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Foreign Farmland Investors in Brazil Linked to 423,000 Hectares of Deforestation

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Brazil is one of the top target countries for farmland investment deals, because of the potential for high yields and productivity. The country has been an attractive destination for investors who buy farmland to diversify their portfolios and seek stable returns. Following the financial crisis of 2007 and 2008, institutional investors, including pension funds, university endowments and private equity, invested heavily in newly formed rural real estate corporations. This paper analyses deforestation rates at Brazilian farms with foreign investment. It describes the linkages between foreign investments in Brazilian farmland and the deforestation of this farmland since 2000, with a focus on Matopiba, the region consisting of the states of Maranhão, Tocantins, Piauí and Bahia.

Key Findings

- **Ten foreign investors hold over 1.5 million hectares (ha) of Brazilian farmland.** Brazil is one of the top four target countries for transnational land deals, despite tightened restrictions on international land acquisitions. Investment entities provide limited transparency on farmland holdings.
- **The Cerrado, a large tropical savanna biome that covers more than 20 percent of Brazil and has seen high rates of deforestation, is at the heart of farmland investment growth.** Eight companies backed by foreign investors control at least 868,488 ha of farmland in Matopiba, representing 18 percent of total agricultural land. Foreign investors include Harvard University, Cresud and Nuveen.
- **Foreign-held farms in Matopiba have seen at least 423,242 ha of deforestation since 2000.** This represents 22 percent of total deforestation in Matopiba between 2000-2017. Farms held by BrasilAgro and Nuveen have seen the highest rates. However, deforestation rates have decreased significantly in the past six years. An estimated 171,867 ha of native vegetation remains on the 48 identified farms.
- **Nuveen, the global asset management subsidiary of the TIAA, is the only foreign farmland investor with a zero-deforestation policy.** Adopted in 2018, this policy includes a commitment not to purchase land in Brazil that has been cleared from native vegetation. For the Cerrado the cut-off date is set at May 2009, unless in accordance with the Roundtable for Responsible Soy (RTRS). The policy's language suggests that its scope does not extend to farms already held in its portfolio.
- **In addition to driving deforestation, farmland investments have often been associated with land grabbing.** Harvard's Endowment Funds and Nuveen invest in farms that have been subject to legal proceedings concerning the legality of land titles. Those same farms have seen high rates of deforestation.
- **Deforestation and land grabbing are examples of ESG risks that could indirectly affect investors in farmland investment funds.** Investors in farmland funds or listed land owners could face exposure to reputational risks. Furthermore, farmland assets in Matopiba may be at risk of becoming stranded.

Ten foreign investors control over 1.5 million ha of farmland in Brazil

Global farmland investments grew following the 2008 financial crisis, as investors sought to diversify their portfolios and generate stable financial returns in a context of **geopolitical instability, low interest rates and slow economic growth**. Investing in farmland became popular because of increasing demand for food, in particular growing per-capita meat consumption requiring protein-rich livestock feed. Farmland focused investment funds hold at least USD 31 billion in assets under management, although new investments have slowed down since 2014. These unlisted funds provide opportunities for institutional investors to invest directly in land, and profit from the value appreciation driven by global population growth.

With the potential for high yields and productivity, Brazil has been an attractive destination for farmland investments. As a result, institutional investors set up rural real estate corporations. The main source of revenue of these companies is from purchasing, transforming and selling farmland. Pension funds, university endowments and private equity have invested in these rural real estate firms through joint ventures and partnerships with domestic Brazilian firms.

Brazil is the fourth largest target country for transnational land deals. The top three countries are (1) the Democratic Republic of Congo, (2) Papua New Guinea, and (3) Indonesia. Since 2000, foreign investors have bought over 3 million ha of Brazilian land for agricultural production, timber extraction, carbon trading, industry, renewable energy production, conservation, and tourism. Along with foreign investors, domestic agribusinesses and real estate firms have also acquired large tracts of Brazilian land. As a consequence, farmland prices soared.

In 2010, the Brazilian government tightened restrictions on international land acquisitions. Brazilian law stipulates that foreign investors can own no more than 25 percent of the land within any municipality, while investors of the same nationality can own a maximum of 10 percent of a municipality's lands. The Bolsonaro administration, which will come into power in January 2019, is expected to facilitate foreign investments and loosen current restrictions.

There is limited transparency regarding investment entities' farmland holdings. In some cases, foreign investors create opaque structures to make their investments appear more "Brazilian" than they are. For example, Radar, a subsidiary of Brazilian conglomerate Cosan, holds over 670 properties, totalling more than 280,000 ha under management. Its portfolio is worth more than BRL 5.7 billion (USD 1.46 billion). Although Cosan retains the majority of votes on Radar's board of directors, it only holds 3 percent of Radar's capital. Nuveen, the global asset management subsidiary of the Teachers Insurance and Annuity Association of America (TIAA), holds the remaining 97 percent.

Chain Reaction Research (CRR) analysis suggests that ten foreign investor-backed companies control at least 1.5 million ha of farmland in Brazil.

Figure 1: Land holdings in Brazil as reported by different investor groups

Sources: News websites, company or investor websites.

Investor/ company	Country of origin	Local company / entity	Size of land holdings (ha)
Nuveen*	USA	Radar, TCGA I, TCGA II	299,025
Harvard Endowment Fund**	USA	Caracol Agropecuária/Agroflorestal, Gordian Bioenergy/Terracal, InSolo	294,000
Brookfield*	Canada	Brookfield Brasil	269,000
Cresud*	Argentina	BrasilAgro	238,705
Mitsui*	Japan	Agrícola Xingu, SLC-MIT Empreendimentos Agrícolas S.A.	87,000
Valiance Capital*	United Kingdom	SLC LandCo	86,574
Shree Renuka Sugars Limited*	India	Renuka do Brasil	78,000
Altima Partners, Capital Group**	United Kingdom, USA	El Tejar	76,840
Mitsubishi Corporation*	Japan	Agrex do Brasil	73,600
Genagro*	United Kingdom	Agrijfirma	56,387
Total			1,559,131

* Self-reported

** Third-party source

Eight foreign investors control 860,000 ha of farmland in Matopiba

The Cerrado, a large tropical savanna biome that covers more than 20 percent of Brazil, is at the heart of farmland investment growth. Land prices in the Cerrado increased nearly fivefold between 2003 and 2016. Prices have since, however, flattened to an annual increase of 0.6 percent in 2018. Land holdings are highly concentrated in Matopiba, the region consisting of the states of Maranhão, Tocantins, Piauí and Bahia. More than 90 percent of Matopiba lies within the Cerrado and it is often seen as Brazil's newest soy frontier.

CRR analysis shows that eight companies backed by foreign investors control at least 868,488 ha of farmland in the Matopiba states. This makes up approximately 18 percent of the total agricultural land in Matopiba.

Figure 2: Foreign investors in farmland in Matopiba

Source: Chain Reaction Research

Investor/Company	Size of farmland holding (ha)
Harvard Endowment Fund	289,631
InSolo	116,631
Gordian Bioenergy (GBE)/Terracal	33,000
Caracol Agropecuária LTDA / Agroflorestal	140,000
Cresud	146,247
BrasilAgro	146,247
Brookfield Asset Management	84,449
Brookfield Agriculture Group	84,449
Nuveen	80,989
Radar I	10,489
TCGA I	68,037
TCGA II	2,462
Ridgefield Capital	75,581
Agrinvest Brasil	75,581
Valiance Capital	73,225
SLC Landco	73,225
Mitsui & Co	62,000
SLC-MIT Empreendimentos Agrícolas S.A.	22,000
Xingu Agrícola	40,000
Genagro Ltd	56,366
Agrifirma Brasil Agropecuaria	56,366
Grand Total	868,488

As of June 2018, Harvard University's endowment was valued at USD 32.7 billion. Harvard is ranked first out of 1,158 ranked university endowments in the United States. In 2017, Harvard wrote down its natural resources portfolio 28 percent from USD 4 billion to USD 2.9 billion. This USD 1.1 billion write-down occurred partly from Harvard's ambitious investments in Brazilian farmland. Harvard reportedly lost USD 150 million in a single agriculture investment in Brazil.

Harvard's farmland acquisitions in Brazil have come under criticism for the lack of proper due diligence and its contribution "to the displacement and harassment of traditional communities, environmental destruction and conflicts over water."

Cresud, an Argentinean company, is engaged in the production of basic agricultural commodities in Brazil and other Latin American countries. The company is involved in various farming activities, including grains and sugarcane production, beef cattle raising and milk production. In addition, it leases lands to third parties. In 2006, Cresud founded BrasilAgro in order to expand its rural land portfolio in Brazil. BrasilAgro's business model is geared towards the transformation of native Cerrado vegetation into productive farmland. BrasilAgro wholly owns eight farms, while it leases an additional three farms. Cresud holds a 40.7 percent share in BrasilAgro.

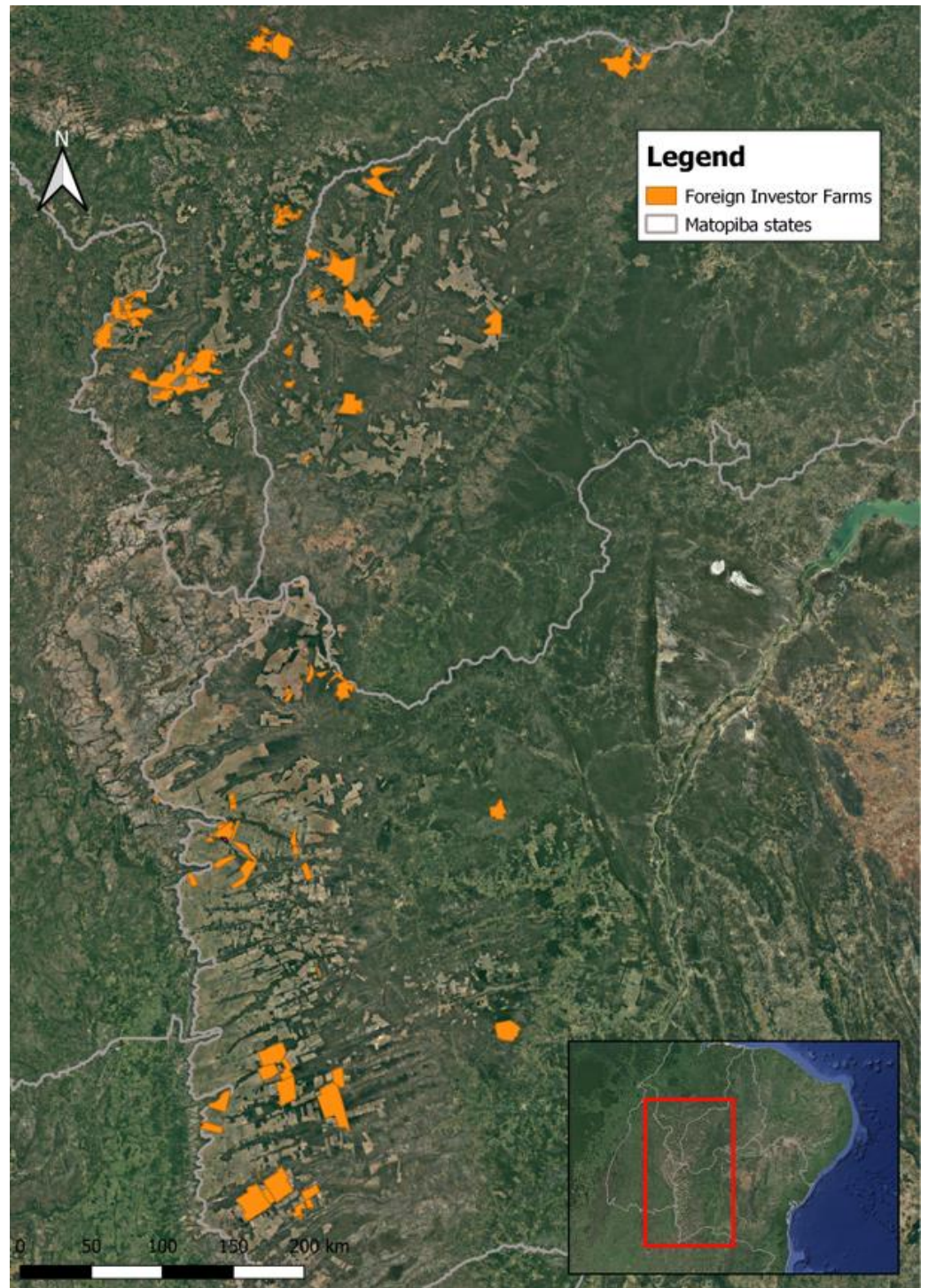
Nuveen manages more than USD 900 billion in assets for over 1,500 institutional clients in 34 countries worldwide. Nuveen sees itself as the “largest manager of farmland assets in the world and a leader in alternative investments.” In 2015, TIAA announced the launch of TCGA II, the largest agricultural investment fund in the world, with USD 3 billion in commitments. TCGA II has 20 investors, including AP2, Cummins UK Pension Plan Trustee Ltd., Environment Agency Pension Fund, Greater Manchester Pension Fund, New Mexico State Investment Council and the TIAA general account.

Nuveen is the only foreign farmland investor that has a zero deforestation policy. Nuveen has committed not to purchase land on behalf of any of its accounts in Brazil that has been cleared from native vegetation. For the Cerrado biome the cut-off date is set at May 2009, unless in accordance with the Roundtable for Responsible Soy (RTRS). The language of the policy suggests that its scope does not extend to farms already held in its portfolio, and it might still accept legal clearing. In its 2017 report on “ethical conduct and responsible stewardship of the environment,” Nuveen encourages its soy producers to adopt RTRS standards.

CRR located a total of 48 foreign-held farms in Matopiba. Based on the size of these farms as registered in Brazil’s Rural Environmental Cadastre (CAR), CRR estimates that these 48 farms represent approximately 82 percent of all Matopiba farmland held by the eight investors. The exact locations of the remaining 18 percent remain unknown.

Figure 3: Matopiba farms with foreign investment

Source: Chain Reaction Research, SICAR and corporate data.



Foreign-Held Farms in Matopiba Have Seen at Least 423,242 Ha of Deforestation Since 2000

On the 48 identified foreign-held farms, 423,242 ha have been deforested since 2000. Based on information from the Rural Environmental Cadastre (CAR) and other sources, CRR developed a partial base map and calculated deforestation rates from data of Brazil's deforestation monitoring system PRODES. CRR's base map only includes CAR registrations with similar farm names as communicated by the investors, but may be incomplete. The deforestation figures presented in this report should therefore be regarded as a conservative estimate.

As shown in Figure 4, BrasilAgro and Nuveen farms had the highest deforestation rates, with 123,955 ha and 72,753 ha cleared since 2000 respectively.

Figure 4: Deforestation at Foreign-held farms in Matopiba 2000-2017

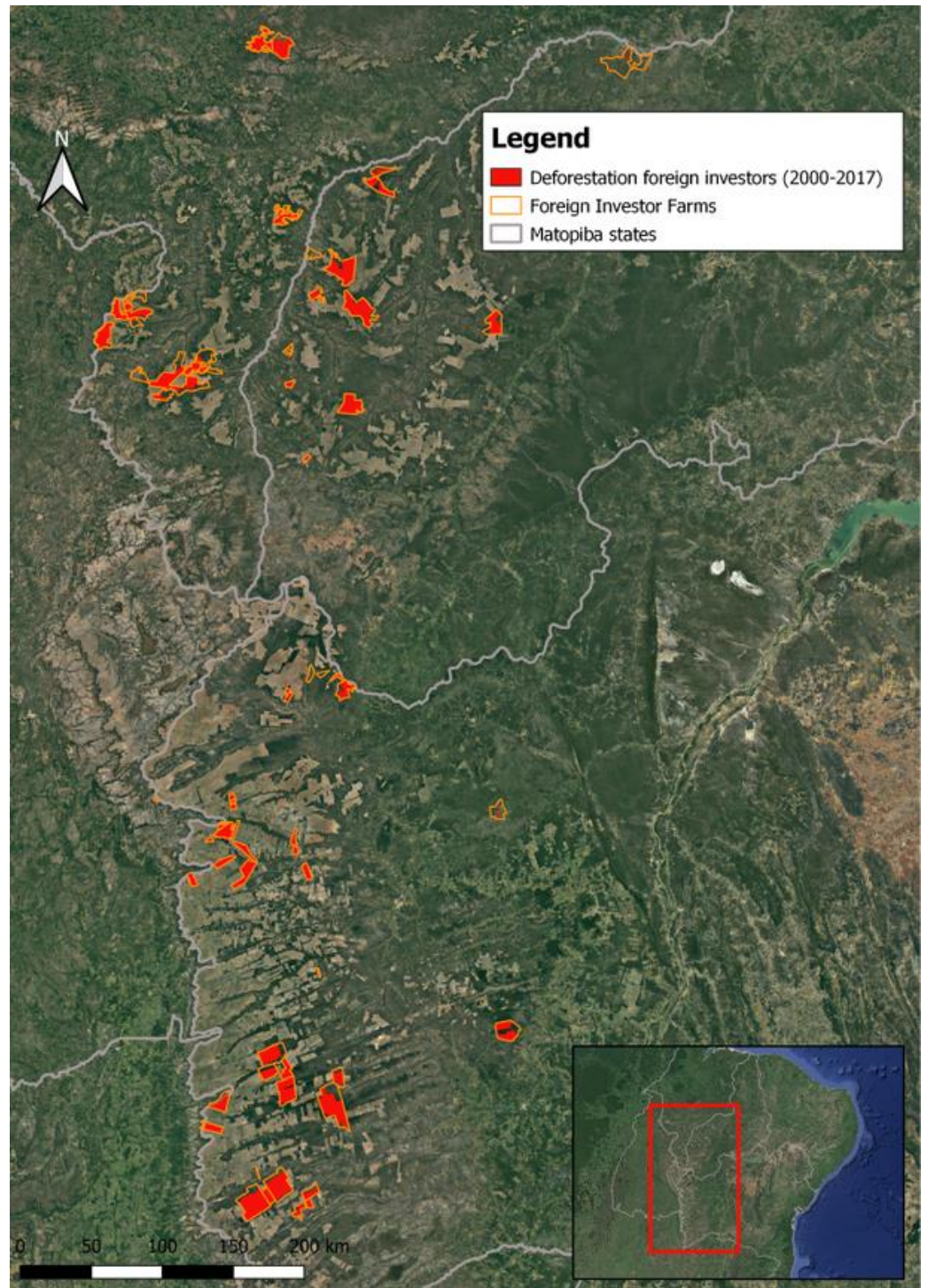
Source: Chain Reaction Research, PRODES and Planet.com.

Investor/Company	Deforestation (ha) since 2000
Cresud	123,955
BrasilAgro	123,955
Nuveen	72,753
TCGA I	55,920
Radar I	8,625
TCGA II	8,208
Valiance Capital	66,234
SLC Landco	66,234
Harvard Endowment Fund	53,117
InSolo	53,090
Caracol Agropecuária LTDA / Agroflorestal	27
Gordian Bioenergy (GBE)/Terracal	0
Mitsui & Co	44,957
Xingu Agrícola	32,181
SLC-MIT Empreendimentos Agrícolas S.A.	12,776
Ridgefield Capital	24,841
Agriinvest Brasil	24,841
Agriinvest	0
Genagro Ltd	23,639
Agfirma Brasil Agropecuaria	23,639
Brookfield Asset Management	13,746
Brookfield Agriculture Group	13,746
Grand Total	423,242

Deforestation on foreign-held farms represents 22 percent of the overall deforestation in Matopiba from 2000 to 2017. Agrosatelite (on file) reports an overall figure of 1.94 million ha of forest loss in Matopiba during this period.

Figure 5: Deforestation at Foreign-held farms in Matopiba, 2000-2017

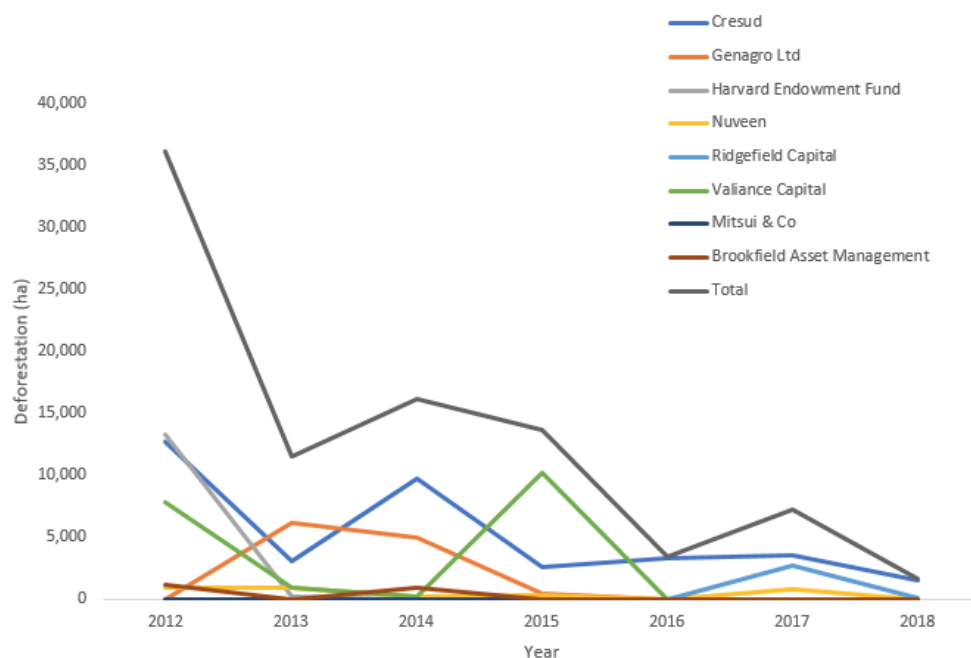
Source: Chain Reaction Research, PRODES data and satellite observations.



Deforestation rates on these farms have decreased significantly in the past six years. In 2012, the eight foreign investors were responsible for clearing 36,161 ha. In 2017, this figure stood at 7,222 ha, a reduction of about 80 percent in five years. The decreasing deforestation rates on foreign owned farms follow an overall trend. Deforestation in Matopiba has gone down from 747,678 ha in 2013 to 450,673 ha in 2017. According to Agrosatelite (on file), less favourable market conditions for soy and recurring inclement weather in the region slowed down investments and related deforestation.

Figure 6: Deforestation rates on foreign-held farms in Matopiba (2012-2018)

Source: Chain Reaction Research, PRODES data and satellite observation



An estimated 171,867 ha of native vegetation remains on the 48 foreign-held farms. Of this remaining native vegetation, approximately 78,552 ha is outside areas designated as legal reserves, and could therefore be developed in accordance with Brazil's Forest Code. SLC LandCo (26,486 ha), Harvard's Gordian Bioenergy (25,265 ha), Agrinvest (23,860 ha), and Nuveen's TCGA I funds (22,153 ha) control the largest areas with remaining native vegetation.

Figure 7: Remaining native vegetation on foreign-held farms in Matopiba

Source: Chain Reaction Research, PRODES data and satellite observation.

Investor/Company	Sum of Native vegetation (ha)	Sum of Native vegetation outside of legal reserve (ha)
Harvard Endowment Fund	51,154	31,885
InSolo	16,558	2,791
Caracol	9,331	9,331
Agropecuária LTDA / Agroflorestal	9,331	9,331
Gordian Bioenergy (GBE)/Terracal	25,265	19,763
Nuveen	27,155	11,754
TCGA I	22,153	11,390
Radar I	3,584	364
TCGA II	1,418	0
Valiance Capital	26,486	10,978
SLC Landco	26,486	10,978
Ridgefield Capital	23,860	3,249
Agrinvest	23,860	3,249

Investor/Company	Sum of Native vegetation (ha)	Sum of Native vegetation outside of legal reserve (ha)
Cresud	16,092	10,272
BrasilAgro	16,092	10,272
Mitsui & Co	10,200	4,652
SLC-MIT Empreendimentos Agrícolas S.A.	6,626	3,159
Xingu Agrícola	3,574	1,493
Brookfield Asset Management	6,933	516
Brookfield Agriculture Group	6,933	516
Genagro Ltd	5,729	1,509
Agrifirma Brasil Agropecuaria	5,729	1,509
Grand Total	167,609	74,815

Deforestation Takes Place at Farms Accused of Land Grabbing

In addition to driving deforestation, farmland investments have often been **associated with land grabbing**. Civil society organisations point out the adverse social implications for local communities and smallholder farmers. In Matopiba, farmland investments have often been preceded by illegal occupation of land through a process of *grilagem*, a form of land grab through falsification of land titles. Land speculators use falsified deeds to lay claim to public lands that are home to local communities or are used by communities for small-scale farming and hunting.

Several of the foreign investors mentioned in this report have faced civil society criticism and have been subject to legal cases around land grabbing. Farmland investors have faced criticism over their lack of proper due diligence and their role in intimidation, harassment and displacement of local communities. In many cases, land subject to these controversies or legal cases has also seen high rates of deforestation.

Harvard Endowment Fund

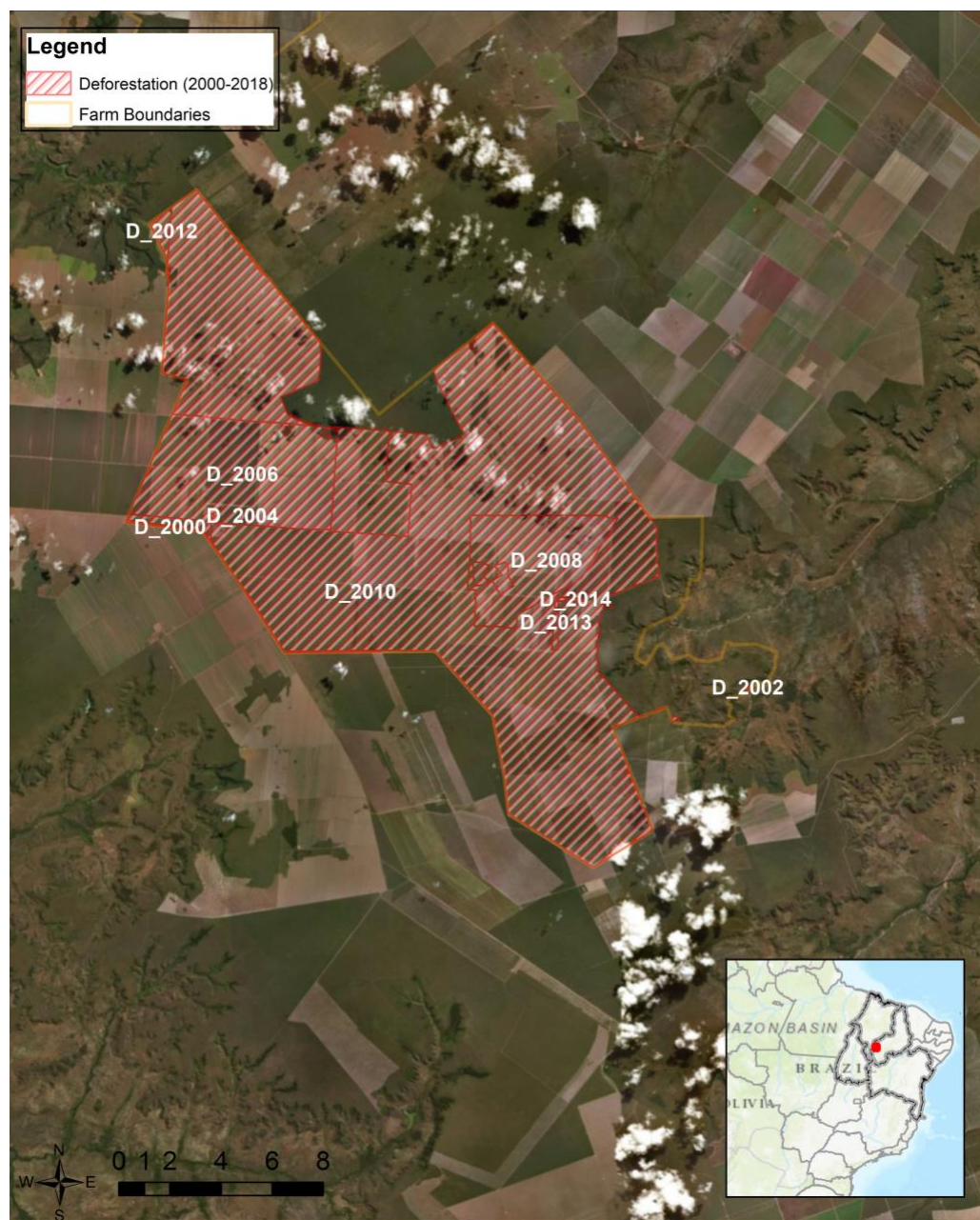
Fazenda Ipê is a 58,000 ha farm in Piauí, owned by the Insolo Group. The Harvard Endowment Fund has a majority stake in the Insolo Group.

In May 2018, the Agrarian Court Judge of Piauí ruled that nearly half of the farm was illegally acquired through the process of *grilagem*. The judge in this case concluded that the state agency from which the company said they received their titles did not have any records on file. He also stated the farm improperly extended its boundaries.

Fazenda Ipê has seen significant deforestation. The partial map available shows that at least 23,835 ha were deforested since 2000.

Figure 8: Deforestation at Fazenda Ipê

Source: Chain Reaction Research, [PRODES](#).



In addition to Fazenda Ipê, several other Harvard-held farms have also faced legal and reputational risks.

- A Bahian public prosecutor is trying to partially reclaim a 140,000 ha farm owned by Harvard-backed Caracol Agropecuaria due to illegal property titles.
- Another Bahian farm owned through Gordian Bioenergy dealt with community protests over disputed property titles.
- Communities near Fazenda Fortaleza in Piauí claim deforestation, irrigation and pollution at this farm have negatively affected their access to clean water.

Nuven

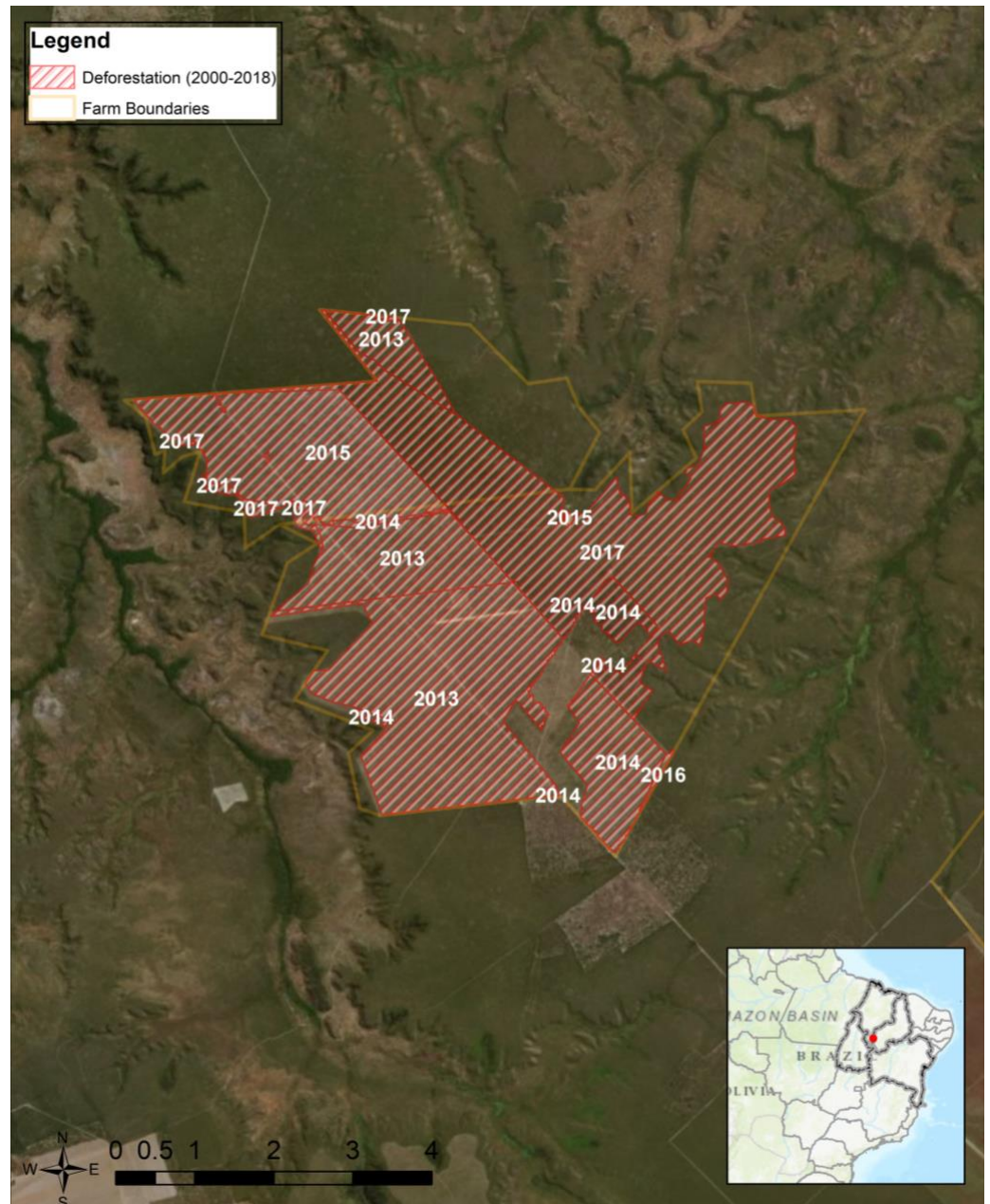
Fazenda Ludmila and Fazenda Laranjeiras, adjacent to Harvard's Fazenda Fortaleza, are owned by Nuven and have an area of 3,180 ha.

The farm has been named in the context of legal proceedings concerning the **cancelation of illegally acquired deeds**. These proceedings were filed against CODECA, a notorious land grabber, whose claims to 124,000 ha have been cancelled by Piau's agrarian court. A 2017 civil society fact-finding mission also reported community conflicts and other adverse impacts related to the development of these farms.

Between 2010 and 2017, some 2,381 ha were deforested at these two farms. In addition, a fire that broke out in a recently cleared area of the farm spread and caused further damage to 110 ha native vegetation both within and outside of the boundaries of the farm.

Figure 9: Deforestation on Fazenda Ludmila and Fazenda Laranjeiras 2013-2017

Source: Chain Reaction Research, [PRODES](#).



Social and Environmental Impacts May Lead to Reputational Risks and Stranded Assets

Deforestation and land grabbing are among the Environmental, Social and Governance (ESG) risks that investors in farmland investment funds may face. The economics of such investment vehicles rely on asset value appreciation instead of agricultural production. As such, these investments act as an additional driver of deforestation. The farmland funds can also create or exacerbate social conflicts, as illegal land claims could precede foreign investments.

Investors in farmland funds could therefore be exposed to associated reputational risks. As media and civil society increasingly focus on the underlying financing of such land deals, pension funds and other institutional investors could find themselves in the cross-hairs of media campaigns. This risk may also apply to shareholders of the listed entities that hold Matopiba farmland, such as Mitsui, BrasilAgro and SLC Agrícola. In-depth due diligence on the characteristics of farms in a fund's portfolio – such as land cover, community claims or legal status – could mitigate such risks.

In addition, farmland assets in Matopiba are at increasing risk of becoming stranded. Droughts and adverse weather patterns in parts of Matopiba may lower the productivity of farms, adversely affecting their underlying value. The Brazilian Agriculture Observation and Monitoring System (SOMA) has designated large tracts of Matopiba land "not advisable" for agricultural expansion. At the same time, growing concerns over Cerrado deforestation by consumer goods companies and investors may reduce buyer appetite for recently deforested farms. As a result, farmland investment funds with high exposure to the region may take financial hits.