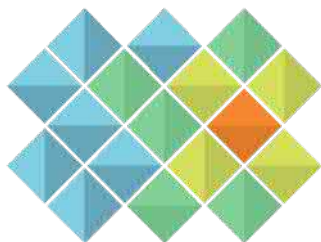


MAPBIOMAS

COLABORATIVE LAND COVER AND LAND USE HISTORICAL MAPPING IN BRAZIL

mapbiomas.org

CO-CREATORS



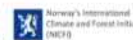
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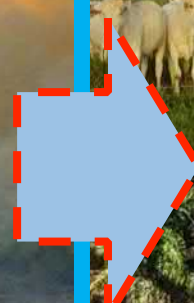
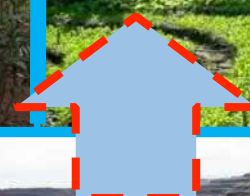


INSTITUCIONAL SUPPORT

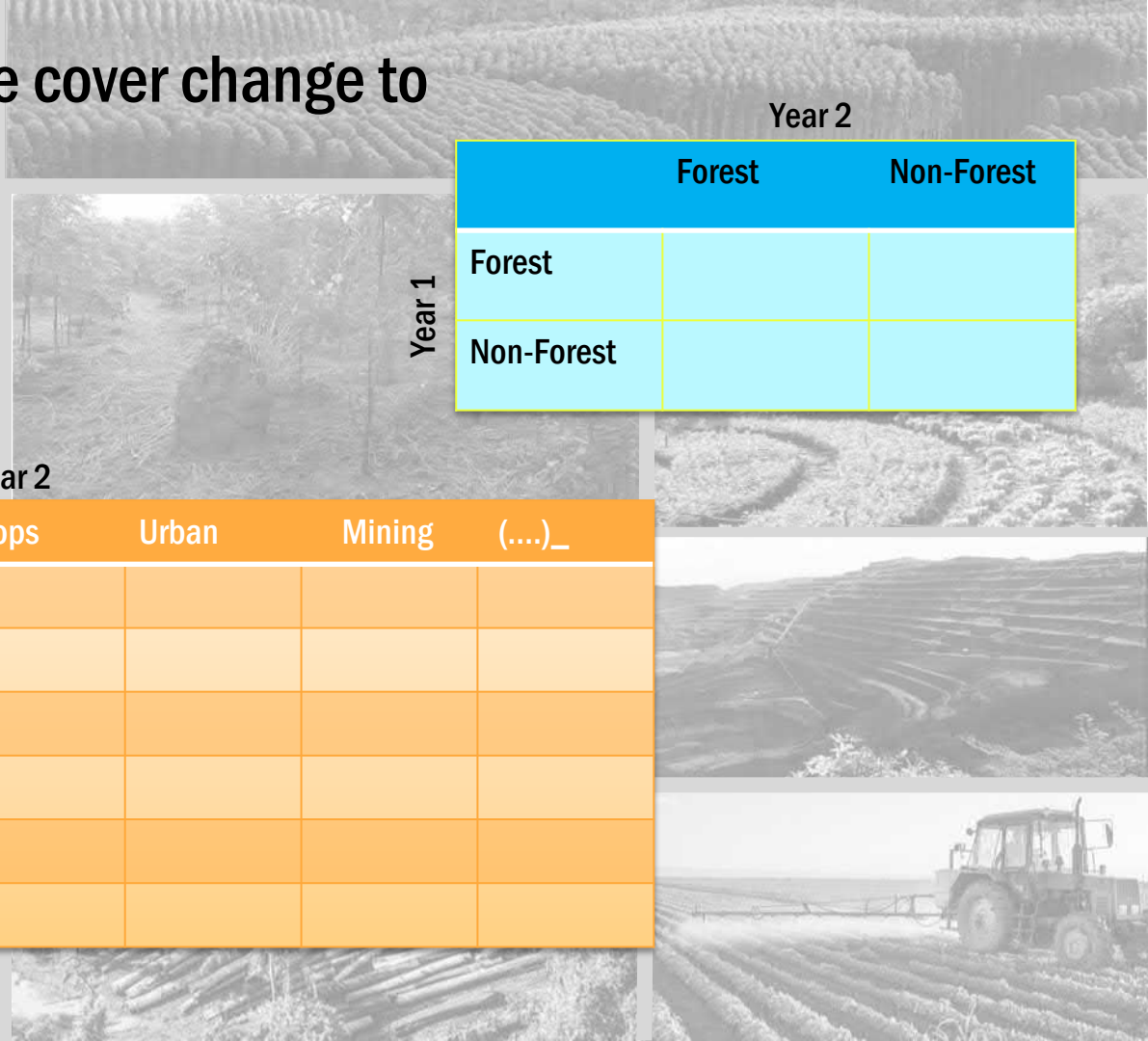


FINANCING





We need to move from tree cover change to land use change



Year 2

	Forest	Non-Forest
Forest		
Non-Forest		

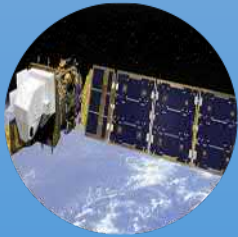
Year 1

Year 2

Year 1

	Forest	Pasture	Crops	Urban	Mining	(...)_
Forest						
Pasture						
Crops						
Urban						
Mining						
(...)						

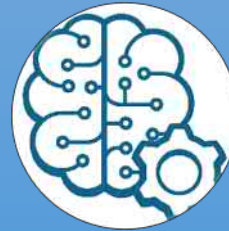
Mains characteristics



Based on Landsat
Collection
(resolution 30 mt)



Processing pixel by
pixel
(~ 30 x 30 mt)



Machine
Learning + Local
Expertise



Cloud based
processing

Mapping evolution

First Collection in 2016

Annual Update

Collection 1

Forest
Forest in Coastal Zone
Planted Forest
Agriculture
Pasture
Water
Other
Non-Observed

7 Classes
2008-2015

Collection 2

1. Forest
1.1. Natural Forest
1.1.1. Natural Forest Formation
1.1.2. Savanna Formation
1.1.3. Mangrove
1.2. Forest Plantations
2. Non-Forest Natural Formations
2.1. Non-forest Natural Wetlands
2.2. Grasslands
3. Farming
3.1. Pasture
3.2. Agriculture
3.3. Agriculture or Pasture
4. Non-Vegetated areas
4.1. Beach and dune
4.3. Other non-vegetated areas
4.2. Urban Infrastructure
5. Water
6. Non-Observed

13 Classes
2000-2016

Collection 3

1. Forest
1.1. Natural Forest
1.1.1. Forest Formation
1.1.2. Savanna Formation
1.1.3. Mangrove
1.2. Forest Plantation
2. Non Forest Natural Formation
2.1. Wetland
2.2. Grassland
2.3. Salt flat
2.3. Other non forest natural formation
3. Farming
3.1. Pasture
3.2. Agriculture
3.2.1. Annual and Perennial Crop
3.2.2. Semi-perennial Crop
3.3. Mosaic of Agriculture and Pasture
4. Non vegetated area
4.1. Beach and Dune
4.2. Urban Infrastructure
4.3. Rocky outcrop
4.4. Mining
4.5. Other non vegetated area
5. Water
5.1. River, Lake and Ocean
5.2. Aquaculture
6. Non Observed

1985-2017 19 Classes

Collection 4

1. Forest
1.1. Natural Forest
1.1.1. Forest Formation
1.1.2. Savanna Formation
1.1.3. Mangrove
1.2. Forest Plantation
2. Non Forest Natural Formation
2.1. Wetland
2.2. Grassland
2.3. Salt flat
2.4. Rocky outcrop
2.5. Other non forest natural formation
3. Farming
3.1. Pasture
3.2. Agriculture
3.2.1. Annual and Perennial Crop
3.2.2. Semi-perennial Crop
3.3. Mosaic of Agriculture and Pasture
4. Non vegetated area
4.1. Beach and Dune
4.2. Urban Infrastructure
4.3. Mining
4.4. Other non vegetated area
5. Water
5.1. River, Lake and Ocean
5.2. Aquaculture
6. Non Observed

1985-2018 19 Classes

Collection 5

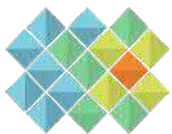
1. Forest
1.1. Natural Forest
1.1.1. Forest Formation
1.1.2. Savanna Formation
1.1.3. Mangrove
1.2. Forest Plantation
2. Non Forest Natural Formation
2.1. Wetland
2.2. Grassland
2.3. Salt flat
2.4. Rocky outcrop
2.5. Other non forest natural formation
3. Farming
3.1. Pasture
3.2. Agriculture
3.2.1. Annual Crop
3.2.1.1. Soybean
3.2.1.2. Sugar Cane
3.2.1.3. Other annual crops
3.2.2. Perennial Crop
3.3. Mosaic of Agriculture and Pasture
4. Non vegetated area
4.1. Beach and Dune
4.2. Urban Infrastructure
4.3. Mining
4.4. Other non vegetated area
5. Water
5.1. River, Lake and Ocean
5.2. Aquaculture
6. Non Observed

1985-2019 21 Classes

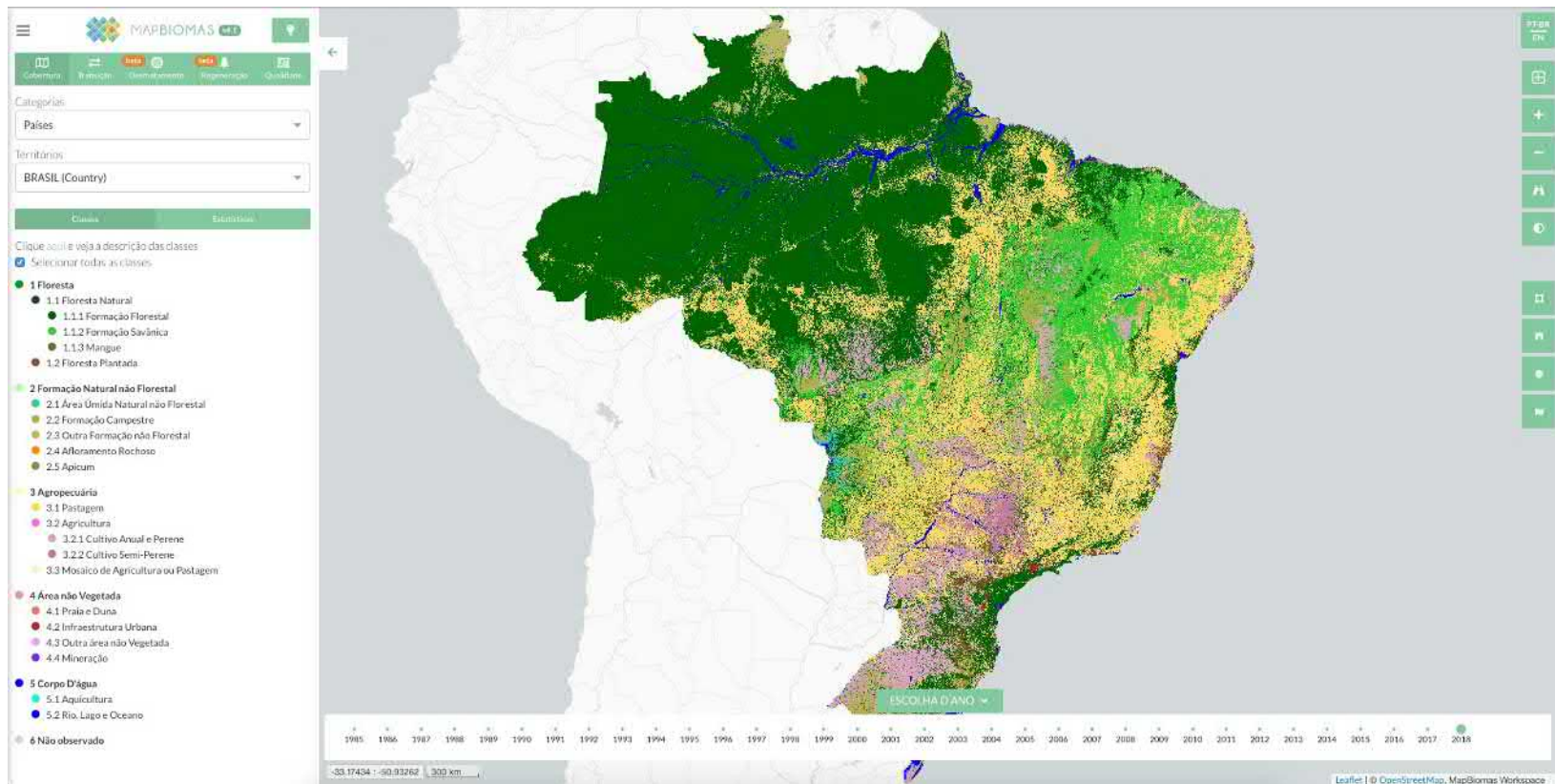
Land cover and use classes. (Collection 5)

1. Forest
Natural Forest
Forest Formation
Savanna Formation
Mangrove
Forest Plantation
2. Non Forest Natural Formation
Grassland Formation
Wetland
Salt flat
Rocky outcrop
Other non forest natural formation

3. Farming
Pasture
Agriculture
Perennial Crop
Annual Crop
Mosaic of Agriculture and Pasture
4. Non vegetated area
Beach and Dune
Urban Infrastructure
Mining
Other non vegetated area
5. Water
River, Lake and Ocean
Aquiculture

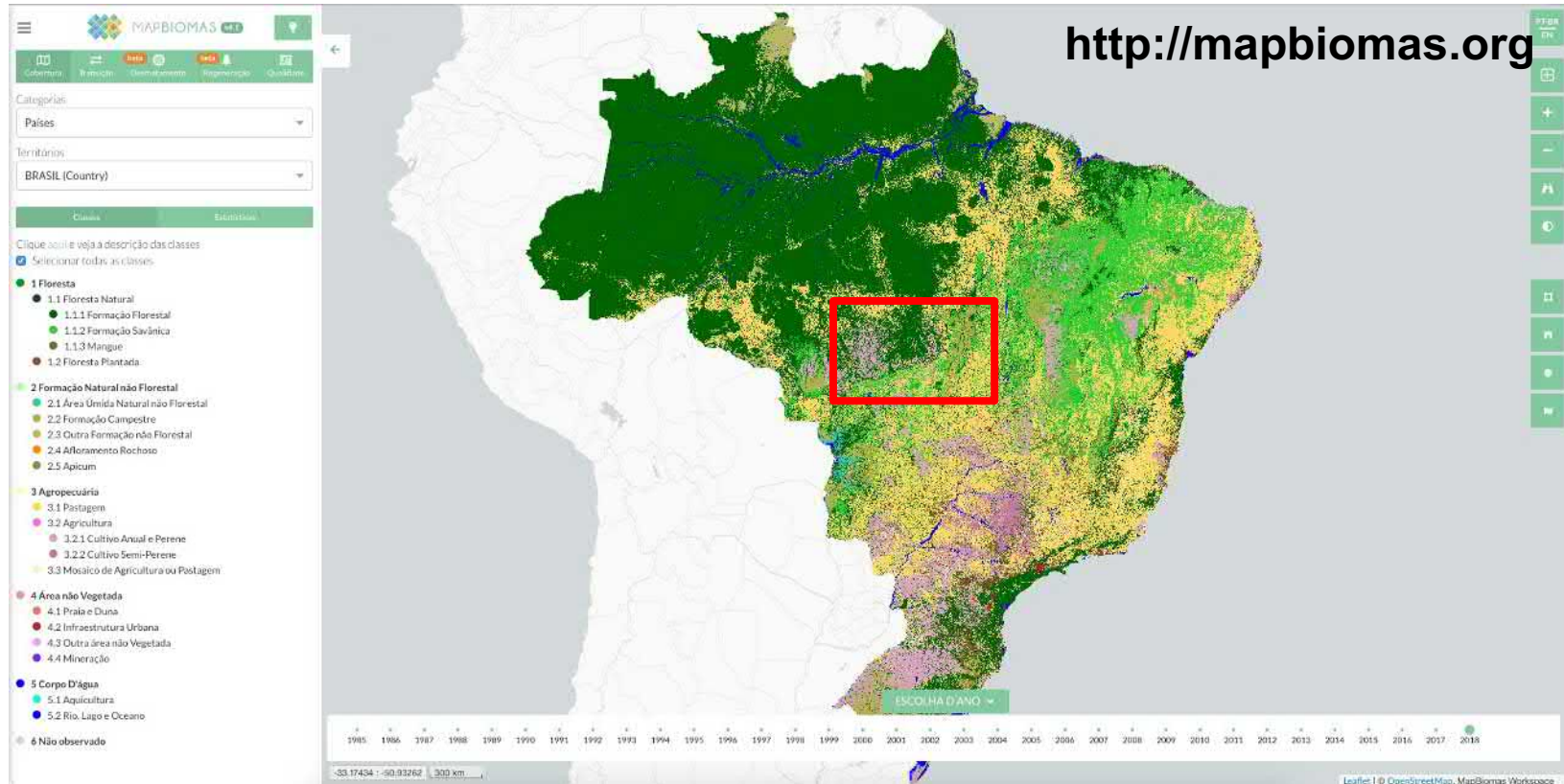


MAPBIOMAS



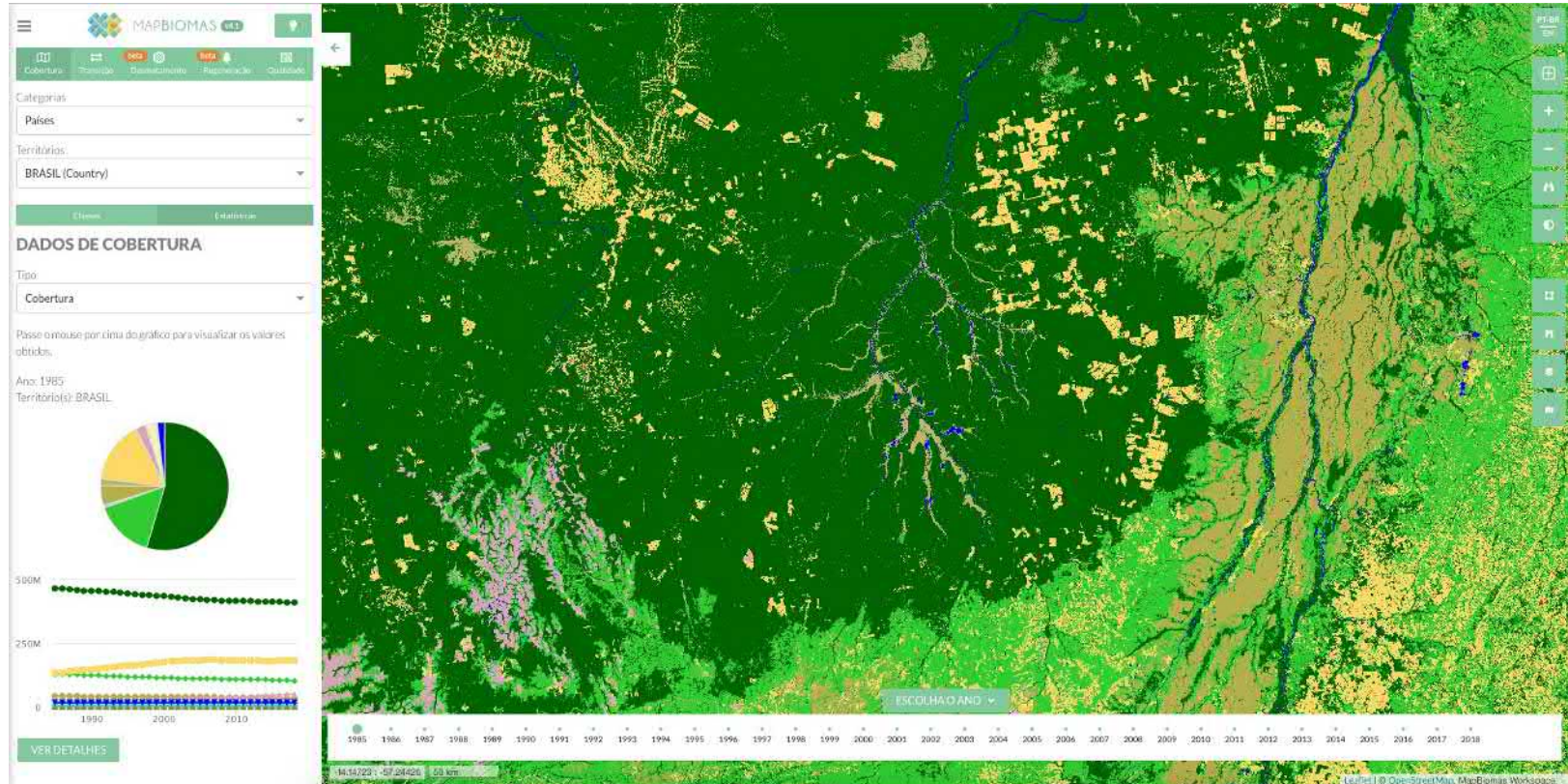
Annual land cover and land use maps of Brazil - 1985 to 2019.

Collection 5 >> 21 classes >> Global Accuracy 90%



Annual land cover and land use maps of Brazil - 1985 to 2019.

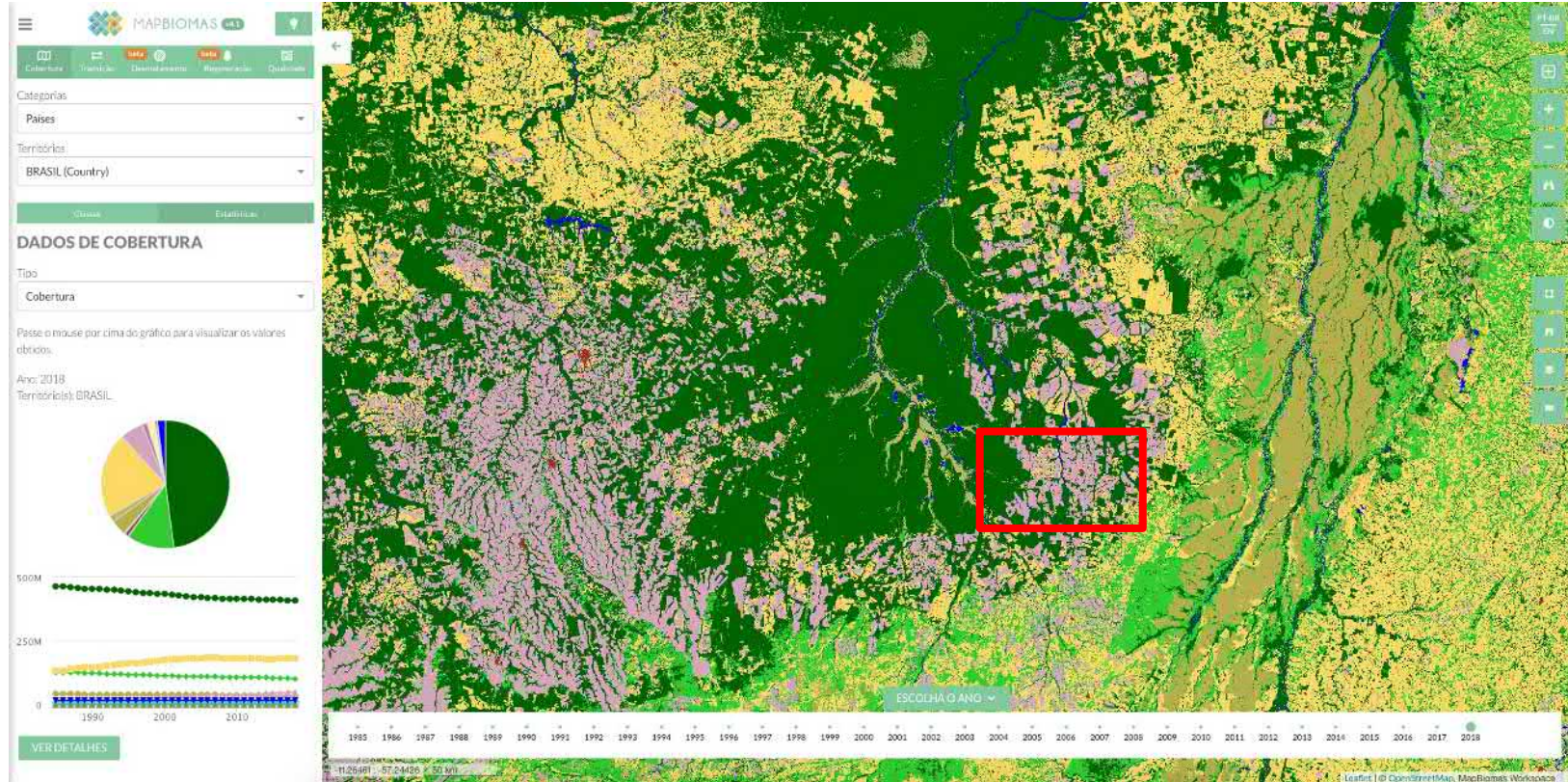
Collection 5 >> 21 classes >> Global Accuracy 90%





MAPBIOMAS

Annual land cover and land use maps of Brazil - 1985 to 2019. Collection 5 >> 21 classes >> Global Accuracy 90%



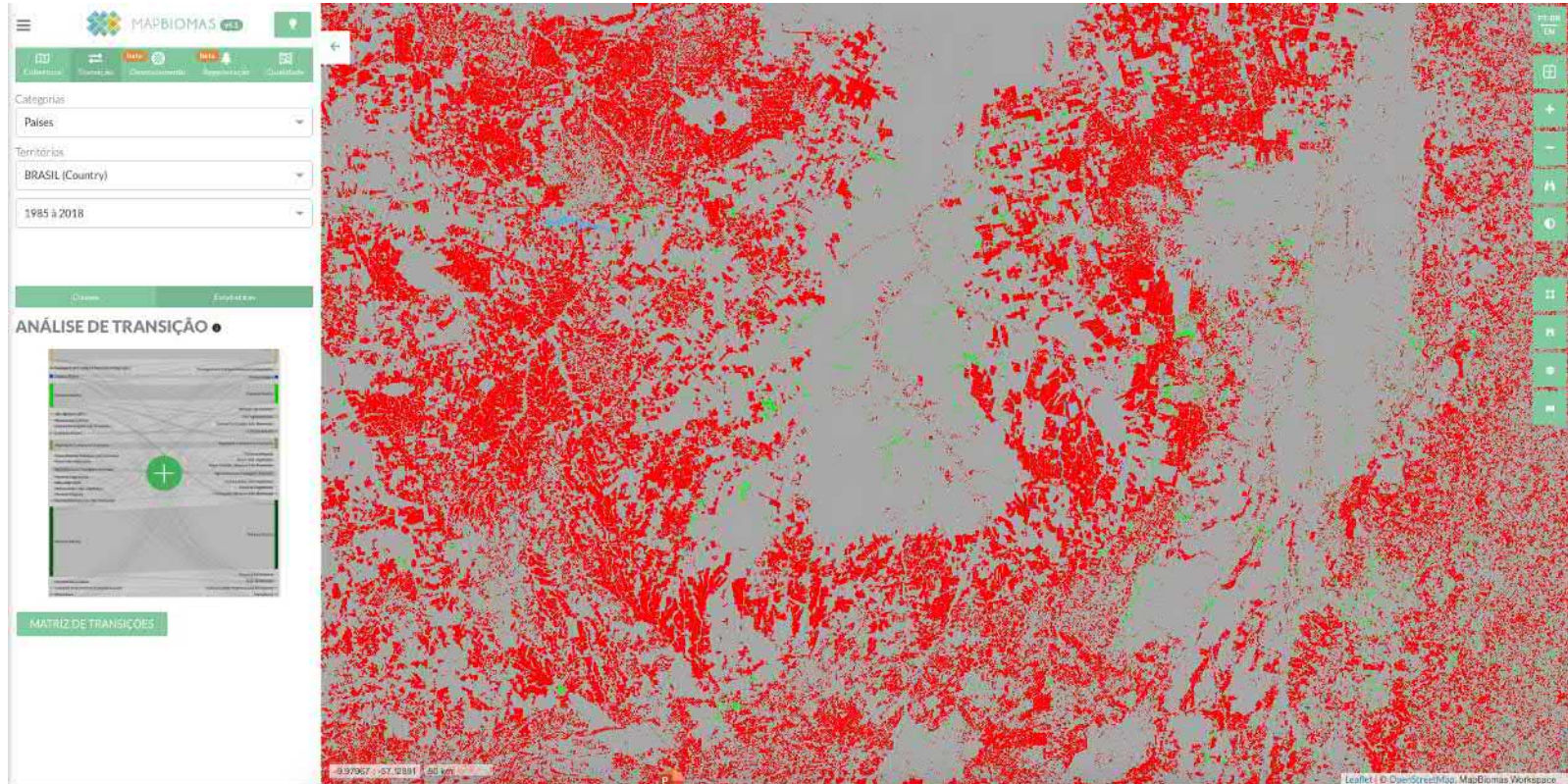
Annual land cover and land use maps of Brazil - 1985 to 2019.

Collection 5 >> 21 classes >> Global Accuracy 90%



Annual land cover and land use maps of Brazil - 1985 to 2019.

Collection 5 >> 21 classes >> Global Accuracy 90%



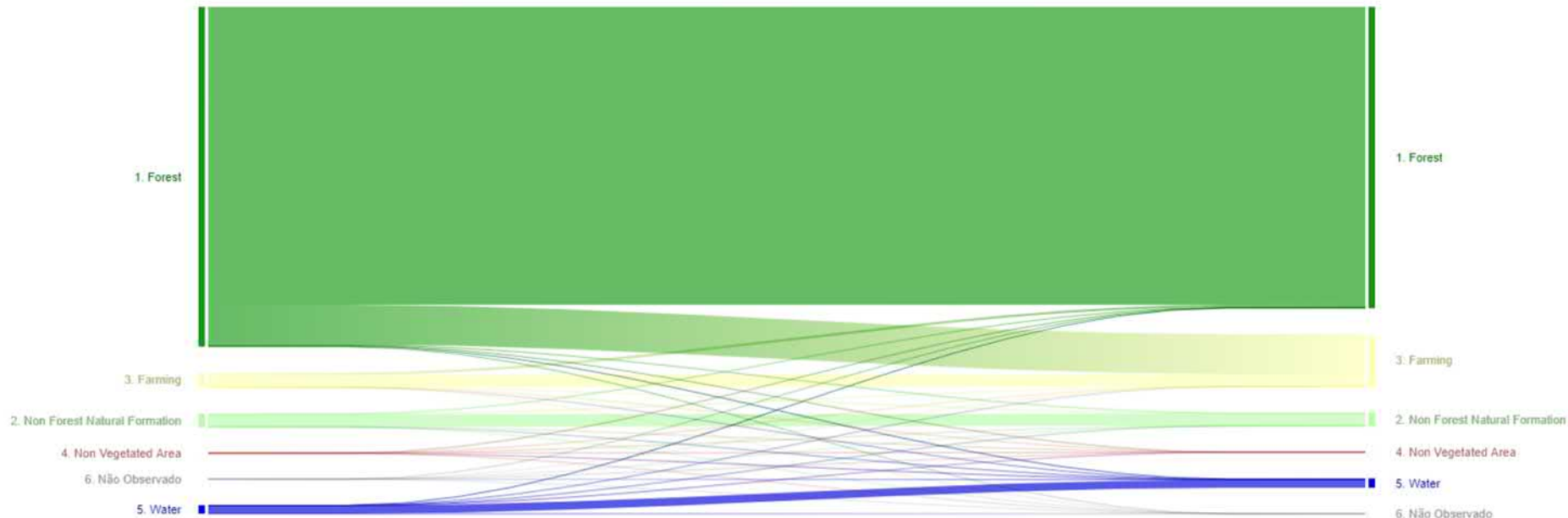
Land Use Change - all transitions

Transition Statistics

Sankey

Matrix

1985 - 2019





Categories

Cities

Territories

Select...

1985-2019

Classes Images Layers Infrastructure CAR

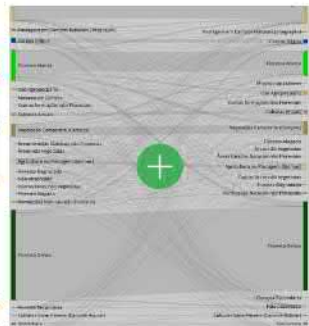
View CAR layer

Attention: "CAR data were used as a single layer (raster) and do not include corrections that have not been processed in the Brazilian Forestry Service. There are many overlaps with UC's, Indigenous Lands and Settlements. The data on area tend to be overestimated due to the existence of large polygons (millions of hectares) registered that do not match properties in the field, especially in the Amazon."



Coverage Transitions Quality

TRANSITIONS ANALYSIS



TRANSITIONS MATRIX



How we are organized

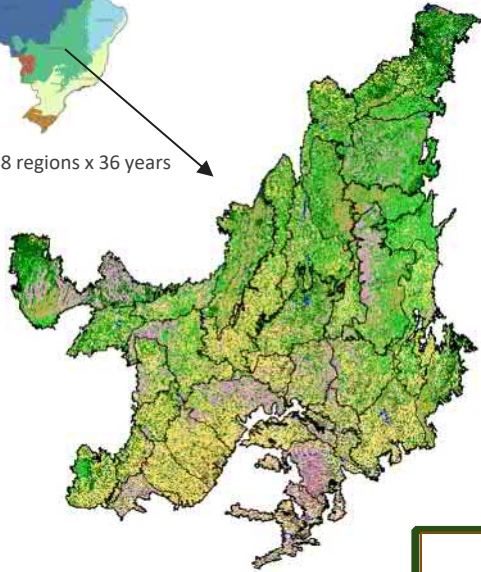


		Cross-cutting themes				
Native vegetation	Amazon (Imazon)					
	Caatinga (UEFS, Geodatin, APNE)					
	Cerrado (IPAM)	Pasture (Lapig/UFG)	Agriculture and Planted Forest (Agrosatélite)	Coastal Zone and Mining (ITV & Solved)	Urban areas (USP, UFBA, Ufscar)	
	Atlantic Forest (SOS Mata Atlântica, ArcPlan)					
	Pampa (UFRGS, GeoKarten)					
	Pantanal (SOS Pantanal e ArcPlan)					

Cerrado



38 regions x 36 years



Forest formation



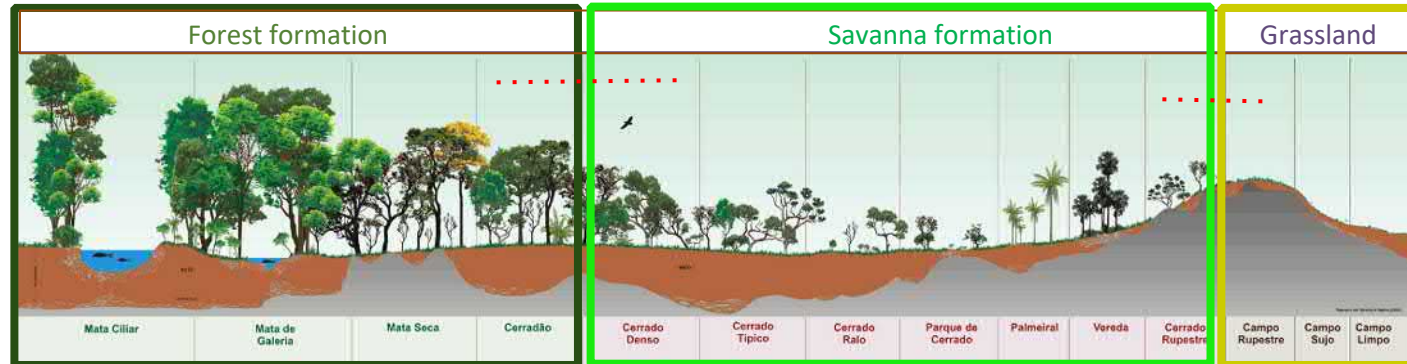
Savanna formation



Grassland formation



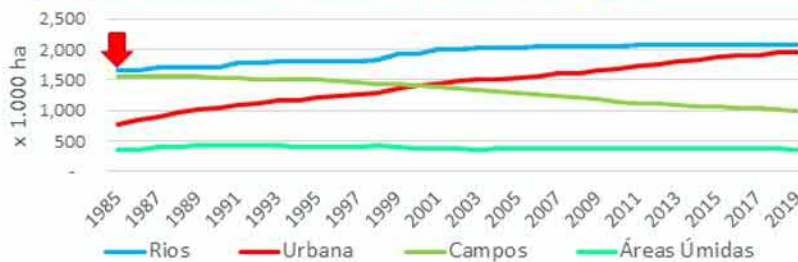
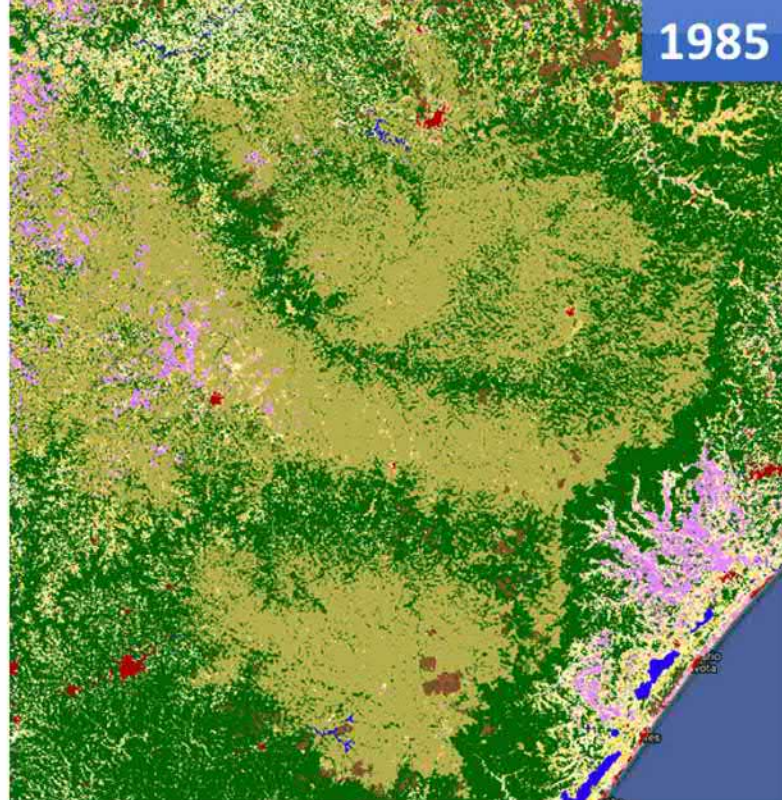
Most recent conversion in the Savanna Formation



Atlantic Forest

GRASSLAND:
highland grasslands

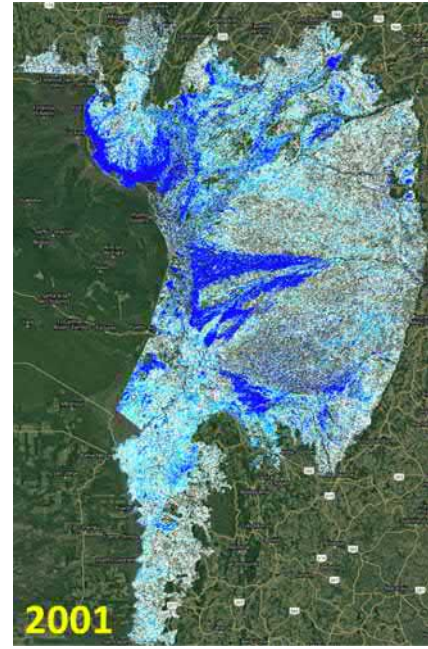
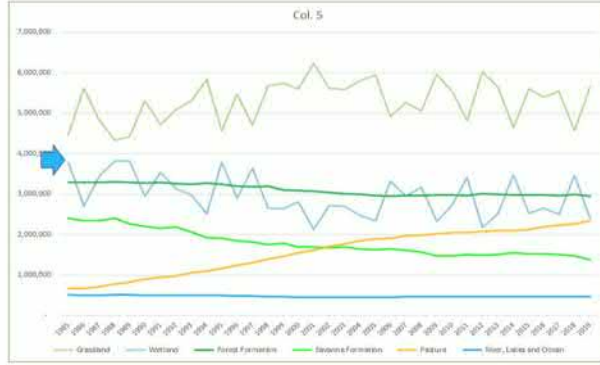
36% of Natural Grassland
in Atlantic Forest was
converted to agriculture or
exotic monoculture of trees



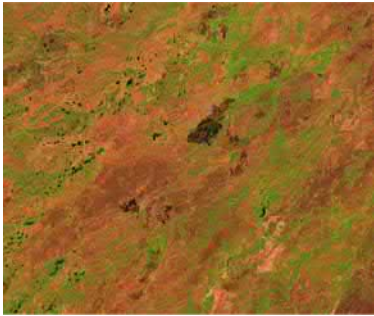
Pantanal



1985



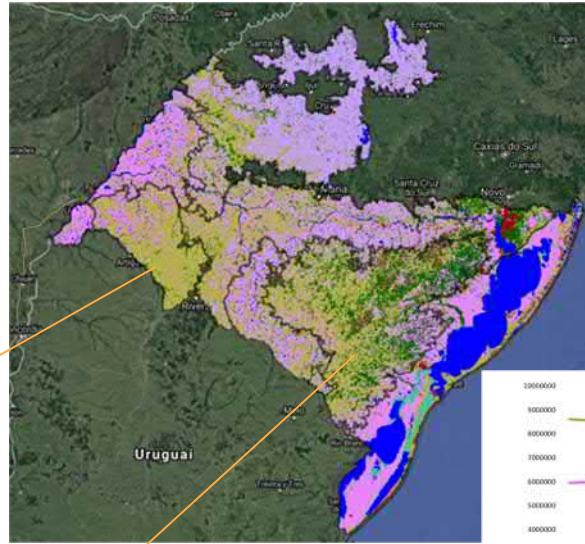
DRY SEASON



WET SEASON



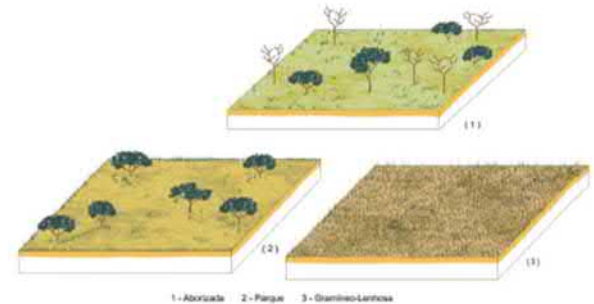
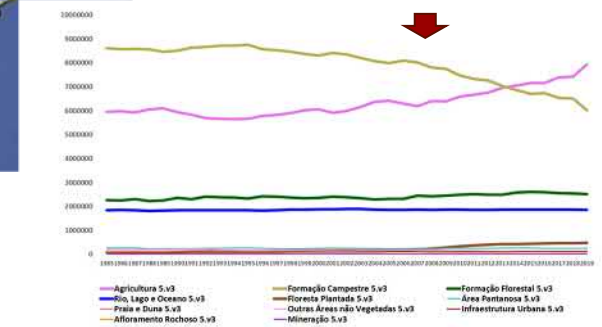
Pampa



Grasslands are being suppressed for soybean crops



Grasslands are predominantly used for livestock raising

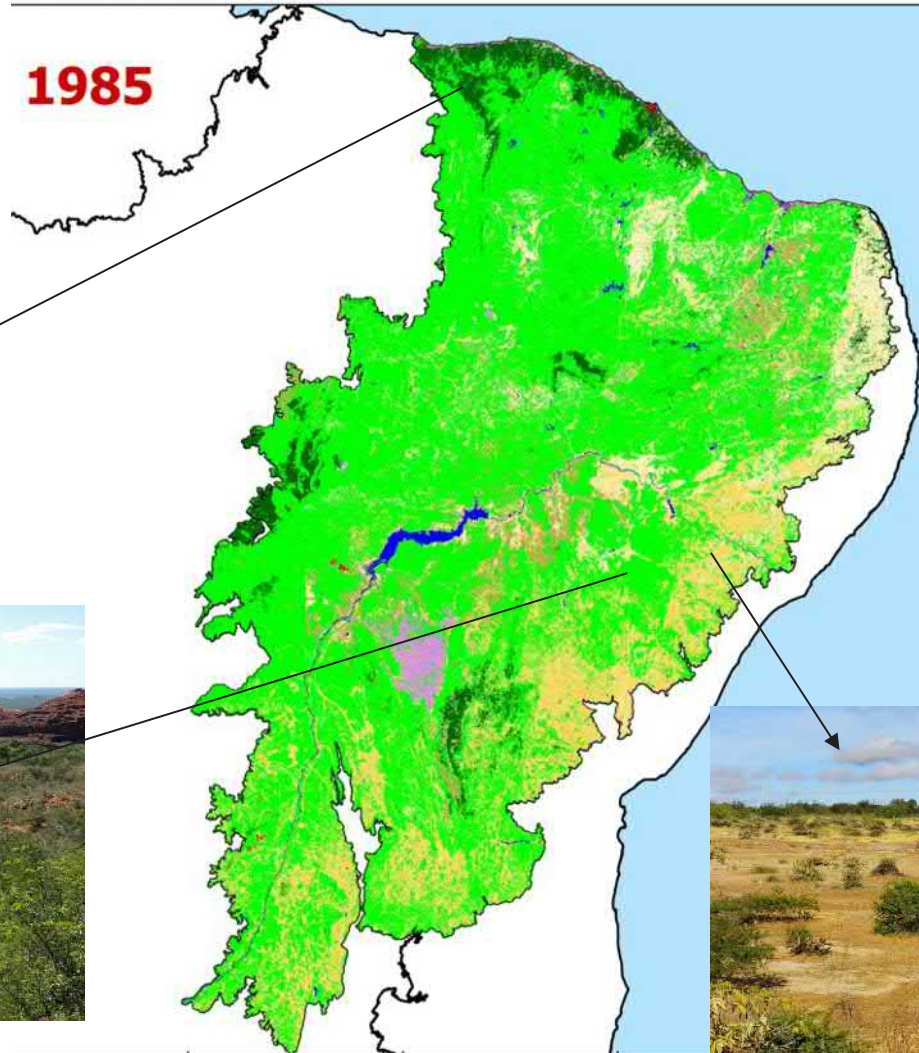


Amazon

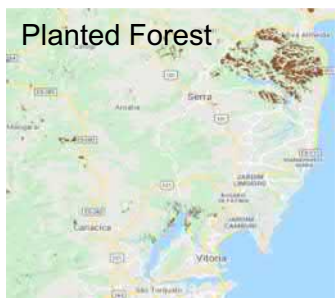
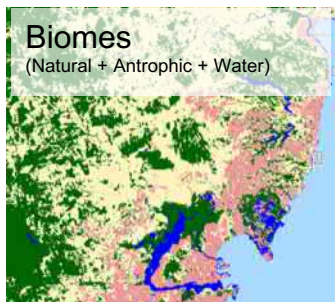
The Amazonian savannahs and grasslands



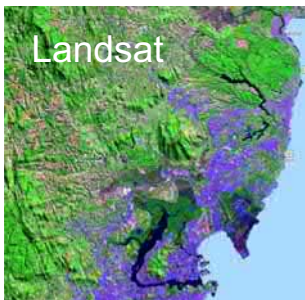
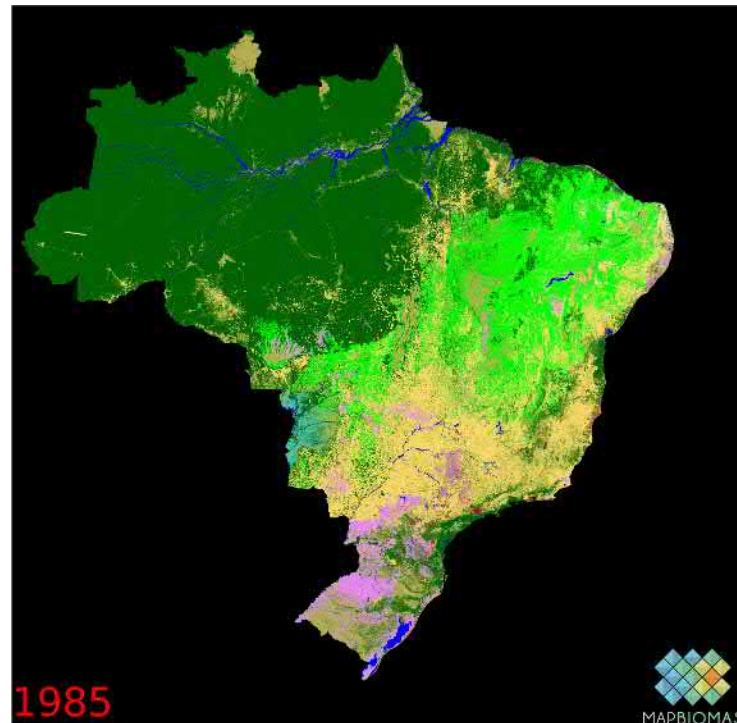
Caatinga



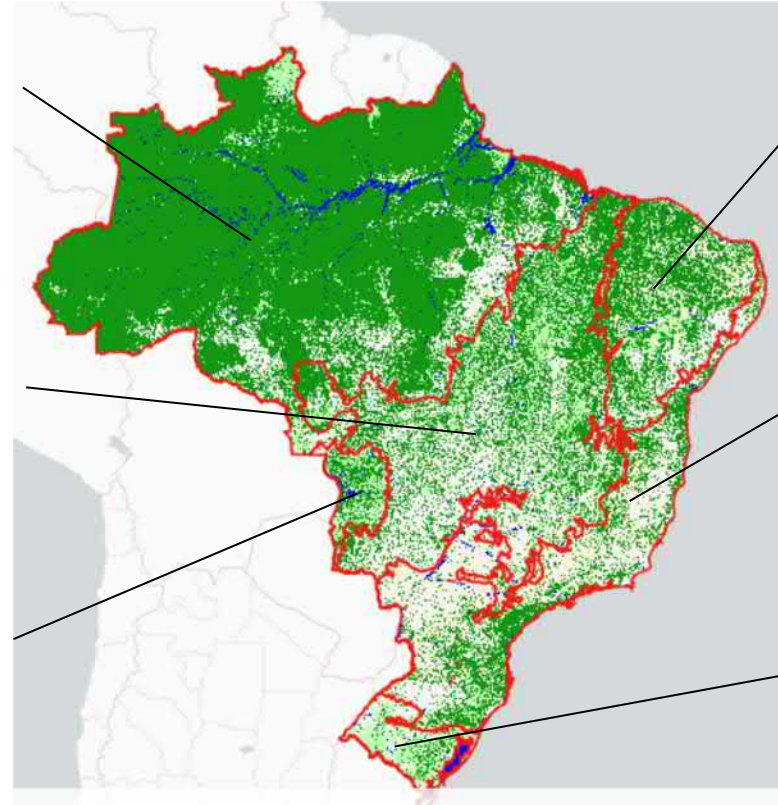
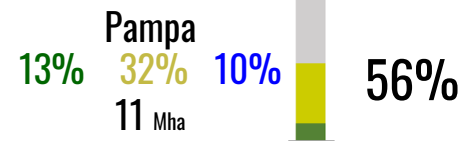
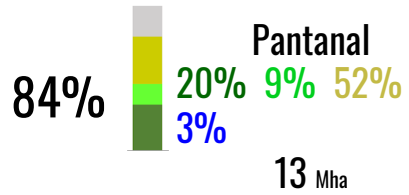
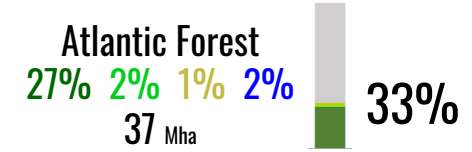
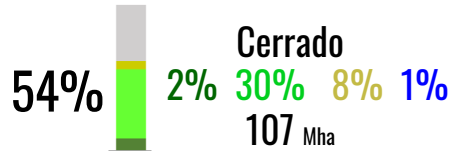
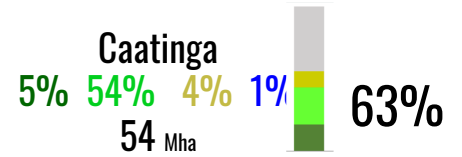
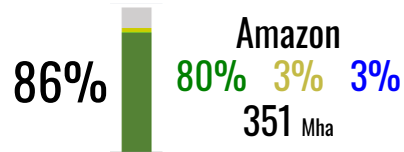
Integration



Integration

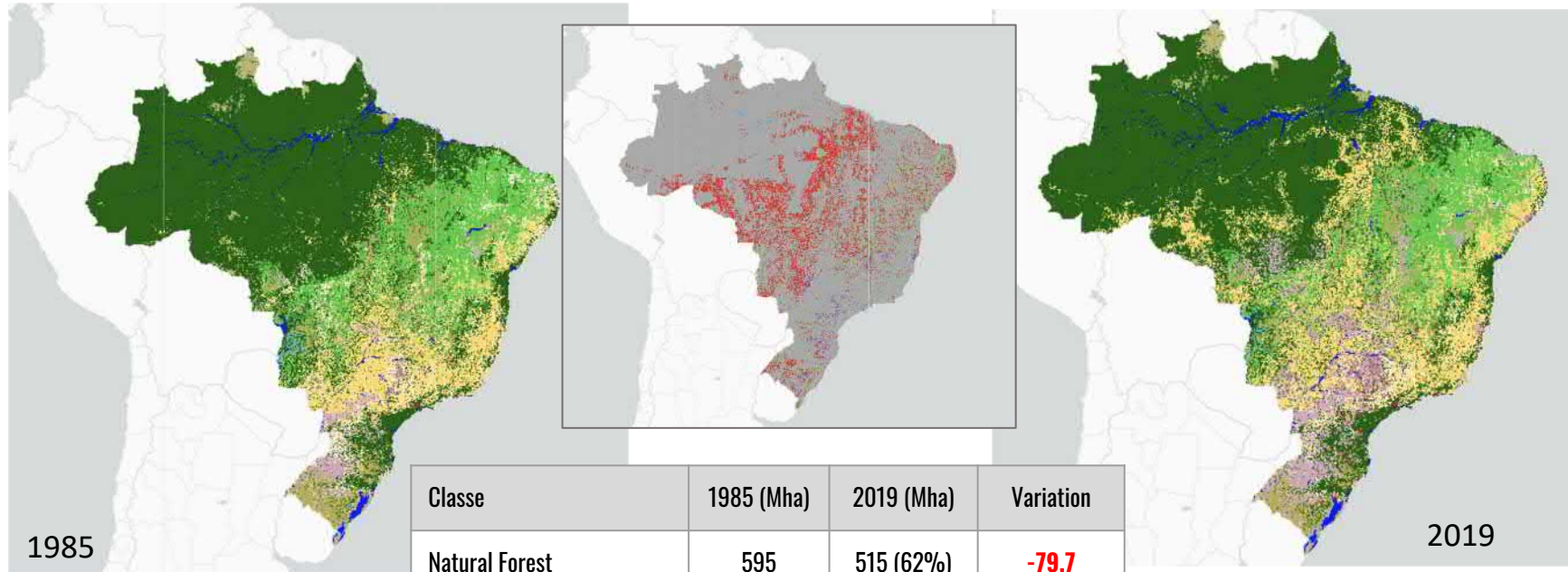


How much do we have of native vegetation in the biomes?



- Natural Forest
- Water
- Savanna Formation
- Grassland
- Water

TRANSITIONS BETWEEN 1985 TO 2019

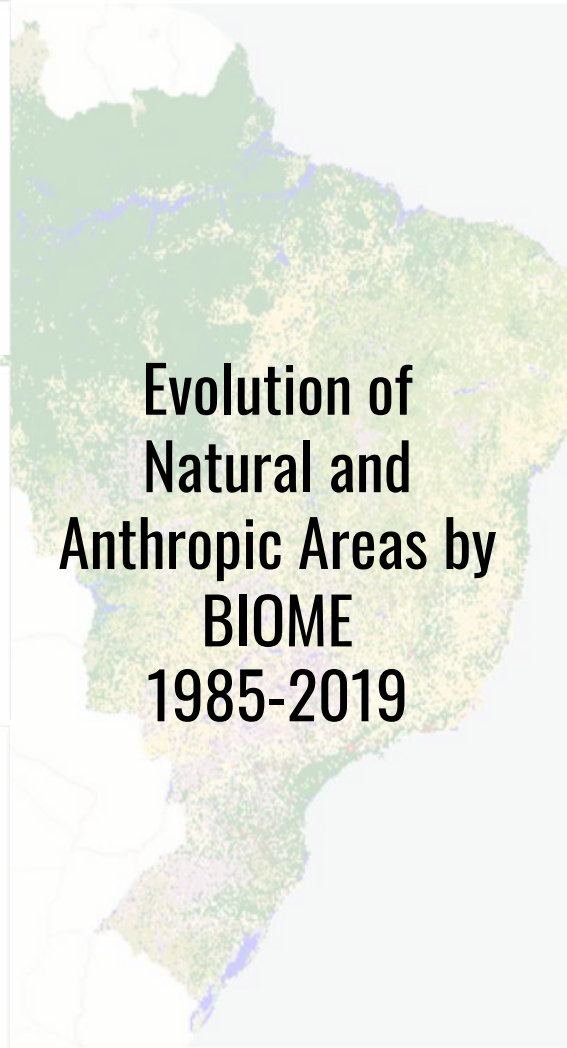
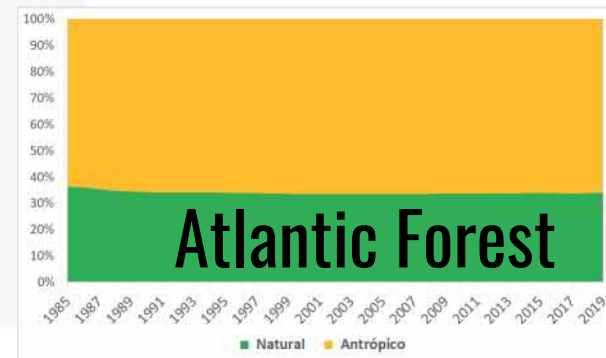
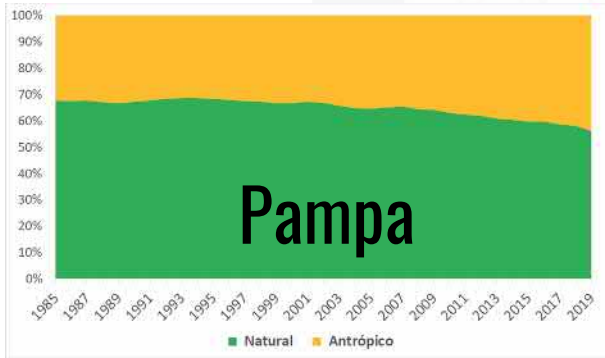
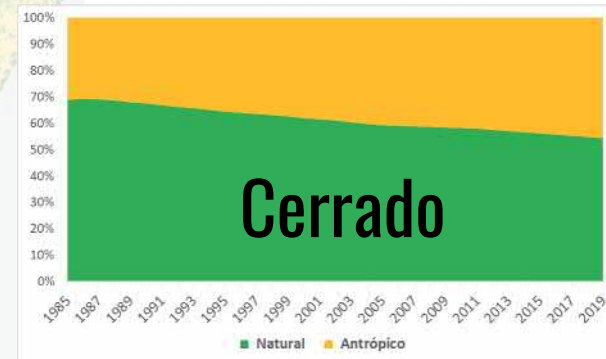
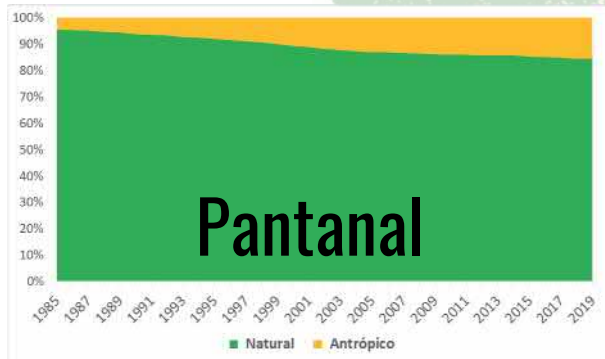
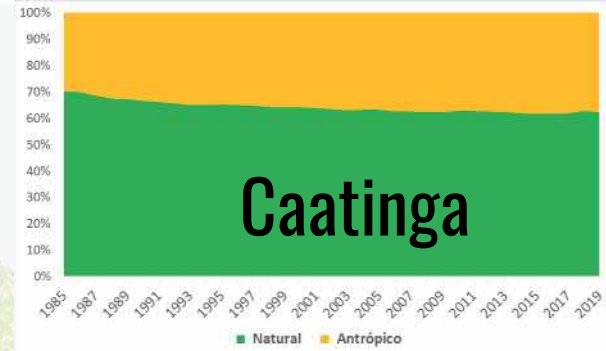
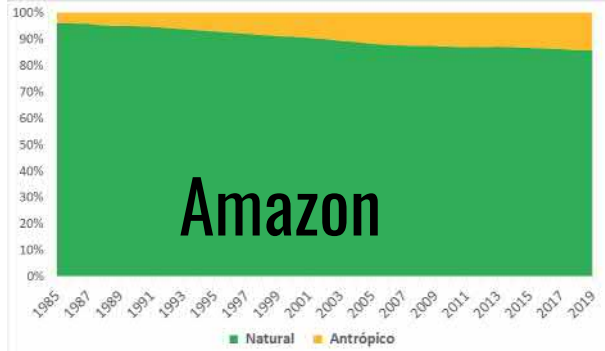


Brazil has **566 Mha** of native vegetation, representing **66.5%** of the country

Classe	1985 (Mha)	2019 (Mha)	Variation
Natural Forest	595	515 (62%)	-79,7
Non-Forest Natural Formation	58	50 (6%)	-7,4
Farming	178	255 (30%)	77,5
Non-Vegetated Area	3	5	2
Water	15	17	1,7

-87 Mha of native vegetation loss

90% lost to Farming that increased approx. 78 Mha

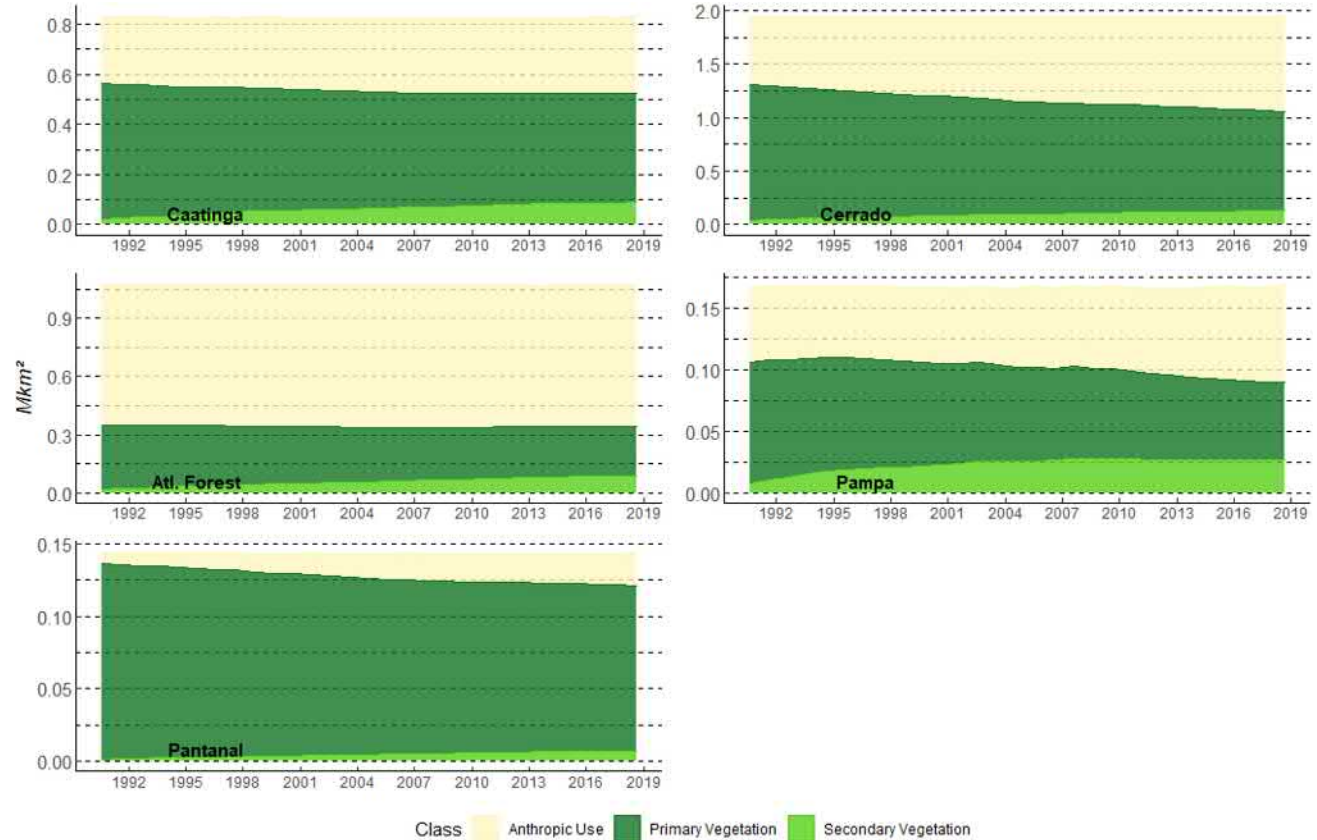


Evolution of Natural and Anthropogenic Areas by BIOME 1985-2019

Vegetation Loss & Recovery to Secondary Vegetation

Possible to break into
Forest, Savanna,
Grassland, Mangrove...

Secondary vegetation
mapping considers the
last native vegetation
type mapped



MapBiomass Network Development

Brazil

Amazon

Chaco






























Atlantic Forest Tri-Nacional

Pampa Tri-Nacional

Indonesia

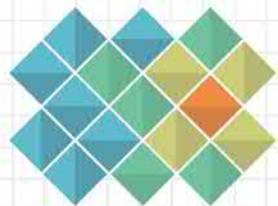


MapBiomas collaborative network with local institutions

Amazon	Chaco	Indonesia	Atlantic Forest	Pampa
<p>Coordination</p> 	<p>Coordination</p>  Instituto Nacional de Tecnología Agropecuaria	<p>Coordination</p> 	<p>Coordination</p> 	<p>Coordination</p> 
<p>Co-creators</p>        Gaia Amazonas	<p>Co-creators</p>    	<p>Co-creators</p>        PLH Kaltara Mnutkar	<p>Co-creators</p>        	<p>Co-creators</p>      Universidad Nacional de San Luis



mapbiomas.org



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Siga-nos nas redes sociais    