'.*
 - a. Pode confirmar que as 28 entregas de gado da Fazenda Marabá (número CAR: MS-5006903-15E968DAF13944B0B4C01EB0675D4FB1) às facilidades da JBS (Campo Grande Unidade 2 e Anastácio) desde o dia 7 de outubro de 2022 (enquanto a propriedade estava na lista suja) não ocorreram?
 - b. Caso alguma dessas entregas não tenha ocorrido, você poderia fornecer uma explicação da razão pela qual elas aparecem no portal da Friboi ou os detalhes da fazenda com o mesmo nome que fez essas entregas?
 - c. Caso as entregas tenham ocorrido, você poderia explicar melhor sua declaração (3) acima?

05/12/2023 (Translation)

We would just like to clarify some parts of your response, with reference to the database of deliveries that we sent in our initial email:

1. *'This was done with the cases cited by the EJF that were on JBS's supplier base, which remained blocked for the entire period they were on the Dirty List'.*
 - a. Can you confirm that the delivery of cattle from Fazenda Roma (CNPJ/CPF: 152.347.111-53) to JBS Confresa on the 5th April 2017 - whilst the property was on the dirty list - did in fact take place?
 - b. Can you confirm that the eight deliveries of cattle from Fazenda Bragatti III (CNPJ/CPF: 197.469.469-00) to JBS Alta Floresta between 6th October 2017 and 18th April 2018 - whilst the property was on the dirty list - did in fact take place?
 - c. In the case that any of the deliveries mentioned in 1a and 1b did not take place, could you provide an explanation of why they appear in the Friboi database, or the details of the relevant farm that made these deliveries?
 - d. If the deliveries did take place, could you further explain your statement above?
2. *'The registration of Antônio Carlos Zanin only took place after his exclusion from the Dirty List'.*
 - a. Can you confirm that the three deliveries of cattle from Fazenda Flexas (CNPJ/CPF: 528.530.049-53) to JBS Pedra Preta on the 10th June 2019 (two deliveries) and 29th July 2019 (one delivery) did not take place?
 - b. In the case that any of these deliveries did not take place, could you provide an explanation of why they appear in the Friboi database, or the details of the relevant farm that made these deliveries?
 - c. If the deliveries did take place, could you further explain your statement above?
3. *'Rosario Alem Eireli is not a JBS supplier'.*
 - a. Can you confirm that the 28 deliveries of cattle to JBS facilities (including Campo Grande Unit 2 and Anastácio) from Fazenda Marabá (CAR number: MS-5006903-15E968DAF13944B0B4C01EB0675D4FB1) did not take place?
 - b. In the case that any of these deliveries did not take place, could you provide an explanation of why they appear in the Friboi database, or the details of the relevant farm that made these deliveries?
 - c. If the deliveries did take place, could you further explain your statement above?



05/12/2023 (Original)

Seguem os esclarecimentos adicionais solicitados.

Os fazendeiros elencados pela EJF que efetivamente forneceram para a JBS, conforme já foi esclarecido, ficaram bloqueados durante todo o período em que estiveram na listagem.

Sobre os casos citados nas perguntas 1 e 2, é preciso explicar que a Lista Suja relaciona os produtores infratores, mas não o CAR das respectivas fazendas. Assim, conforme estabelecido no protocolo vigente até há alguns anos, a JBS bloqueava o CPF do produtor listado. Porém, se outro produtor negociava gado produzido na mesma propriedade, por exemplo como arrendatário, ele não estaria automaticamente bloqueado. Em 2020 o Protocolo de Monitoramento de Gado do Ministério Público Federal e da ONG Imaflora, o Boi na Linha, foi lançado e estabeleceu que era preciso fazer análises complementares para bloquear todos os proprietários e arrendatários vinculados a uma propriedade que consta da Lista Suja. A JBS segue essa orientação, porém as compras citadas nas perguntas 1 e 2 foram realizadas há pelo menos quatro anos, quando esse levantamento mais completo ainda não era feito e o Boi na Linha ainda não vigorava.

Com relação ao caso da pergunta 3, como nem o proprietário, nem o arrendatário da Fazenda Marabá constam da Lista Suja, mas sim apenas um prestador de serviços, respeitando o previsto no Protocolo do MPF, a propriedade não foi bloqueada.



05/12/2023 (Translation)

As requested, here are the additional clarifications.

The ranchers listed by EJF who actually supplied JBS, as has already been clarified, were blocked for the entire period they were on the list.

Regarding the cases mentioned in questions 1 and 2, it should be explained that the Dirty List lists the offending producers, but not the CAR of the respective ranches. Thus, as established in the protocol in force until a few years ago, JBS blocked the CPF of the listed producer. However, if another producer traded cattle produced on the same property, for example as a tenant, he would not be automatically blocked. In 2020, the Cattle Monitoring Protocol of the Federal Prosecutor's Office (MPF) and the NGO Imaflora, Boi na Linha, was launched and established that additional analyses were needed to block all owners and tenants linked to a property on the Dirty List. JBS follows this guideline, but the purchases mentioned in questions 1 and 2 were made at least four years ago, when this more complete survey had not yet been carried out, and Boi na Linha was not yet in force.

Regarding the case of question 3, as neither the owner nor the tenant of Fazenda Marabá are on the Dirty List, but only a service provider, respecting the provisions of the MPF Protocol, the property was not blocked.

Appendix 4: Letter to EJF from InPACTO dated 9 November 2023



São Paulo, 9 de novembro de 2023.

[REDACTED]

Atendendo ao seu questionamento realizado por e-mail sobre a JBS, esclarecemos que:


A empresa é associada ao InPACTO desde 15 de julho de 2014. Como associada, a empresa realiza Monitoramento anual construído a partir dos dez compromissos do [Pacto Nacional pela Erradicação do Trabalho Escravo](#).

No caso específico da JBS, atualmente, a empresa encontra-se em período de análise e verificação e o processo será encaminhado ao conselho do instituto, em dezembro. Cabe ressaltar que, a depender da violação a empresa pode chegar a ser suspensa.

Acredito que para a sua necessidade atual, essas informações sejam suficientes, mas caso precise de mais alguma coisa, não hesite em nos procurar.

Atenciosamente.

Regina

 Av. Paulista, 2073 Conjunto
204- Horsa 1 Cj. Nacional
Consolação São Paulo SP |
01311 940

 www.inpacto.org.br
 @InstitutoPACTO
 @_inpacto
 @InPACTO

Appendix 5: Letter to EJF from InPACTO dated 10 November 2023



São Paulo, 10 de novembro de 2023.

[REDACTED]


Atendendo ao seu segundo questionamento realizado por e-mail sobre a JBS, esclarecemos que:

O InPACTO monitora o cumprimento dos compromissos assumidos no Pacto Nacional pela Erradicação do Trabalho Escravo, lançado em 2005, identificando desafios, avanços e auxiliando as empresas na elaboração de planos de ação para promover boas práticas.

No dia 15 de julho de 2014, a JBS formalizou a associação ao InPACTO, assumindo os Compromissos do Pacto Nacional pela Erradicação do Trabalho Escravo e concordando com as regras e procedimentos administrativos descritos no Estatuto Social e Termo de Adesão. Por sua vez, em 18 de julho deste ano, recebemos uma notícia na qual a empresa JBS e empresas terceirizadas enfrentam acusações de trabalho análogo ao escravo. Visando estabelecer um diálogo com a empresa associada, no engajamento dos envolvidos em todos os elos das cadeias produtivas, atendendo os termos estabelecidos em nosso Estatuto Social, o InPACTO solicitou esclarecimentos a empresa e estes serão avaliados junto ao conselho, em dezembro.

Atenciosamente.

Regina

 Av. Paulista, 2073 Conjunto
204- Horsa 1 Cj. Nacional
Consolação São Paulo SP |
01311 940

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- 1 In this paper, slave labour is used to refer to situations defined in Article 149 of the Brazilian Penal Code in which working conditions are deemed "analogous to slavery", i.e. where any of the following elements are present: forced labour, exhaustive working hours, degrading conditions and/or debt bondage. For further information see **Box 2**.
- 2 World Benchmarking Alliance (2023) 'JBS', <https://www.worldbenchmarkingalliance.org/publication/food-agriculture/companies/jbs-3/> (accessed 7 November 2023); DeSmog (2022), 'World's largest meat company, JBS, increases emissions in five years despite 2040 net zero climate target, continues to greenwash its huge climate footprint', 21 April, *Institute for Agriculture and Trade Policy*, <https://www.iatp.org/media-brief-jbs-increases-emissions-51-percent> (accessed 7 November 2023); Gelles, D. (2023), 'Grilling the world's biggest meat producer', 28 September, *New York Times*, <https://www.nytimes.com/2023/09/28/climate/grilling-the-worlds-biggest-meat-producer.html> (accessed 7 November 2023)
- 3 The two ranches are included on the "Lista TRACES" of establishments able to export to the EU published by the Ministry of Agriculture and Livestock. Only farms that have been registered under the Brazilian Cattle and Buffalo Individual Identification System (SISBOV), which provides an official, but voluntary, system for the identification of individual animals destined for slaughter for beef, are eligible for inclusion in this list. See: Ministério da Agricultura e Pecuária do Governo Federal do Brasil (2023) 'Lista Traces', <https://www.gov.br/agricultura/pt-br/assuntos/sanidade-animal-e-vegetal/saude-animal/cgtqa/dpc/lista-traces> (accessed 2 November 2023).
- 4 European Commission (2023) 'Establishment Lists: Brazil - Meat Products', https://webgate.ec.europa.eu/tracesnt/directory/publication/establishment/index#!/view/BR/MEAT_PRODUCTS/26 (accessed 7 November 2023). Lists of food-producing establishments for non-EU countries are proposed by approved (listed) non-EU countries and maintained by the Commission in accordance with the requirements of Article 127 of Regulation (EU) 2017/625 and Article 13 of Commission Delegated Regulation (EU) 2022/2292. Lists of establishments for animal by-products are maintained pursuant to Article 30 of Regulation (EU) No 142/2011.
- 5 EJJF (2023) *Impact of EU supply chains on deforestation and biodiversity in Brazil's Pantanal: A global wetland under threat. The urgent need for the EU Deforestation Regulation to protect 'other wooded land' and 'other natural ecosystems'*. <https://ejfoundation.org/reports/impact-of-eu-supply-chains-on-deforestation-and-biodiversity-in-brazils-pantanal-a-global-wetland-under-threat-2>
- 6 According to import data reported by the EU-27 for 2022 under the following customs codes: 0102 21, 0102 29, ex 0201, ex 0202, ex 0206 10, ex 0206 22, ex 0206 29, 160250, ex 4101, ex 4104, ex 4107 (Eurostat).
- 7 According to export data reported by Brazil under the following customs codes: 0102 21, 0102 29, ex 0201, ex 0202, ex 0206 10, ex 0206 22, ex 0206 29, 160250, ex 4101, ex 4104, ex 4107 (UN Comtrade).
- 8 Brandão, J., Rausch, L., Munger, J., Naughton-Treves, L., & Gibbs, H. (2023) Behind the Cattle Industry: Modern Slave Labor Used to Produce Brazil's Beef and Leather, <https://doi.org/10.2139/SSRN.4590747>
- 9 Repórter Brasil (2021) *Slave labor in Brazil's meat industry*. 23pp. <https://reporterbrasil.org.br/wp-content/uploads/2021/01/Monitor-8-Slave-labor-in-Brazils-meat-industry.pdf>
- 10 According to data compiled by the Pastoral Land Commission (CPT). See also: Woodward and DelGrande (2021) 'The taint of slavery in the Brazilian beef industry', 24 May, *Center for Human Rights and Global Justice - NYU School of Law*, <https://chrgi.org/2021/05/24/the-taint-of-slavery-in-the-brazilian-beef-industry/> (accessed 8 November 2023).
- 11 Ritchie, H. and Roser, M. (2021) Our World in Data: Forests and deforestation. <https://ourworldindata.org/drivers-of-deforestation>
- 12 Brandão, J., Rausch, L., Munger, J., Naughton-Treves, L., & Gibbs, H. (2023) Behind the Cattle Industry: Modern Slave Labor Used to Produce Brazil's Beef and Leather, <https://doi.org/10.2139/SSRN.4590747>
- 13 According to data reported by the EU member states for 2022 in Eurostat.
- 14 Delegation of the European Union to Brazil (2021) 'The European Union and Brazil - Trade Relations', August 2 2021, https://www.eeas.europa.eu/brazil/european-union-and-brazil-trade-relations_en?s=191
- 15 European Commission, Proposal for a regulation of the European Parliament and of the Council on prohibiting products made with forced labour on the Union market, 14 September 2022, Doc COM(2022) 453 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0453>.
- 16 European Commission, Proposal for a directive of the European Parliament and of the Council on corporate sustainability due diligence and amending Directive (EU) 2019/1937, 23 February 2022, Doc COM(2022) 71 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0071>.
- 17 Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115>.
- 18 Keddy, P.A. & Fraser, L.H. (2005) Introduction: Big is beautiful, pages 1–10 in Fraser, L.H. & Keddy, P.A., eds. *The World's Largest Wetlands: Ecology and Conservation*. Cambridge (United Kingdom): Cambridge University Press.
- 19 Tomas, W., et al. (2019) Sustainability Agenda for the Pantanal Wetland: Perspectives on a Collaborative Interface for Science, Policy, and Decision-Making. *Tropical Conservation Science*, 12. pp1-30.
- 20 Seidl, A., Silva, J., and Moraes, A.S. (2001) Cattle ranching and deforestation in the Pantanal. *Ecological Economics* 36(3). pp.413-425.
- 21 The CPT's data consists of information from the Labour Inspection Secretariat (SIT), the Ministry of Economy, the Labour Prosecutor's Office (MPT), and the CPT's own research.
- 22 Tomas, W. M., de Oliveira Roque, F., Morato, R. G., Medici, P. E., Chiaravalloti, R. M., Tortato, F. R., Penha, J. M. F., Izzo, T. J., Garcia, L. C., Lourival, R. F. F., Girard, P., Albuquerque, N. R., Almeida-Gomes, M., Andrade, M. H. da S., Araujo, F. A. S., Araujo, A. C., Arruda, E. C. de, Assunção, V. A., Battistola, L. D., ... Junk, W. J. (2019). Sustainability Agenda for the Pantanal Wetland: Perspectives on a Collaborative Interface for Science, Policy, and Decision-Making. *Tropical Conservation Science*, 12. <https://journals.sagepub.com/doi/10.1177/1940082919872634>
- 23 IBGE (2023) 'Busca Online CNAE', <https://concla.ibge.gov.br/busca-online-cnae.html> (accessed 2 November 2023).
- 24 Ministério de Trabalho e Emprego do Governo Federal do Brasil (2023) 'Relatórios de Fiscalizações de Combate ao Trabalho Análogo ao de Escravo', https://www.gov.br/trabalho-e-emprego/pt-br/assuntos/inspecao-do-trabalho/areas-de-atuacao/copy_of_combate-ao-trabalho-escravo-e-analogo-ao-de-escravo (accessed 2 November 2023).
- 25 SICAR (2023) <https://www.car.gov.br/publico/imoveis/index> (accessed 2 November 2023).
- 26 MapBiomias Brasil (2023) Collection 7.1 of annual land cover and land use maps, <https://plataforma.brasil.mapbiomas.org/> (accessed 3 November 2023); MapBiomias Brasil (2023) 'MapBiomias Alerta', <https://plataforma.alerta.mapbiomas.org/> (accessed 3 November 2023).
- 27 JBS (2023) 'Rastreabilidade', <https://www.friboi.com.br/rastreabilidade/> (accessed 2 November 2023).
- 28 Marfrig (2023) 'Rastreabilidade', <https://marfrig.com.br/pt/rastreabilidade#/> (accessed 2 November 2023).
- 29 Ministério da Agricultura e Pecuária do Governo Federal do Brasil (2023) 'Lista Traces', <https://www.gov.br/agricultura/pt-br/assuntos/sanidade-animal-e-vegetal/saude-animal/cgtqa/dpc/lista-traces> (accessed 2 November 2023).
- 30 Ibid.
- 31 European Commission (2023) 'Establishment Lists: Brazil', <https://webgate.ec.europa.eu/tracesnt/directory/publication/establishment/index#!/search?countryCode=BR&sort=country.translation> (accessed 15 November 2023)
- 32 EU, Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products, amending Regulations (EC) No 999/2001, (EC) No 396/2005, (EC) No 1069/2009, (EC) No 1107/2009, (EU) No 1151/2012, (EU) No 652/2014, (EU) 2016/429 and (EU) 2016/2031 of the European Parliament and of the Council, Council Regulations (EC) No 1/2005 and (EC) No 1099/2009 and Council Directives 98/58/EC, 1999/74/EC, 2007/43/EC, 2008/119/EC and 2008/120/EC, and repealing Regulations (EC) No 854/2004 and (EC) No 882/2004 of the European Parliament and of the Council, Council Directives 89/608/EEC, 89/662/EEC, 90/425/EEC, 91/496/EEC, 96/23/EC, 96/93/EC and 97/78/EC and Council Decision 92/438/EEC (Official Controls Regulation), <https://eur-lex.europa.eu/eli/reg/2017/625/oj>.
- 33 EU, Commission Delegated Regulation (EU) 2022/2292 of 6 September 2022 supplementing Regulation (EU) 2017/625 of the European Parliament and of the Council with regard to requirements for the entry into the Union of consignments of food-producing animals and certain goods intended for human consumption, https://eur-lex.europa.eu/eli/reg_del/2022/2292/oj.
- 34 EU, Commission Regulation (EU) No 142/2011 of 25 February 2011 implementing Regulation (EC) No 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal by-products and derived products not intended for human consumption and implementing Council Directive 97/78/EC as regards certain samples and items exempt from veterinary checks at the border under that Directive, <https://eur-lex.europa.eu/eli/reg/2011/142/oj>.
- 35 See Brandão, J., Rausch, L., Munger, J., Naughton-Treves, L., & Gibbs, H. (2023) Behind the Cattle Industry: Modern Slave Labor Used to Produce Brazil's Beef and Leather, <https://doi.org/10.2139/SSRN.4590747>. The analysis found that indirect suppliers sold over 8 times as many heads of cattle and had almost 6 times more GTA transactions than direct suppliers over the study period.
- 36 According to data compiled by CPT.
- 37 Brandão, J., Rausch, L., Munger, J., Naughton-Treves, L., & Gibbs, H. (2023) Behind the Cattle Industry: Modern Slave Labor Used to Produce Brazil's Beef and Leather, <https://doi.org/10.2139/SSRN.4590747>
- 38 Repórter Brasil (2021) *Slave labor in Brazil's meat industry*, <https://reporterbrasil.org.br/wp-content/uploads/2021/01/Monitor-8-Slave-labor-in-Brazils-meat-industry.pdf>.

- 39 Article 149, Decree-Law No. 2.848, of December 7, 1940 (as amended) – Penal Code
- 40 Haddad, H. B., Miraglia, L. M. M., da Silva, B. F. A. (2020) *Trabalho Escravo na Balança da Justiça*, Belo Horizonte: Universidade Federal de Minas Gerais. https://www.estadao.com.br/blogs/blog/wp-content/uploads/sites/41/2021/02/pesquisa-trabalho-escravo-na-balanca-da-justica_020220214212.pdf
- 41 OECD Watch (2022) *Workers' rights and social protection in Brazil – Legal and policy gaps*. <https://www.oecdwatch.org/wp-content/uploads/sites/8/2022/03/Bridging-Brazilian-governance-gaps-Workers-rights.pdf>.
- 42 Repórter Brasil (2021) *Slave labor in Brazil's meat industry*, <https://reporterbrasil.org.br/wp-content/uploads/2021/01/Monitor-8-Slave-labor-in-Brazils-meat-industry.pdf>.
- 43 Ministério da Justiça do Governo Federal do Brasil, Interministerial Ordinance 4 of 11 May 2016, <https://www.legisweb.com.br/legislacao/?id=320458>.
- 44 Ibid.
- 45 Pers. comm. from MTE to EJJ, October 2023.
- 46 Teixeira, F. (2019) 'Major companies found using courts to avoid Brazil's slave labor dirty list', *Reuters*, 17 June, <https://www.reuters.com/article/brazil-trafficking-dirtylist-idUKL5N2206KS> (accessed 7 November 2023).
- 47 Teixeira, F. (2019) 'Major companies found using courts to avoid Brazil's slave labor dirty list', *Reuters*, 17 June, <https://www.reuters.com/article/brazil-trafficking-dirtylist-idUKL5N2206KS> (accessed 7 November 2023).
- 48 Amigos da Terra (AdT) – Amazônia Brasileira (2020) 10 years of terms of adjustment of conduct in Para and the public commitment on cattle ranching: The importance of beef traceability in reducing deforestation in the Amazon. <https://amigosdaterra.org.br/wp-content/uploads/2020/08/ADT-tac-compromisso-EN.pdf>; Brandão, J., Rausch, L., Munger, J., Naughton-Treves, L., & Gibbs, H. (2023) Behind the Cattle Industry: Modern Slave Labor Used to Produce Brazil's Beef and Leather, <https://doi.org/10.2139/SSRN.4590747>
- 49 Brandão, J., Rausch, L., Munger, J., Naughton-Treves, L., & Gibbs, H. (2023) Behind the Cattle Industry: Modern Slave Labor Used to Produce Brazil's Beef and Leather, <https://doi.org/10.2139/SSRN.4590747>
- 50 Anon (undated), 'Who we are', InPACTO, <https://inpacto.org.br/sobre-nos/> (accessed 7 November 2023)
- 51 As defined by IGBE: See IGBE (undated) *Mapa de biomas do Brasil*, https://geoftp.ibge.gov.br/informacoes_ambientais/estudos_ambientais/biomas/mapas/biomas_5000mil.pdf.
- 52 Greenpeace (2010) *Minimum Criteria for Industrial Scale Cattle Operations in the Brazilian Amazon Biome*, <https://www.greenpeace.org/usa/wp-content/uploads/legacy/Global/usa/report/2010/1/minimum-criteria-for-i.pdf>.
- 53 Repórter Brasil (2021) *Slave labor in Brazil's meat industry*. 23pp. <https://reporterbrasil.org.br/wp-content/uploads/2021/01/Monitor-8-Slave-labor-in-Brazils-meat-industry.pdf>.
- 54 Ibid.
- 55 ILO, Labour Inspection Convention C087 (No. 81), 11 July 1947, https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:P12100_INSTRUMENT_ID:312226.
- 56 Pers. comm. from SINAIT to EJJ, September 2023.
- 57 OECD Watch (2022) *Workers' rights and social protection in Brazil – Legal and policy gaps*. <https://www.oecdwatch.org/wp-content/uploads/sites/8/2022/03/Bridging-Brazilian-governance-gaps-Workers-rights.pdf>.
- 58 Resende, T. and Brant, D. (2020) 'Verba para fiscalizações trabalhistas cai pela metade no governo Bolsonaro', *Folha de São Paulo*, 20 September, <https://www1.folha.uol.com.br/mercado/2020/09/verba-para-fiscalizacoes-trabalhistas-cai-pela-metade-no-governo-bolsonaro.shtml> (accessed 7 November 2023).
- 59 Sakamoto, L. (2020) 'Covid: País tem déficit de 1,5 mil fiscais para vigiar condição de trabalho', *UOL*, 17 July, <https://noticias.uol.com.br/colunas/leonardo-sakamoto/2020/07/17/brasil-tem-deficit-de-15-mil-fiscais-para-verificar-condicoes-de-trabalho.htm?cmpid=copiaecola> (accessed 8 November 2023).
- 60 Pers. comm. from SINAIT to EJJ, September 2023.
- 61 Institute of Applied Research (IPEA) (2012) *A necessidade de Auditores-Fiscais do trabalho no Brasil*, https://sinait.org.br/docs/Rel_final_IPEA.pdf.
- 62 Pers. comm. to EJJ, October 2023.
- 63 Keddy, P.A. & Fraser, L.H. (2005) 'Introduction: Big is beautiful', pages 1–10 in Fraser, L.H. & Keddy, P.A., eds. *The World's Largest Wetlands: Ecology and Conservation*. Cambridge (United Kingdom): Cambridge University Press.
- 64 Chiaravalloti, R.M. (2016) Is the Pantanal a pristine place? Conflicts related to the conservation of the Pantanal. *Ambiente & Sociedade*, 19(2), 305–310. <https://doi.org/10.1590/1809-4422ASOC142964V1922016>
- 65 Global Witness (2022) *Cash cow. How beef giant JBS's links to Amazon deforestation and human rights abuses are aided by UK, US and EU financiers, importers and supermarkets*. June 2022. <https://www.globalwitness.org/en/campaigns/forests/cash-cow/>
- 66 Schulz, C., Whitney, B. S., Rossetto, O. C., Neves, D. M., Crabb, L., de Oliveira, E. C., Terra Lima, P. L., Afzal, M., Laing, A. F., de Souza Fernandes, L. C., da Silva, C. A., Steinke, V. A., Torres Steinke, E., & Saito, C. H. (2019). Physical, ecological and human dimensions of environmental change in Brazil's Pantanal wetland: Synthesis and research agenda. *Science of The Total Environment*, 687, 1011–1027. <https://doi.org/10.1016/j.scitotenv.2019.06.023>
- 67 EJJ (2023) *Impact of EU supply chains on deforestation and biodiversity in Brazil's Pantanal: A global wetland under threat. The urgent need for the EU Deforestation Regulation to protect 'other wooded land' and 'other natural ecosystems'*. <https://ejfoundation.org/reports/impact-of-eu-supply-chains-on-deforestation-and-biodiversity-in-brazils-pantanal-a-global-wetland-under-threat-2>; Greenpeace International (2021) *Making mincemeat of the Pantanal*. <https://www.greenpeace.org/international/publication/46577/pantanal-brazil-fires-jbs-meat-cattle/>
- 68 Alho, C. J. R., & Sabino, J. (2011) A conservation agenda for the Pantanal's biodiversity. *Brazilian Journal of Biology*, 71(1 SUPPL.), 327–335. <https://doi.org/10.1590/S1519-69842011000200012>
- 69 According to the MapBiomas alert system for instances of deforestation across all of Brazil's biomes. MapBiomas (2023) *Relatório Anual de Desmatamento 2022*, São Paulo, Brasil, https://storage.googleapis.com/alerta-public/dashboard/rad/2022/RAD_2022.pdf.
- 70 Jordan, L. (2020) 'Fires in Brazil's Pantanal wetland and Amazon rainforest worst in a decade', *Unearthed Greenpeace*, 4 September, <https://unearthed.greenpeace.org/2020/09/04/fires-brazil-pantanal-wetland-amazon-rainforest/> (accessed 16 August 2023).
- 71 de Barros, A. E., Morato, R. G., Fleming, C. H., Pardini, R., Oliveira-Santos, L. G. R., Tomas, W. M., Kantek, D. L. Z., Tortato, F. R., Fragoço, C. E., Azevedo, F. C. C., Thompson, J. J., & Prado, P. I. (2022). Wildfires disproportionately affected jaguars in the Pantanal. *Communications Biology* 2022 5:1, 5(1), 1–12. <https://doi.org/10.1038/s42003-022-03937-1>
- 72 Tomas, W. M., Berlinck, C. N., Chiaravalloti, R. M., Faggioni, G. P., Strüssmann, C., Libonati, R., Abrahão, C. R., do Valle Alvarenga, G., de Faria Bacellar, A. E., de Queiroz Batista, F. R., Bornato, T. S., Camilo, A. R., Castedo, J., Fernando, A. M. E., de Freitas, G. O., Garcia, C. M., Gonçalves, H. S., de Freitas Guilherme, M. B., Layme, V. M. G., ... Morato, R. (2021). Distance sampling surveys reveal 17 million vertebrates directly killed by the 2020's wildfires in the Pantanal, Brazil. *Scientific Reports* 2021 11:1, 11(1), 1–8. <https://doi.org/10.1038/s41598-021-02844-5>
- 73 Global Carbon Atlas (undated), 'Emissions: Territorial (MtCO₂)', <https://globalcarbonatlas.org/emissions/carbon-emissions/> (accessed 22 June 2023).
- 74 CIMI (2020), 'Regionais da CNBB lamentam “desmonte das instâncias de fiscalização” e cobram investigação sobre queimadas no Pantanal', 21 September. <https://cimi.org.br/2020/09/regionais-cnbb-lamentamdesmonte-fiscalizacao-cobram-investigacao-queimadas-pantanal/> (accessed 16 November 2023).
- 75 Muniz, B., Fonseca, B., And Ribeiro, R. (2020) 'Fires raze nearly half of Indigenous territories in Brazil's Pantanal', *Mongabay*, 6 October, <https://news.mongabay.com/2020/10/fires-raze-nearly-half-of-indigenous-territories-in-brazils-pantanales/> (accessed 8 November 2023)
- 76 Angelo, M. (2020) "It burned everything": Fires surge on indigenous land in Brazil', *Reuters*, 30 September. <https://www.reuters.com/article/us-brazil-wildfires-indigenous-idUSKBN26M40G> (accessed 8 November 2023)
- 77 EJJ (2022) *Paradise lost? Protecting the Pantanal, a precious ecosystem in crisis*. <https://ejfoundation.org/reports/paradise-lost-protecting-the-pantanal>
- 78 IUCN Red List (2023) 'The IUCN Red List of Threatened Species', <https://www.iucnredlist.org/> (accessed 23 May 2023).
- 79 Silva, J.S.V., Abdon, M.M. Silva, S.M. A., Moraes, J.A. (2011) Evolution of deforestation in the Brazilian Pantanal and surroundings in the timeframe 1976–2008. *Geografia*, 36. pp35–55.
- 80 EJJ (2023) *Impact of EU supply chains on deforestation and biodiversity in Brazil's Pantanal: A global wetland under threat. The urgent need for the EU Deforestation Regulation to protect 'other wooded land' and 'other natural ecosystems'*, <https://ejfoundation.org/reports/impact-of-eu-supply-chains-on-deforestation-and-biodiversity-in-brazils-pantanal-a-global-wetland-under-threat-2>
- 81 Silva, J.S.V., Abdon, M.M. Silva, S.M. A., Moraes, J.A. (2011) Evolution of deforestation in the Brazilian Pantanal and surroundings in the timeframe 1976–2008. *Geografia*, 36. pp35–55.
- 82 Tomas, W. M., de Oliveira Roque, F., Morato, R. G., Medici, P. E., Chiaravalloti, R. M., Tortato, F. R., Penha, J. M. F., Izzo, T. J., Garcia, L. C., Lourival, R. F. F., Girard, P., Albuquerque, N. R., Almeida-Gomes, M., Andrade, M. H. da S., Araujo, F. A. S., Araujo, A. C., Arruda, E. C. de, Assunção, V. A., Battistola, L. D., ... Junk, W. J. (2019). Sustainability Agenda for the Pantanal Wetland: Perspectives on a Collaborative Interface for Science, Policy, and Decision-Making. *Tropical Conservation Science*, 12. <https://journals.sagepub.com/doi/10.1177/1940082919872634>; Moraes Tomas, W., Niel Berlinck, C., Moraes Chiaravalloti, R., Paganini Faggioni, G., Strüssmann, C., Libonati, R., Roberto Abrahão, C., do Valle Alvarenga, G., Elisa de Faria Bacellar, A., Regina de Queiroz Batista, F., Silva Bornato, T., Restel Camilo, A., Castedo, J., Maria Espinóza Fernando, A., Oliveira de Freitas, G., Martins Garcia, C., Santos Gonçalves, H., Butti de Freitas Guilherme, M., Maria Guedes Layme, V., ... Morato, R. (2021.). Distance

- sampling surveys reveal 17 million vertebrates directly killed by the 2020's wildfires in the Pantanal, Brazil. *Scientific Reports*, 11(1), 23547. <https://doi.org/10.1038/s41598-021-02844-5>
- 83 Temmink, R. J. M., Lamers, L. P. M., Angelini, C., Bouma, T. J., Fritz, C., van de Koppel, J., Lexmond, R., Rietkerk, M., Silliman, B. R., Joosten, H., & van der Heide, T. (2022). Recovering wetland biogeomorphic feedbacks to restore the world's biotic carbon hotspots. *Science*, 376(6593). <https://www.science.org/doi/10.1126/science.abn1479>
- 84 Ramsar Convention on Wetlands (2018) *Global Wetland Outlook: State of the World's Wetlands and their Services to People*. Gland, Switzerland: Ramsar Convention Secretariat. <https://www.global-wetland-outlook.ramsar.org/gwo-2018>
- 85 Pletsch, M. A. J. S., Silva Junior, C. H. L., Penha, T. v., Körting, T. S., Silva, M. E. S., Pereira, G., Anderson, L. O., & Aragão, L. E. O. C. (2021). The 2020 Brazilian Pantanal fires. *Anais Da Academia Brasileira de Ciências*, 93(3), e20210077. <https://doi.org/10.1590/0001-376520210210077>
- 86 Junk, W. J., & Nunes De Cunha, C. (2005). Pantanal: a large South American wetland at a crossroads. *Ecological Engineering*, 24(4), 391–401. <https://doi.org/10.1016/j.ECOLENG.2004.11.012>
- 87 Waterland Research Institute (2000) Swarts, A. F., ed. *The Pantanal of Brazil, Bolivia and Paraguay: Selected Discourses on the World's Largest Remaining Wetland System*. Hudson MacArthur Publishers. 276pp.
- 88 WWF-Brazil/WWF Freshwater Practice (2017) *Brazil's Pantanal: From pilot to pact*. <https://www.wwf.org.uk/what-we-do/projects/south-americas-pantanal-pilot-pact>
- 89 Bolzan, F. P., Pereira, G. M. F., Tomas, W. M., Lourival, R., Sabino, J., Souza, F. L., Valente-Neto, F., Chiaravalloti, R. M., Garcia, L. C., Guerra, A., Nicola, R. D., da Silva Garcia, Á., Fernandes, J. F. A., Santos, C. C., Scur, M. C., Martins, P. I., Bernardino, C., & de Oliveira Roque, F. (2021). *Monetary Value of the Ecosystem Services of the Pantanal and Its Surroundings: First Approximations and Perspectives*. 767–783. https://doi.org/10.1007/978-3-030-83375-6_21
- 90 WWF-Brazil/WWF Freshwater Practice (2017) *Brazil's Pantanal: From pilot to pact*. <https://www.wwf.org.uk/what-we-do/projects/south-americas-pantanal-pilot-pact>
- 91 Ibid.
- 92 Rossetto, O. C., and Girardi, E. P. Pantanal Research Center. (2018). *Trajetória e Resiliência dos Povos Indígenas do Pantanal Brasileiro. Ambiente Agrário do Pantanal Brasileiro: Socioeconomia e Conservação da Biodiversidade*. pp.193-235.
- 93 IBGE (2022) 'Pesquisa da Pecuária Municipal', <https://sidra.ibge.gov.br/pesquisa/ppm/quadros/brasil/2022> (accessed 7 November 2023).
- 94 Tomas, W. M., de Oliveira Roque, F., Morato, R. G., Medici, P. E., Chiaravalloti, R. M., Tortato, F. R., Penha, J. M. F., Izzo, T. J., Garcia, L. C., Lourival, R. F. F., Girard, P., Albuquerque, N. R., Almeida-Gomes, M., Andrade, M. H. da S., Araujo, F. A. S., Araujo, A. C., Arruda, E. C. de, Assunção, V. A., Battistola, L. D., ... Junk, W. J. (2019). Sustainability Agenda for the Pantanal Wetland: Perspectives on a Collaborative Interface for Science, Policy, and Decision-Making. *Tropical Conservation Science*, 12. <https://journals.sagepub.com/doi/10.1177/1940082919872634>
- 95 According to data compiled by the Pastoral Land Commission (CPT)
- 96 According to data compiled by the Pastoral Land Commission (CPT)
- 97 Ministério da Economia do Governo Federal do Brasil (2021) *Relatório de fiscalização: Fazenda Marabá*.
- 98 Properties located within the municipalities listed as forming part of the Pantanal biome by the Brazilian Institute of Geography and Statistics (IBGE).
- 99 Given the lack of precise geolocation data, for this section the boundaries of the Pantanal are considered to be all municipalities listed as forming part of the biome by the Brazilian Institute of Geography and Statistics (IBGE). See: <https://www.ibge.gov.br/geociencias/informacoes-ambientais/vegetacao/15842-biomas.html?=&t=downloads>.
- 100 Pers. comm. to EJP, October 2023.
- 101 MapBiomas Brasil (2023) 'MapBiomas Alerta', <https://plataforma.alerta.mapbiomas.org/> (accessed 3 November 2023).
- 102 MapBiomas Brasil (2023) 'MapBiomas Alerta', <https://plataforma.alerta.mapbiomas.org/> (accessed 3 November 2023).
- 103 Registro Rural (2023) 'Cadastro Ambiental Rural: Fazenda Marabá', <https://www.registrorural.com.br/car/item/MS-5006903-15E968DAF13944BoB4CoIEBo675D4FB1> (accessed 3 November 2023).
- 104 MapBiomas Brasil (2023) Collection 7.1 of annual land cover and land use maps, <https://plataforma.brasil.mapbiomas.org/> (accessed 3 November 2023).
- 105 MapBiomas Brasil (2023) 'MapBiomas Alerta', <https://plataforma.alerta.mapbiomas.org/> (accessed 3 November 2023).
- 106 According to import data reported by the EU-27 for 2022 under the following customs codes: 0102 21, 0102 29, ex 0201, ex 0202, ex 0206 10, ex 0206 22, ex 0206 29, 160250, ex 4101, ex 4104, ex 4107 (Eurostat).
- 107 Fresh, frozen, prepared and preserved meat and offal.
- 108 Raw, tanned and crust hides and skins of bovine animals, and leather further prepared after tanning or crusting. The relevant commodity codes also include products from equine animals.
- 109 According to export data reported by Brazil under the following customs codes: 0102 21, 0102 29, ex 0201, ex 0202, ex 0206 10, ex 0206 22, ex 0206 29, 160250, ex 4101, ex 4104, ex 4107 (UN Comtrade).
- 110 None of the 27 EU member states reported importing live cattle from Brazil in 2022. This table excludes member states that were responsible for less than 1.0% of imports of cattle-related products from Brazil in 2022.
- 111 With respect to properties located within Mato Grosso.
- 112 Due to an absence of unique property identifiers, such as CAR numbers, within the JBS/Marfrig traceability portals, linkages were established based on the name of the property and municipality in which it is located and may be associated with a degree of error (e.g., where the names of properties are relatively common).
- 113 According to transaction data reported in the JBS Transparency Portal.
- 114 Registro Rural (2023) 'Cadastro Ambiental Rural: Fazenda Marabá', <https://www.registrorural.com.br/car/item/MS-5006903-15E968DAF13944BoB4CoIEBo675D4FB1> (accessed 3 November 2023).
- 115 Ministério da Economia do Governo Federal do Brasil (2021) *Relatório de fiscalização: Fazenda Canadá*.
- 116 Ministério do Trabalho e Emprego do Governo Federal do Brasil (2023) *Cadastro de Empregadores que tenham submetido trabalhadores a condições análogas à de escravo*, <https://www.gov.br/trabalho-e-emprego/pt-br/assuntos/inspecao-do-trabalho/areas-de-atuacao/cadastro-de-empregadores.pdf>
- 117 MapBiomas Brasil (2023) 'MapBiomas Alerta', <https://plataforma.alerta.mapbiomas.org/> (accessed 3 November 2023).
- 118 Ministério do Trabalho do Governo Federal do Brasil (2018) *Relatório de fiscalização: Fazendas Alaia e Santa Adelaide*.
- 119 Ministério do Trabalho e Emprego do Governo Federal do Brasil (2023) *Cadastro de Empregadores que tenham submetido trabalhadores a condições análogas à de escravo*, <https://www.gov.br/trabalho-e-emprego/pt-br/assuntos/inspecao-do-trabalho/areas-de-atuacao/cadastro-de-empregadores.pdf>
- 120 de Mello Brandão Vinholis, M., Meirelles de Souza Filho, H., Carer, M. J. and Ribas Chaddad, F. (2016) 'Determinants of recognition of TRACES certification as valuable opportunity at the farm level in São Paulo, Brazil', *Production*, 26(1), <http://dx.doi.org/10.1590/0103-6513.146513>.
- 121 EJP (2023) *Impact of EU supply chains on deforestation and biodiversity in Brazil's Pantanal: A global wetland under threat. The urgent need for the EU Deforestation Regulation to protect 'other wooded land' and 'other natural ecosystems'*. <https://ejfoundation.org/reports/impact-of-eu-supply-chains-on-deforestation-and-biodiversity-in-brazils-pantanal-a-global-wetland-under-threat-2>
- 122 Based on data from Panjiva.
- 123 Brandão, J., Rausch, L., Munger, J., Naughton-Treves, L., & Gibbs, H. (2023) *Behind the Cattle Industry: Modern Slave Labor Used to Produce Brazil's Beef and Leather*, <https://doi.org/10.2139/SSRN.4590747>.
- 124 Amigos da Terra (AdT) – Amazônia Brasileira (2020) *10 years of terms of adjustment of conduct in Para and the public commitment on cattle ranching: The importance of beef traceability in reducing deforestation in the Amazon*. <https://amigosdaterra.org.br/wp-content/uploads/2020/08/ADT-tac-compromisso-EN.pdf>
- 125 Ministério do Trabalho e Emprego do Governo Federal do Brasil (2023) 'Governo federal anuncia liberação de concurso com 900 vagas para Auditor Fiscal do Trabalho', <https://www.gov.br/trabalho-e-emprego/pt-br/noticias-e-conteudo/2023/junho/governo-federal-anuncia-liberacao-de-concurso-com-900-vagas-para-auditor-fiscal-do-trabalho> (accessed 7 November 2023).
- 126 Institute of Applied Research (IPEA) (2012) *A necessidade de Auditores-Fiscais do trabalho no Brasil*, https://sinait.org.br/docs/Rel_final_IPEA.pdf.
- 127 Proposta de Emenda à Constituição nº 14, de 2017, https://www25.senado.leg.br/web/atividade/materias/-/materia/128622?_gl=1*1q5tj9a*_ga*MjQyNjYwNiUOLjE2OTUwNDZMjA.*_ga_CW3Z2H5XMK*MTY5NzAzMTk1NS40LjAuMTY5NzAzMTk1NS4wLjAuMA.
- 128 Proposta de Emenda à Constituição nº 21 de 2011, <https://www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=500382>.
- 129 As defined in Article 149A of the Brazilian Penal Code, 'human trafficking' refers to perpetrating, attracting, recruiting, transporting, transferring, procuring, housing or sheltering a person, through serious threat, violence, coercion, fraud or abuse, with the aim of: I) removing organs, tissues or body parts; II) forcing people to work in conditions comparable to slavery; III) forcing people into any type of servitude; IV) illegal adoption; or V) sexual exploitation. See: https://www.planalto.gov.br/ccivil_03/decreto-lei/del2848compilado.htm.
- 130 Projeto de Lei nº 5970, de 2019, <https://www25.senado.leg.br/web/atividade/materias/-/materia/139791>.
- 131 Including but not limited to GTA, Dirty List, CAR, IBAMA embargoes, INPE/PRODES.
- 132 EJP (2023) *Impact of EU supply chains on deforestation and biodiversity in Brazil's Pantanal: A global wetland under threat. The urgent need for the EU Deforestation Regulation to protect 'other wooded land' and 'other natural ecosystems'*. <https://ejfoundation.org/reports/impact-of-eu-supply-chains-on-deforestation-and-biodiversity-in-brazils-pantanal-a-global-wetland-under-threat-2>

