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ECOREGION REPORT

Cerrado

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NATURAL PROFILE

Cerrado: the “upside-down forest”

The Cerrado is a vast tropical savanna biome in central Brazil, covering nearly **197 million hectares** - some **23%** of the country’s land area and roughly the size of Mexico. It is the second-largest biome in Brazil and also the most biodiverse savanna in the world.[1]

Often labelled “the upside-down forest”, the Cerrado has about **70%** of its biomass underground, storing large amounts of carbon.[2]

Despite its ecological and social importance, the Cerrado is also one of Brazil’s most threatened biomes, with over **50%** of its native vegetation lost and just **7.5%** under protection.[3]

Biome type:

Tropical savanna

Dominant vegetation:

Open savanna (Cerrado), closed savanna (Cerradão), dry forest, natural grasslands, wetland savanna

Geographic range:

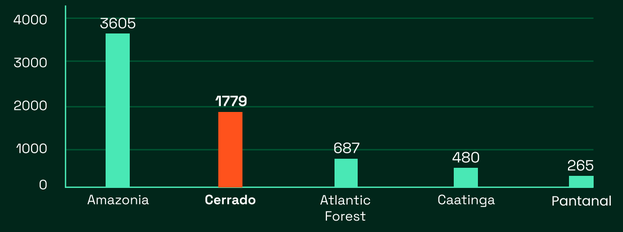
Central Brazil, extending into Maranhão, Mato Grosso, Goiás, Tocantins, Minas Gerais, and Bahia

Forest cover distribution in Cerrado, 2024 (Mha)

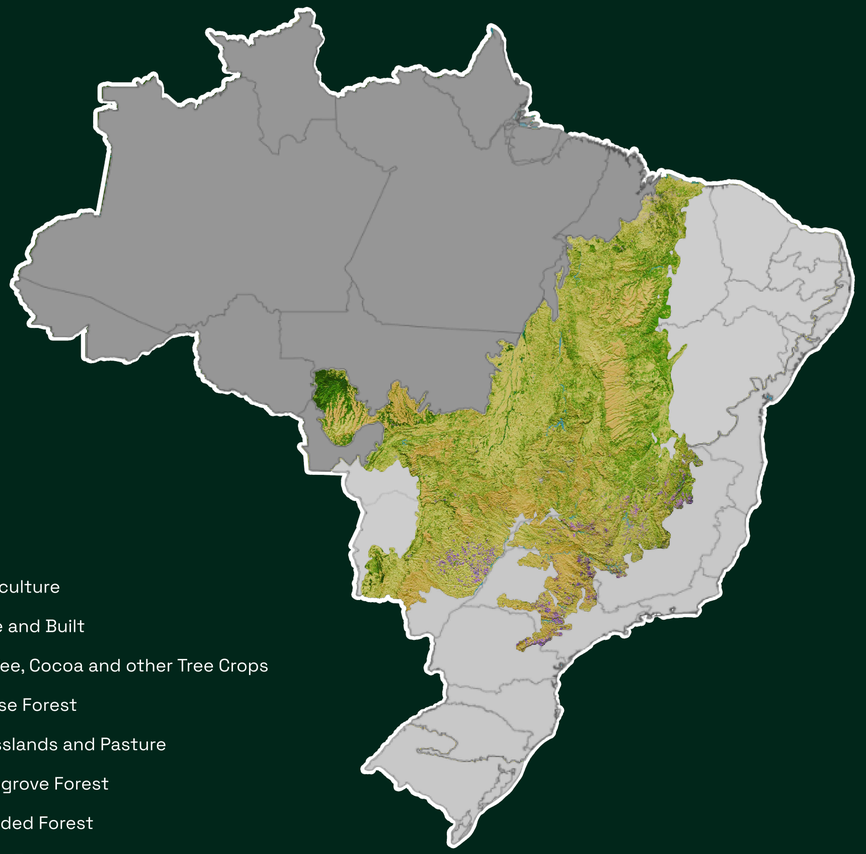
Source: Space Intelligence Land Cover Data

Forest lost per day, per biome, 2024 (Mha)

Source: Space Intelligence Land Cover Data



Cerrado



- Agriculture
- Bare and Built
- Coffee, Cocoa and other Tree Crops
- Dense Forest
- Grasslands and Pasture
- Mangrove Forest
- Flooded Forest
- Open Forest
- Palm and Bananas
- Plantation Timber
- Shrubs
- Water

Source: Space Intelligence Land Cover Data

NATURAL PROFILE

The most biodiverse tropical savanna

The Cerrado is home to:

~6,000

tree species[4]

~200

mammal species, with **12 endangered**[5]

One of the most ecologically dominant tree families in the Cerrado is **Vochysiaceae**, which accounts for around **17%** of all trees. Within this family, **Qualea parviflora** plays an important ecological role as a source of food and medicinal compounds.[6]

The maned wolf (Chrysocyon brachyurus) is a signature species of the Cerrado. If habitat loss continues at its current pace, the species is projected to lose **29%** of its population within just **21 years**.[7]

Land use changes in Cerrado, 2015-2024

As of 2024, forest cover in the Cerrado stands at approximately **68 million hectares**, or **34%** of the total area, majority of it open forest.

Agriculture saw the largest increase in area, expanding by about **7.66 million hectares**. In contrast, Dense Forest had the biggest decline, shrinking by around **5.11 million hectares**, followed by Grasslands, which decreased by **3.54 million hectares**.

Other land types like Bare areas, Commodity Crops, Open Forest, Palm and Banana, Timber Plantation, and Water showed smaller increases. Shrubs and Seasonally Flooded Forests saw slight declines.

Total ecoregion area:
198 Mha

Total forest area (2024):
68 Mha

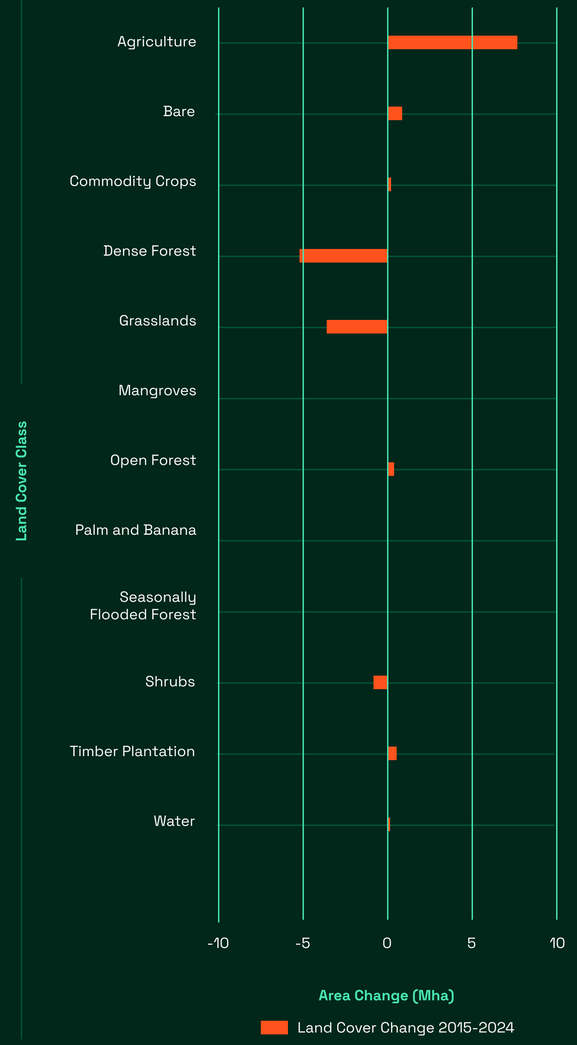
Dense forest (2024):
22.1 Mha

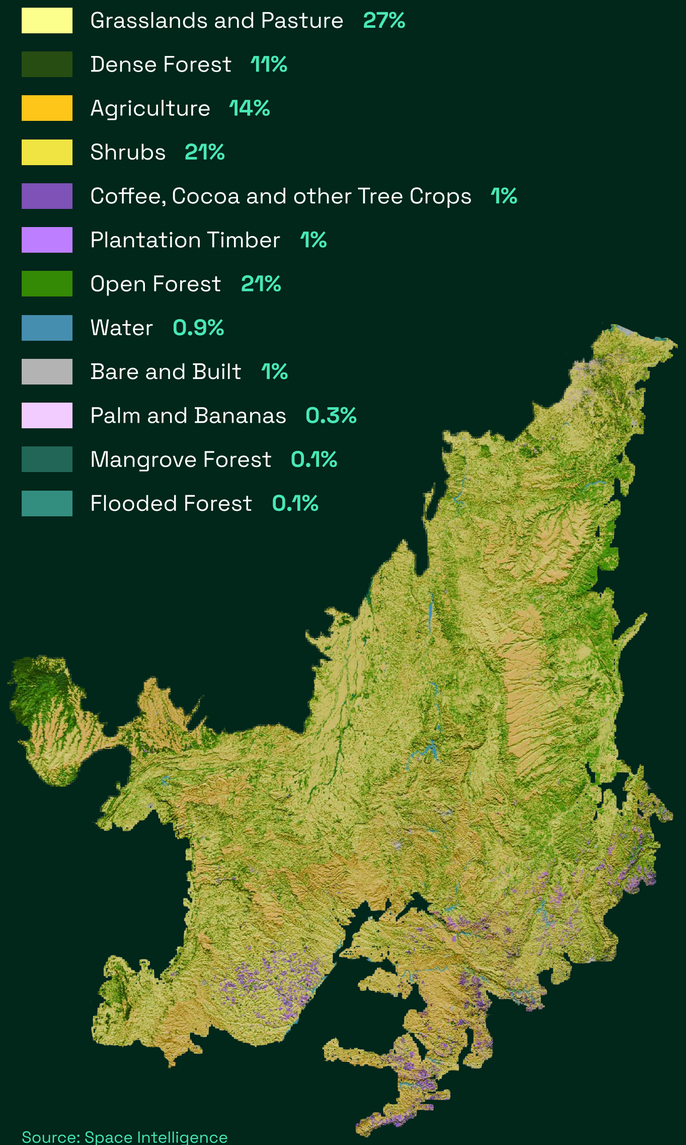
Open forest (2024):
41.8 Mha

Total planted crops (2024) :
33.9 Mha

Area Change by Land Cover Class in Cerrado (2015-2024)

Source: Space Intelligence Land Cover Data





Source: Space Intelligence Land Cover Data

Deforestation and regrowth

The Cerrado continues to face high rates of deforestation and conversion. The annual deforestation rate increased by **24%** in the 5 year period between 2015-2020 **(0.86%)** and 2020-2024 **(1.07%)**. The annual deforestation rate averaged **0.97%**, which is second highest after the Pantanal region.

Today, the biome loses an estimated **1,779 hectares** of forest per day, equivalent to around **370 trees** lost every minute, based on an estimated density of **300 trees** per hectare.

0.86%
Annual deforestation rate **(2015 – 2020)**

1.07%
Annual deforestation rate **(2020 – 2024)**

↑ 24%
Change in rate

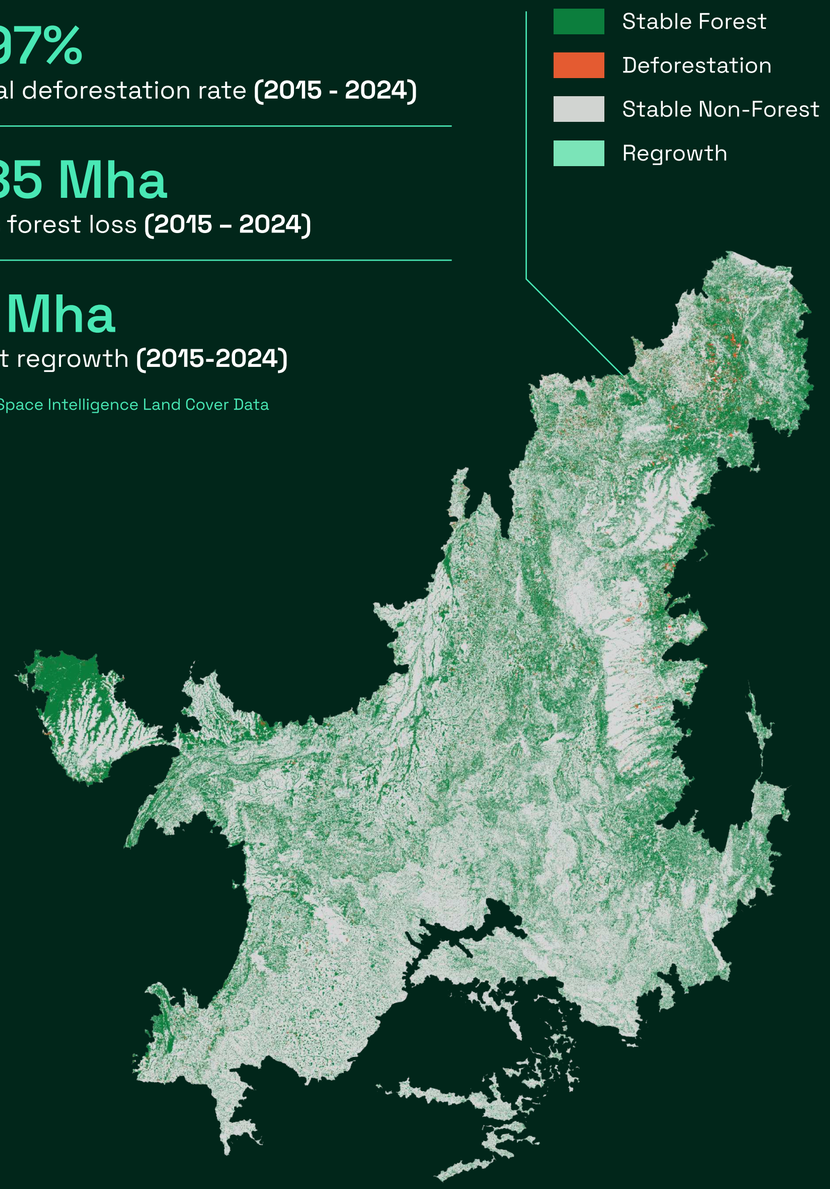
The primary deforestation drivers in the Cerrado are **cattle ranching and large-scale agriculture**, along with **fires** used for land management.[8]

0.97%
Annual deforestation rate **(2015 - 2024)**

5.85 Mha
Gross forest loss **(2015 – 2024)**

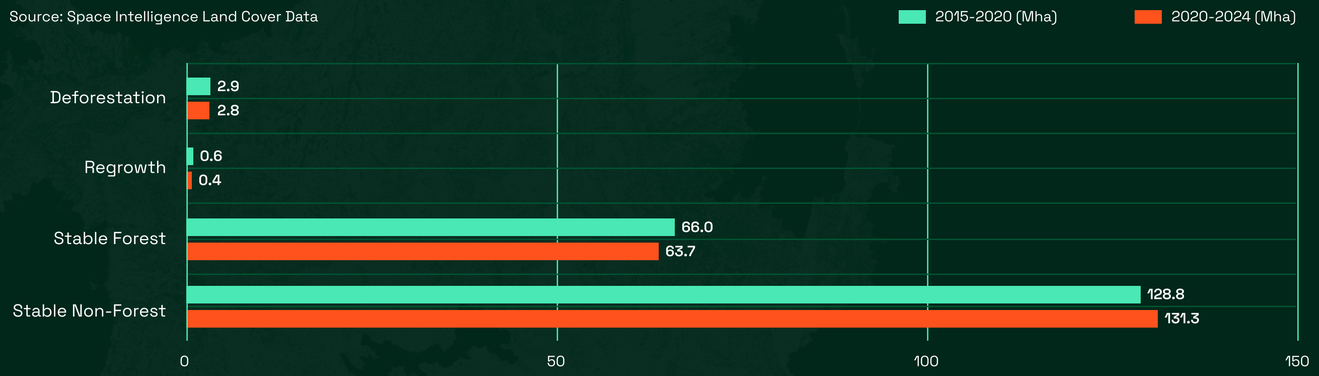
1.1 Mha
Forest regrowth **(2015-2024)**

Source: Space Intelligence Land Cover Data



Change class comparison from 2015-2020 and 2020-2024 (Mha)

Source: Space Intelligence Land Cover Data



Opportunity for restoration

The Cerrado stands to benefit greatly from both forest protection (REDD+) and targeted restoration, particularly in areas heavily degraded by cattle ranching. However, the biome's hot, dry climate and lower rainfall present challenges for growth, and young plantations often require active fire protection due to high burn risk.

Unlike taller forest ecosystems, most of the Cerrado's carbon is stored underground, beneath its shorter, deep-rooted vegetation. As a vast biome spanning multiple states, and with around **75%** of its land privately owned,[9] successful restoration will depend on strong incentives and long-term partnerships with landholders. There are also significant opportunities for carbon projects that protect or restore native grasslands, however we have not assessed the extent of these here.

Annual sequestration potential:

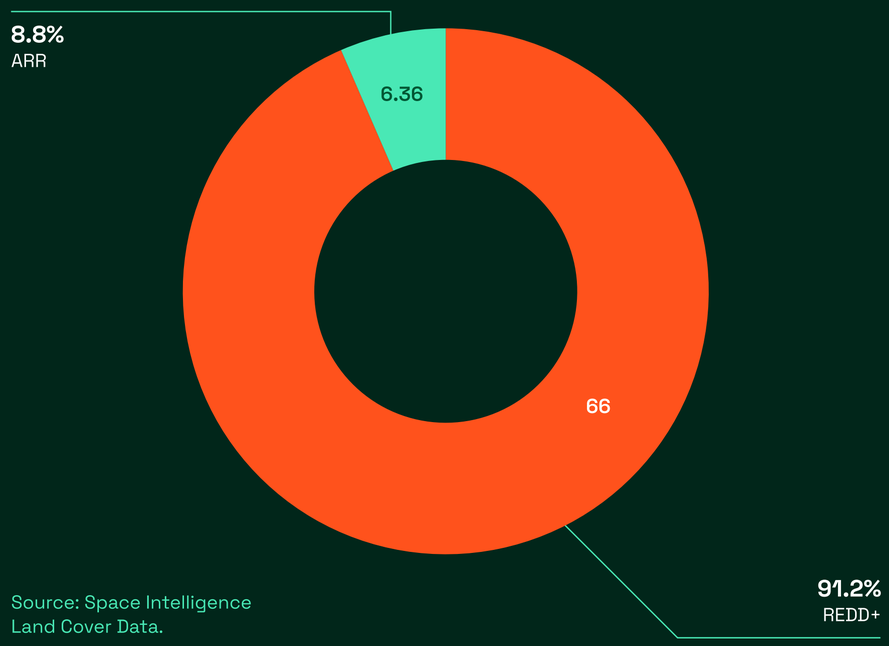
79.5 million tCo_2
REDD+

14.8 million tCo_2
ARR

Average sequestration rate (over 20 years for ARR):

ARR: 3-10 tCO_2/ha/yr

Areas available for ARR and REDD+ in Cerrado (Mha)



Source: Space Intelligence Land Cover Data.

CARBON POTENTIAL

Cerrado - the coffee biome

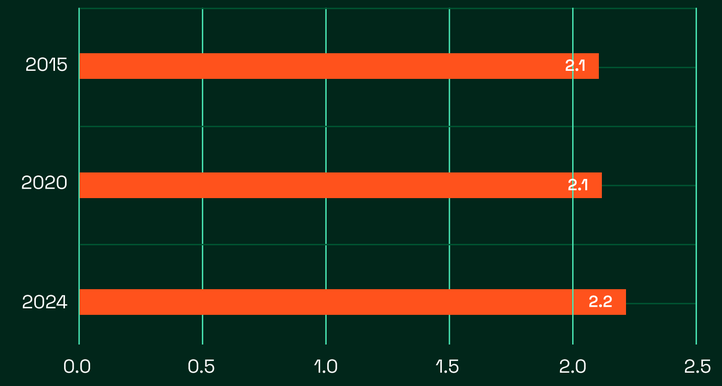
The Cerrado Mineiro Region is Brazil's first coffee-growing area to earn a Designation of Origin - and it represents **12.7%** of national production.[10]

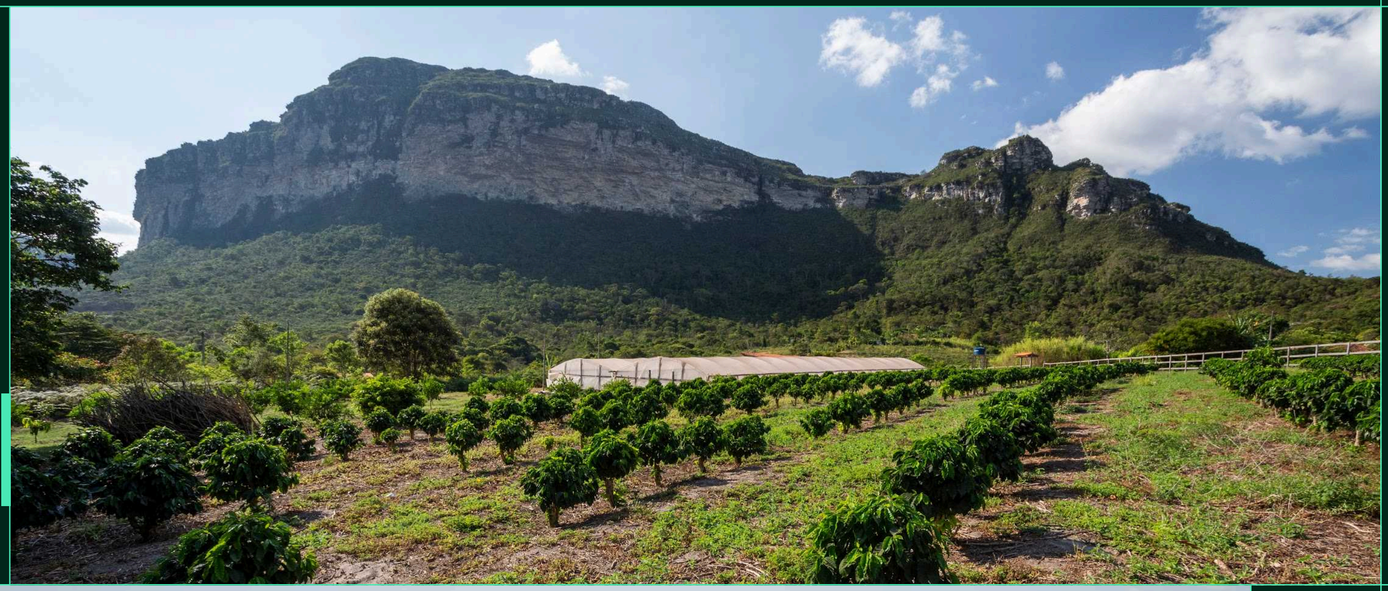
Located at elevations **between 800 and 1,350 meters**, its large farms, spanning **100 to 3,000 hectares**,[11] benefit from a stable climate and flat terrain that enable efficient mechanical harvesting and consistent production.

Coffee plantations take up just over **1%** of Cerrado's land or **2.2 million hectares** and have been gradually growing since 2015.

Commodity Crops land class area in 2015, 2020, 2024 (Mha)

Source: Space Intelligence Land Cover Data





Summary Snapshot

1.1 Mha
Forest Gain (2015-2024)

5.85 Mha
Forest Loss (2015-2024)

1779 ha/day
Daily Deforestation (2024)

0.97%
Annual Deforestation Rate (2015-2024)

Cerrado's Carbon Potential

6.36 million ha
Eligible Area for ARR

14.8 million tCO_2e
Annual Carbon Potential for ARR

66 million ha
Eligible area for REDD+

79.5 million tCO_2e
Annual Carbon Potential for REDD+

References

[1] https://www.worldwildlife.org/places/cerrado

[2] https://www.worldwildlife.org/places/cerrado

[3] https://news.mongabay.com/2021/02/whats-at-stake-is-the-life-of-every-being-saving-the-brazilian-cerrado/amp/

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[6] Alvarez, F., Marimon-Junior, B.H., Marimon, B.S., Ter Steege, H., Phillips, O.L., Dias Françoso Brandão, R., Matricardi, E.A.T., Pinto, J.R.R., Guimarães Guilherme, F.A., Leandro Bueno, M. and Miranda, S., 2025. Tree species hyperdominance and rarity in the South American Cerrado. Communications Biology, 8(1), p.695.

[7] https://oncafari.org/en/especie_fauna/maned-wolves/

[8] https://wwfint.awsassets.panda.org/downloads/deforestation_fronts_factsheet___brazilian_cerrado.pdf

[9] Ricardo B. Machado, Ludmilla M. S. Aguiar. 2023. Could you spare an acre for conservation? Science 380, pp. 238-239

[10] https://www.cerradomineiro.org/

[11] https://www.cerradomineiro.org/

Authors and contributors

Prof. Ed Mitchard

Co-founder & Chief Scientist

Professor Ed Mitchard has spent ~20 years using satellite data to map the changing carbon stocks of the world's forests and peatlands. As a professor at Edinburgh University, he published over 100 scientific papers and measured >15,000 trees across 13 countries. He has been deeply involved in the evolution of carbon standards, including Verra's VCS and the Plan Vivo Standard.

Jocelyne Wardley

Ecologist

Jocelyne Wardley is a tropical ecologist with over four years of experience in ecology and conservation. For the past two years, Jocelyne has worked for Space Intelligence, helping to create various maps across the tropics, including being the lead ecologist on the Brazil mapping. Before this, he has worked for the likes of World Agroforestry, Lions Guardians, and Ol Pejeta Conservancy.

About Space Intelligence

Space Intelligence is a NatureTech company enabling zero deforestation and mass restoration of biodiverse forests globally by providing the highest quality nature mapping data.

We combine our extensive expertise in remote sensing, data analytics, and forest ecology to provide highly accurate and comprehensive baseline reporting and dMRV solutions for forest carbon project developers and investors.

Our approach is rooted in science, with our co-founders leveraging over 30 combined years of academic and on-the-ground research to develop our products, which are used and trusted by some of the largest nature-based market participants, including Everland, Forest Carbon, Wildlife Conservation Society, and Verra.

Contributors

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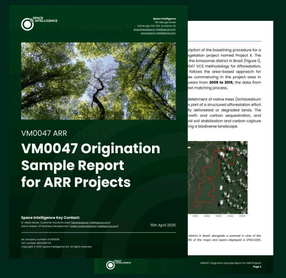
Our geospatial, ecology, and carbon standards expertise underpin our suite of tools and services for carbon project developers and portfolio builders.

With pre-processed data available across Brazil, we have the data, expertise, and agility to help you originate, due diligence, or monitor NbS projects to support Brazil's carbon capture and storage potential.

Project Verification



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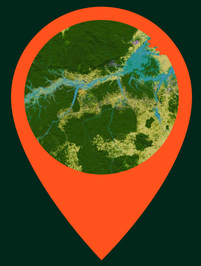

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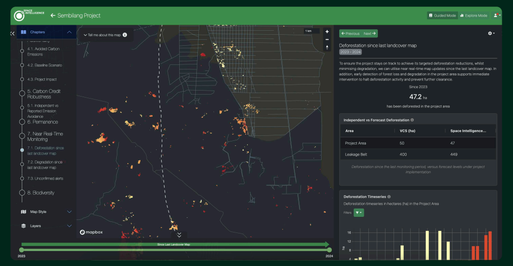

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