



Last Chance for the CERRADO: Low-Carbon Development in upside-down forest.

Jean-François Timmers
WWF Global Soy Lead

Grasslands & Savannas - Time to act
WWF Conference, Berlin 4th June 2019



1°
BRASIL
-531.670 km²

10 countries with largest deforestation 1990 – 2015

Source:
<http://unstats.un.org/unsd/environment/qindicators.htm>

2°
INDONESIA
-375.350 km²

4°
BIRMANIA
-101.770 km²

3°
NIGERIA
-102.410 km²

5°
TANZANIA
-98.600 km²

6°
ZIMBABUE
-81.020 km²

7°
BOLIVIA
-80.310 km²

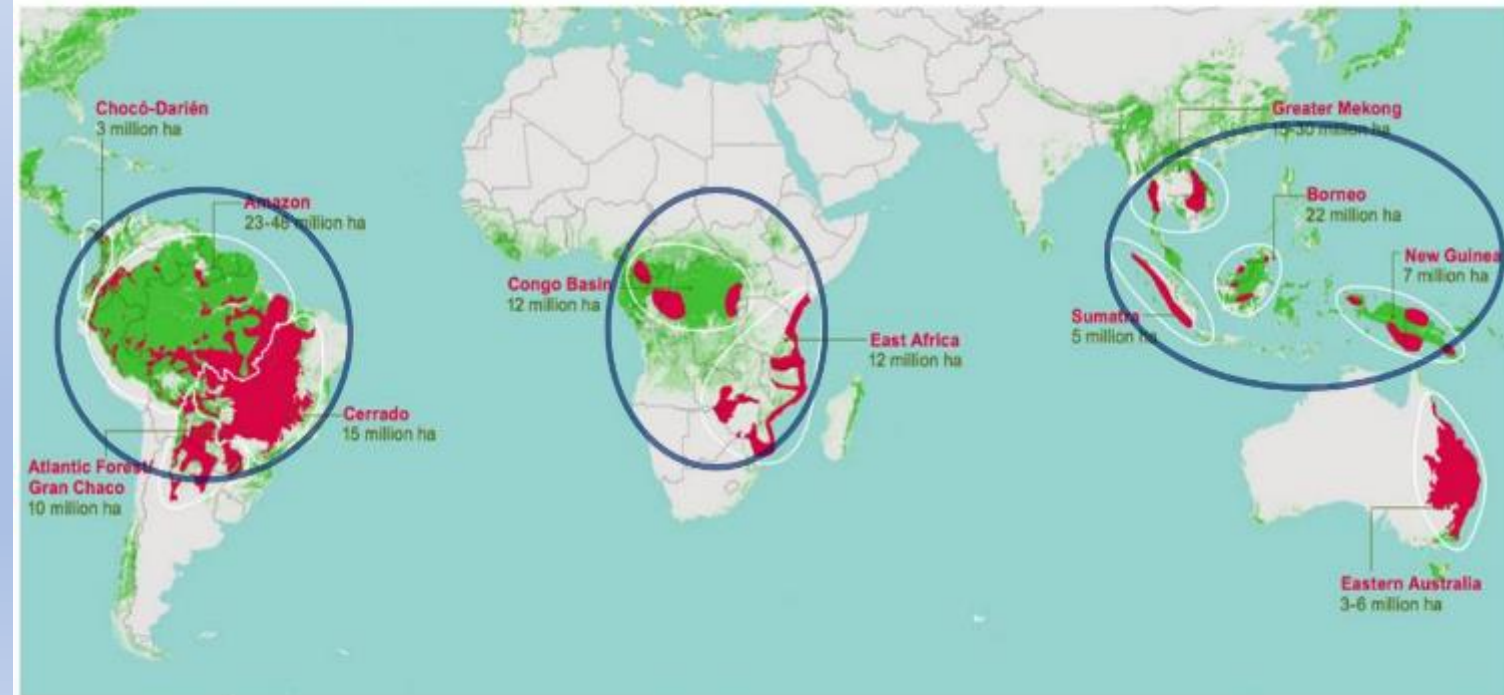
8°
REP. DEM. CONGO
-77.850 km²

10°
COLOMBIA
-59.153 km²

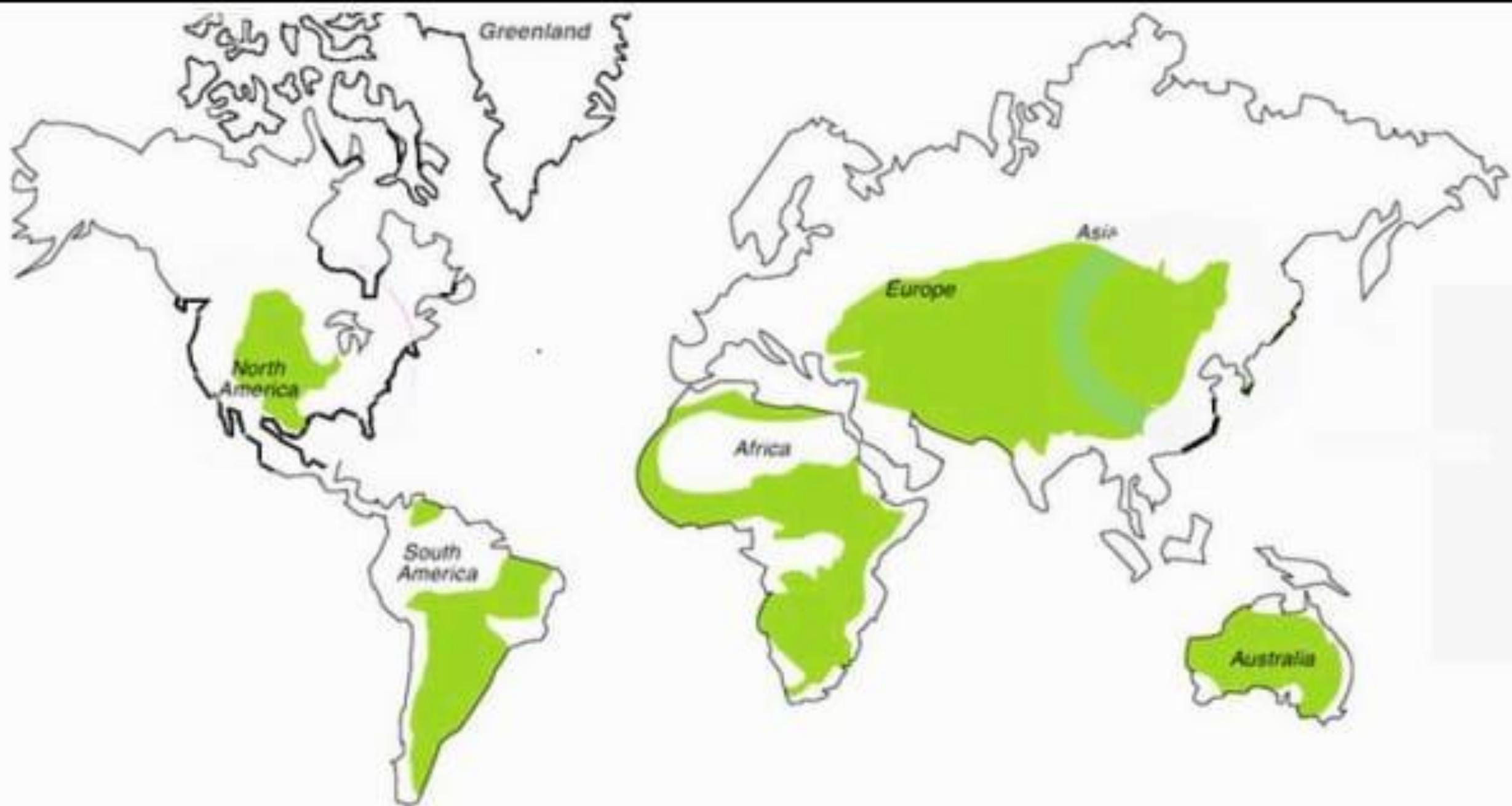
9°
ARGENTINA
-76.810 km²
equivale a la superficie de la provincia de San Luis

Fuente: Indicadores Ambientales de la División de Estadísticas de Naciones Unidas (UNSD).
Excluye bosques de parques urbanos, jardines y producciones agrícolas
<https://www.lanacion.com.ar/1974235-los-diez-paises-que-perdieron-mayor-superficie-de-bosque-en-los-ultimos-25-anos/amp/1974235>

MAP OF DEFORESTATION FRONTS Projected 2015 - 2030



Forest Deforestation fronts + projected deforestation, 2010-2030



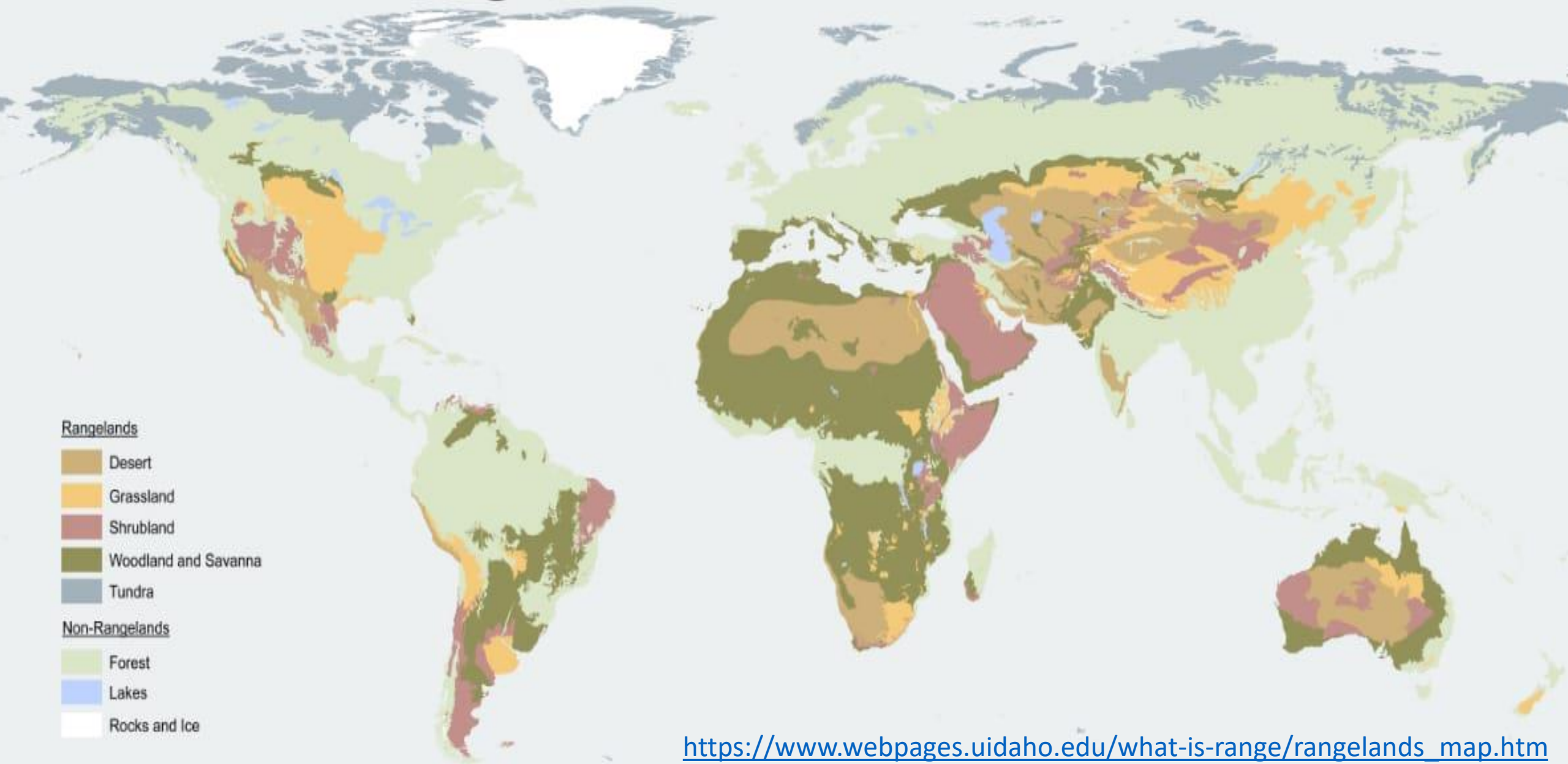
Rangelands of the World

Rangelands

- Desert
- Grassland
- Shrubland
- Woodland and Savanna
- Tundra

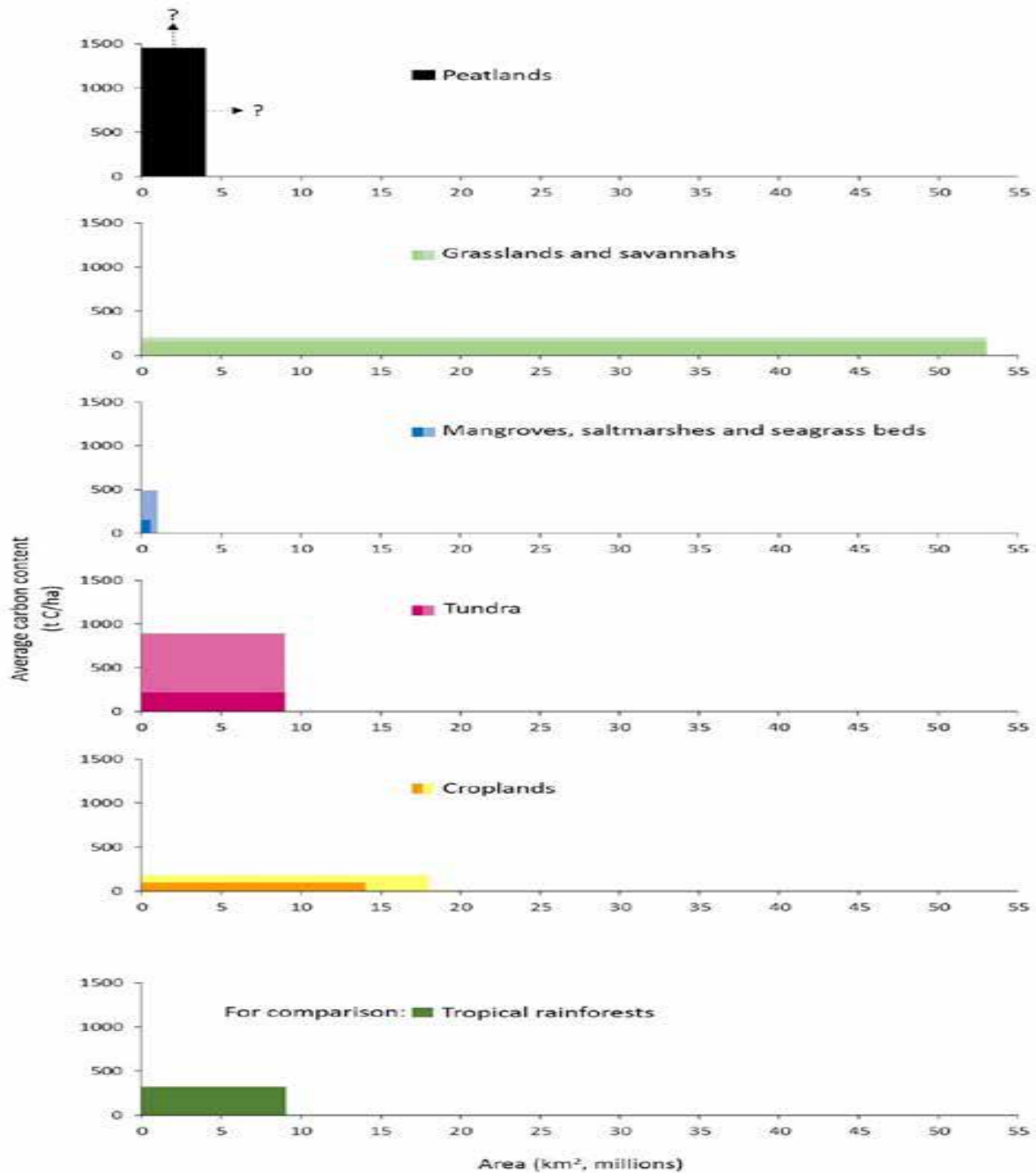
Non-Rangelands

- Forest
- Lakes
- Rocks and Ice



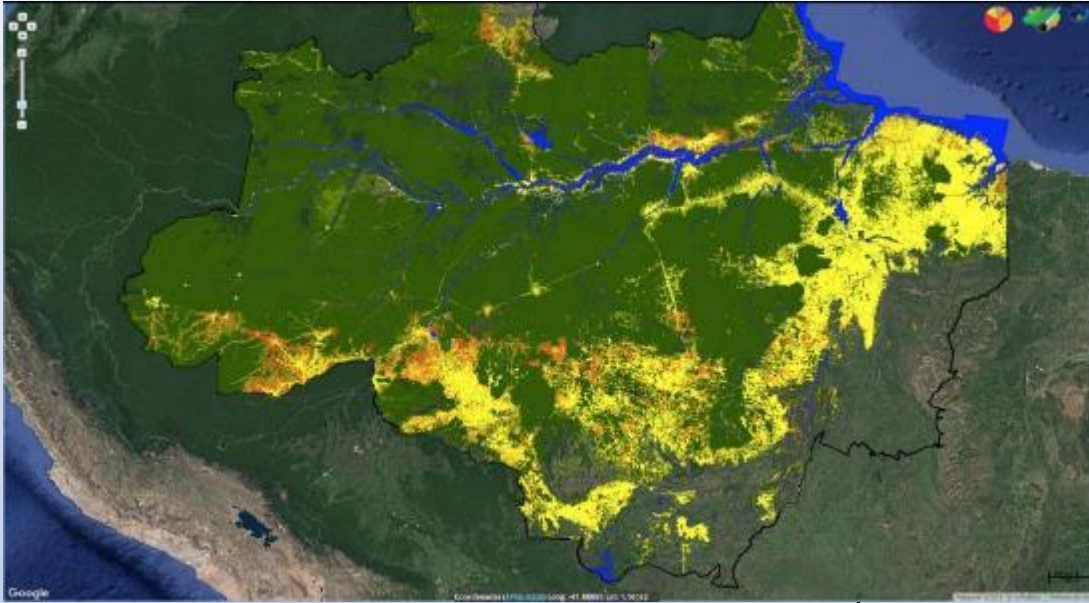
https://www.webpages.uidaho.edu/what-is-range/rangelands_map.htm

The role of non-forest ecosystems for climate change mitigation



[Epple, C., García Rangel, S., Jenkins, M., & Guth, M. \(2016\). Managing ecosystems in the context of climate change mitigation: A review of current knowledge and recommendations to support ecosystem-based mitigation actions that look beyond terrestrial forests. Technical Series No.86. Secretariat of the Convention on Biological Diversity, Montreal, 55 pages.](#)

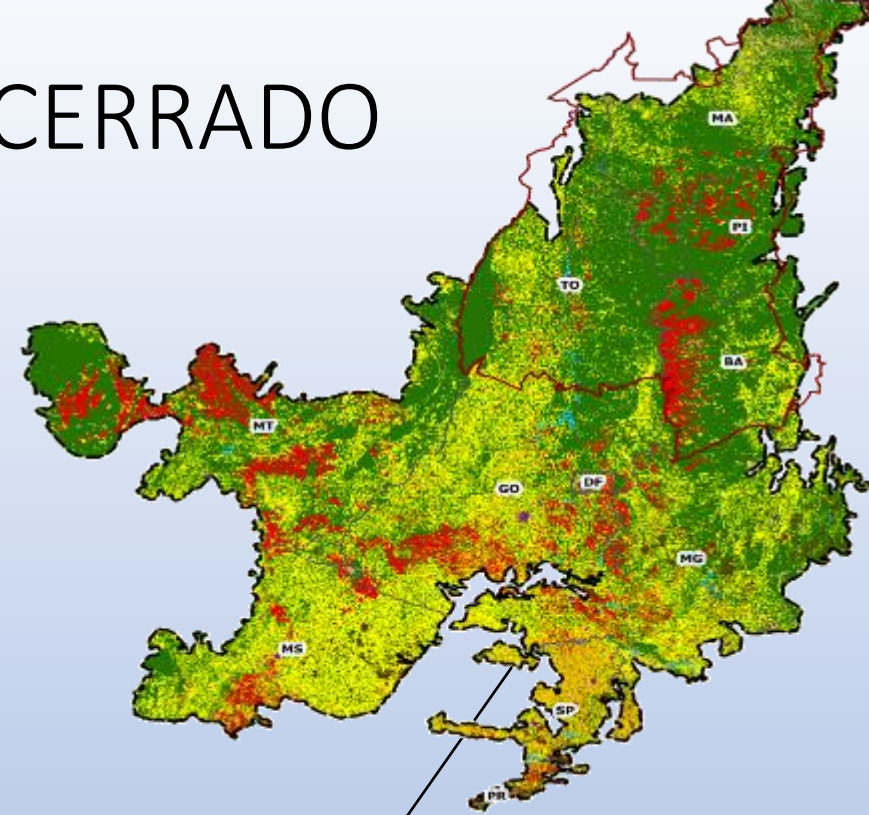
AMAZON



- 12% CONVERSION
- ~ 650.000 ha/year
- LIVESTOCK AS MAIN DRIVER
- MOSTLY **ILLEGAL** DEFORESTATION



CERRADO



- 48% CONVERSION
- ~ 1,000.000 ha/yr
- LAND SPECULATION linked to SOY
- MOSTLY **LEGAL** CONVERSION





In South America: Chaco, Cerrado, Pampas, Campos and Llanos are at risk, These are scrublands, savannahs and natural grasslands

In Africa: sub-Saharan savannahs are starting soy expansion

In Asia: Central Asian grasslands are starting soy expansion

In North America: last natural prairies of the Northern Great Plains are being converted for crops, including soy.

LANDSCAPES AT RISK FROM SOY EXPANSION





Deforestation goes far beyond forests

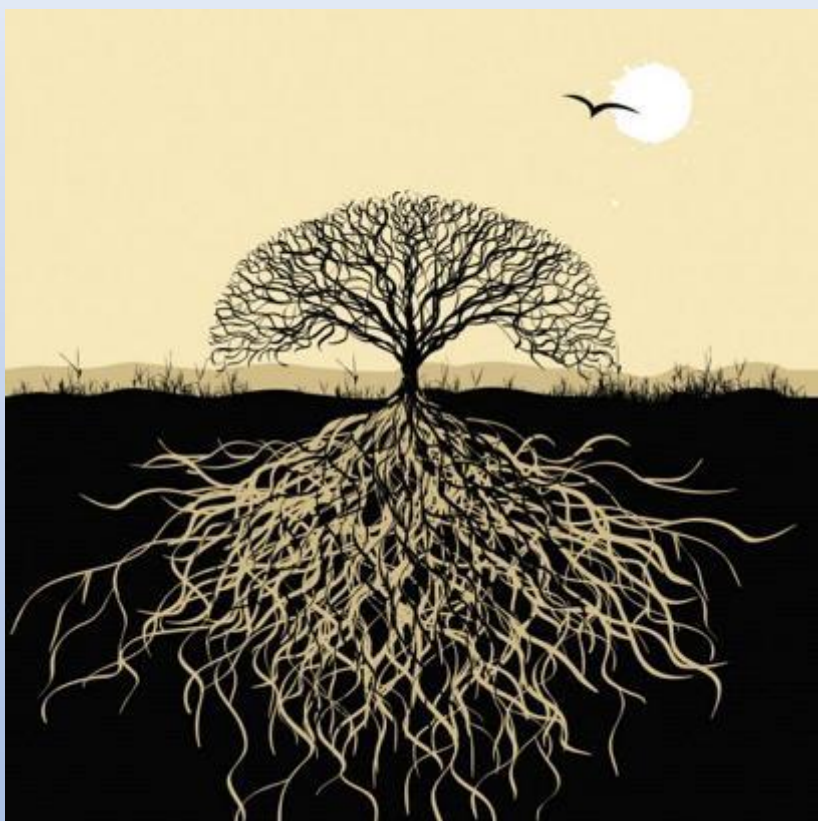
Cerrado is world's oldest and richest savannah, with more than 11.430 plants (40% endemic), 1.800 tree species, 250 mammals, 856 birds, 262 reptiles, 204 amphibians, 1300 fishes etc.

Cerrado is far richer than most of the world's forests. And under threat of [massive extinction](#)

It is also a **prominent watershed**, of 8 of total 12 Brazilian river basins, essential for the Pantanal and supply of most of Brazilian largest and most populated cities.

[Get to know the Cerrado](#)





CRUCIAL TO OUR PLANET

The Cerrado's remarkable landscape is of global importance to people and wildlife. It's home to around 5% of the world's biodiversity, and supplies almost half of all Brazil's water for consumption, electricity and food production.

ANCIENT AND UNIQUE

This is the oldest, most species-rich savannah in the world, which has adapted to endure fire and long periods of drought during the six-month dry season, from April to September.

CONNECTING AND NOURISHING

The Cerrado conceals hidden and highly significant depths. In contrast to the neighbouring Amazon rainforest, which has huge forest canopies and small root systems, the Cerrado has small plants, trees and bushes with enormous root systems. It's an upside down forest and incredibly important.

The long roots of the natural vegetation penetrate deep underground, accessing the water stored in aquifers far beneath. In fact the Cerrado acts like a giant sponge, absorbing and distributing water to the whole region and far beyond. It replenishes three major aquifers, Bambuí, Urucuias and Guarani, and eight of Brazil's 12 main watersheds, including the Pantanal – the world's largest tropical wetland and one of the last main strongholds of the jaguar.

13.7 BILLION TONNES

WITH VAST EXPANSES OF RICH SOILS AND VEGETATION, THE CERRADO IS AN ESSENTIAL CARBON STORE - VITALLY IMPORTANT AS CLIMATE CHANGE THREATENS OUR WORLD



Lying in Brazil's central plateau, the Cerrado provides a crucial link between four other vitally important biomes: the Amazon, Caatinga, Pantanal and Atlantic Forest.

THERE ARE MANY DISTINCT TYPES OF HABITAT IN THE CERRADO. SOME AREAS ARE VERY FLAT AND GRASSY, BUT THERE ARE STRETCHES OF LUSH WOODLAND WITH WATERFALLS AND RIVERS, AND TWISTED, KNOBBLY MINI-FORESTS THAT LOOK A LITTLE LIKE OVERGROWN BONSAI.



AMAZON



CERRADO



IF THE CERRADO IS LOST, THE WHOLE WORLD WILL FEEL THE EFFECTS

FITOFISIONOMIAS DO BIOMA CERRADO



FORMAÇÕES FLORESTAIS

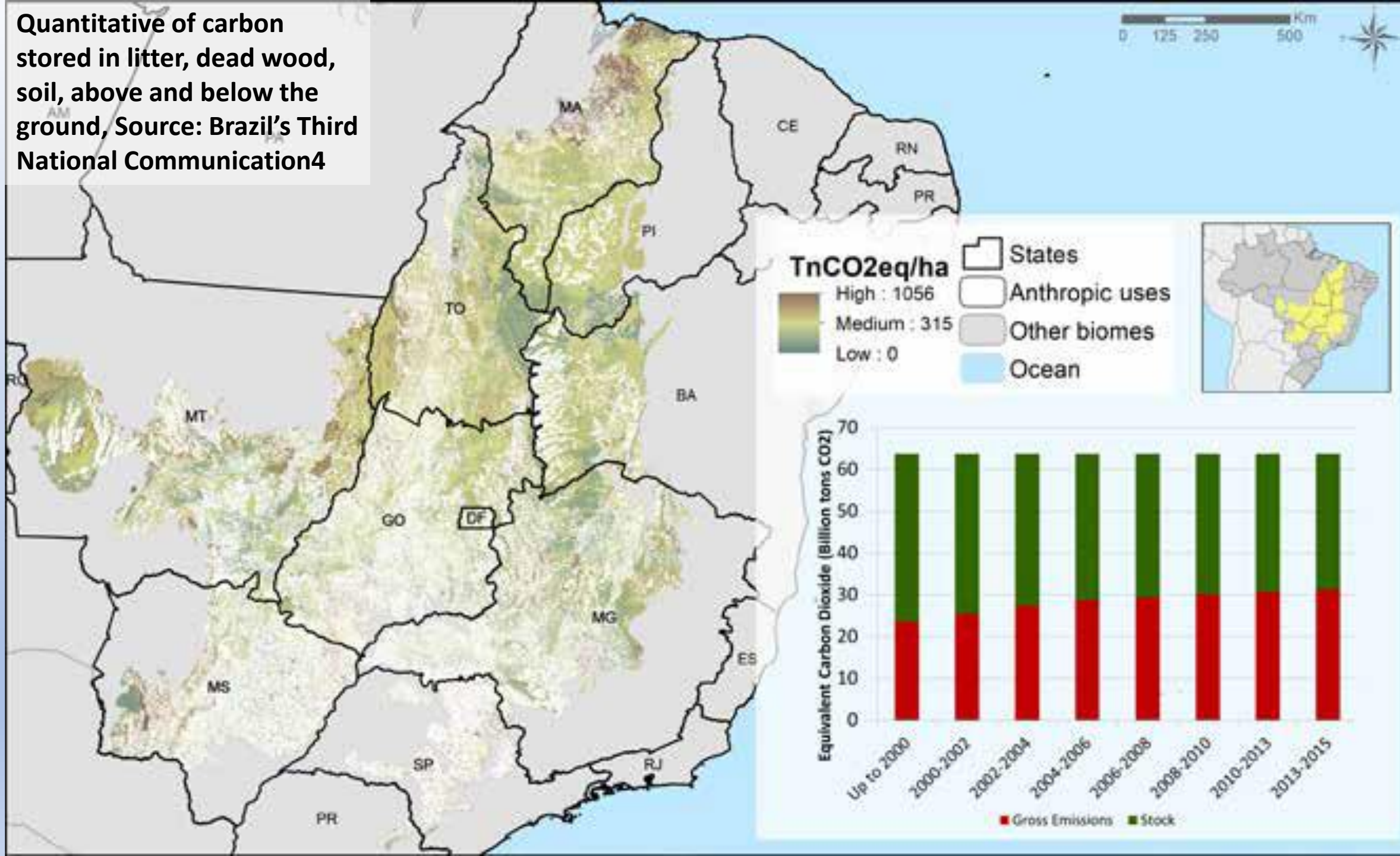
FORMAÇÕES SAVÂNICAS

FORMAÇÕES CAMPESTRES



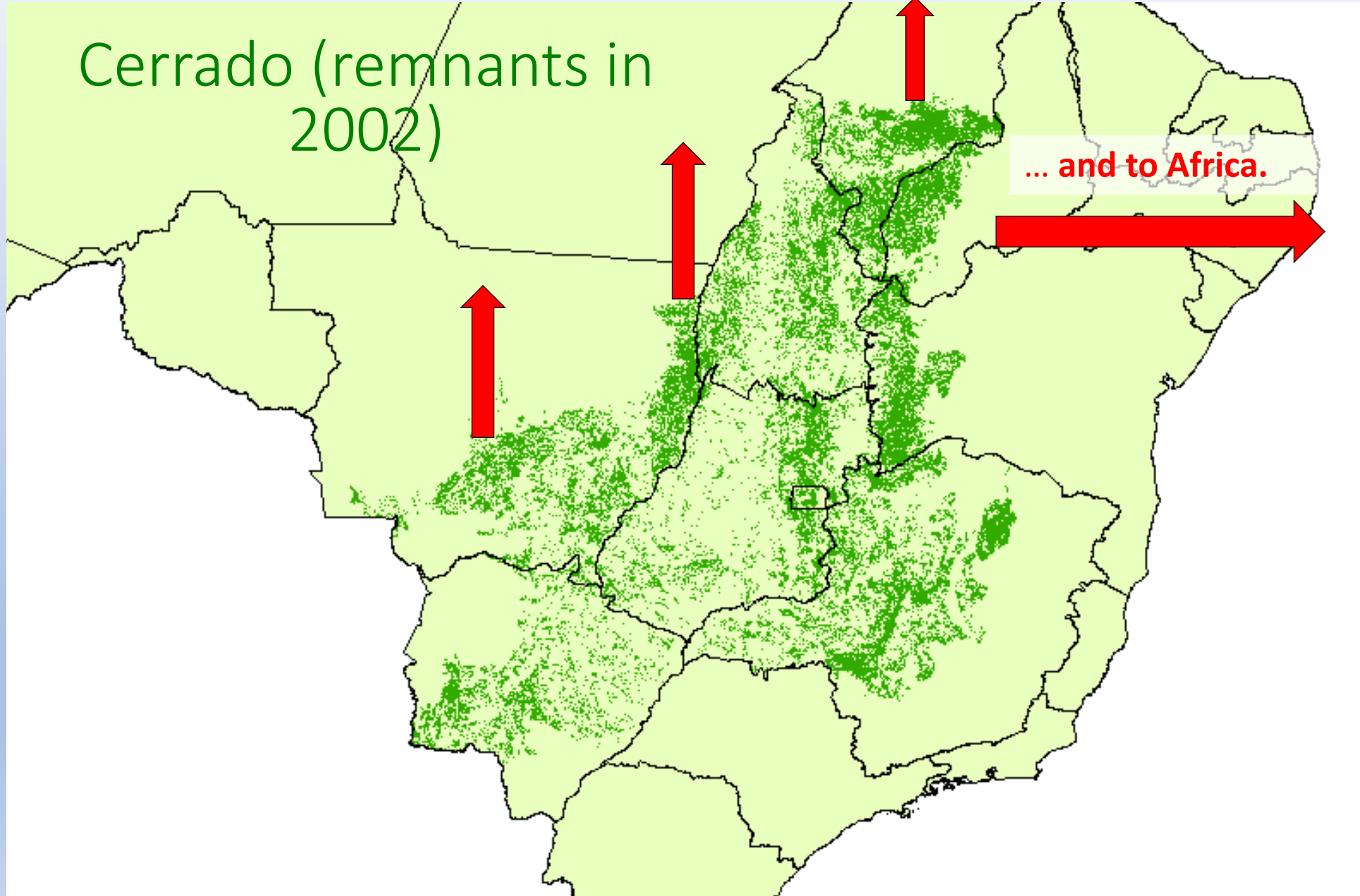
- Mata Ciliar
- Mata de Galeria
- Mata Seca
- Cerradão
- Cerrado Denso
- Cerrado Típico
- Cerrado Ralo
- Parque de Cerrado
- Palmeiral
- Vereda
- Cerrado Rupestre
- Campo Rupestre
- Campo Sujo
- Campo Limpo

Quantitative of carbon stored in litter, dead wood, soil, above and below the ground, Source: Brazil's Third National Communication⁴





Commodities' expansion to the Amazon ...



Cerrado (remnants in 2002)

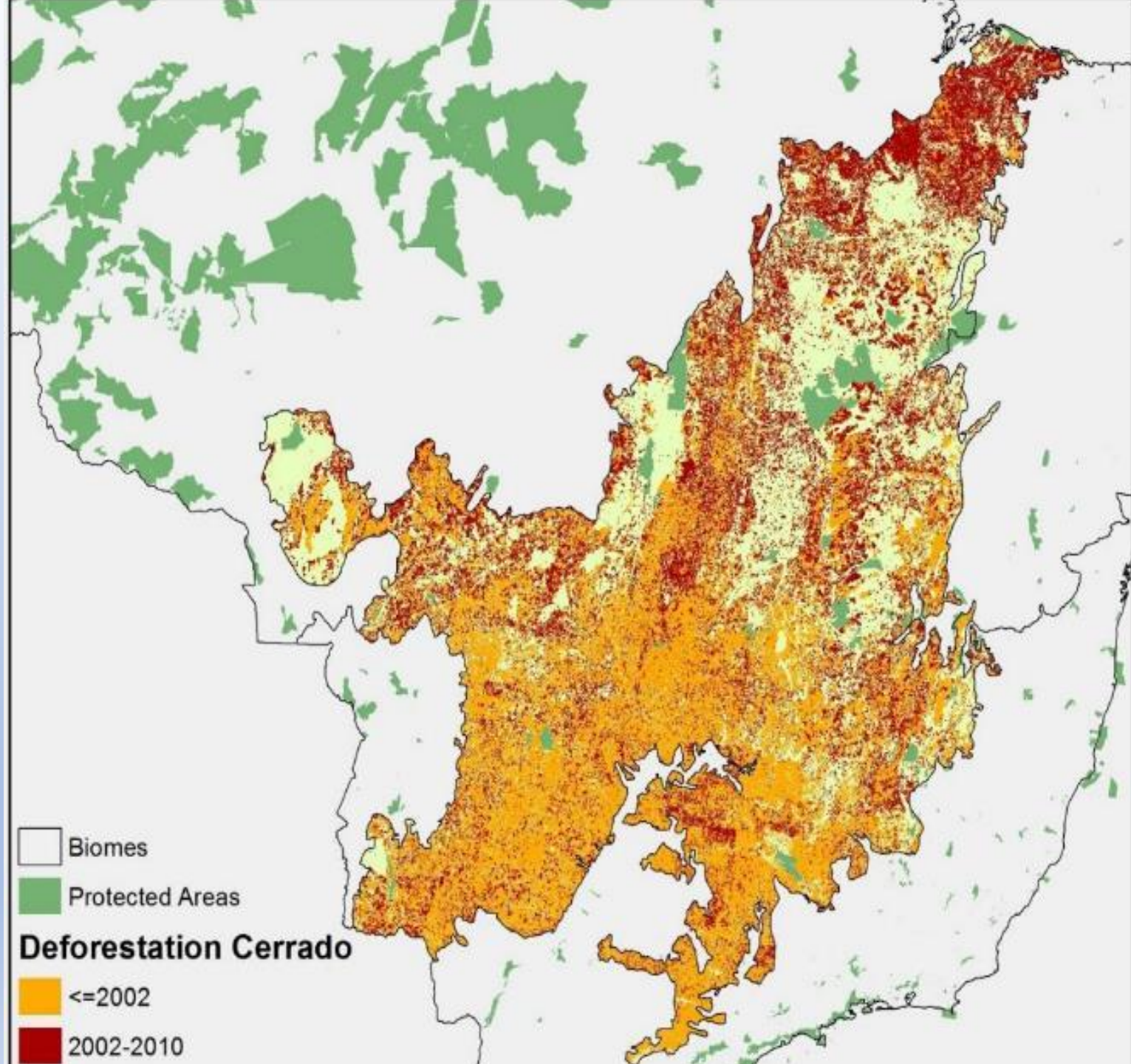
... and to Africa.



Deforestation of Cerrado

- 48.5% of original vegetation has been lost, 5% from 2002 to 2010;
- 156% deforestation increase from 2009 to 2012;
- Only 8.7% of Cerrado is legally protected. Less than 3% strictly protected.

Source: MMA, Soares-Filho et al. 2014





<https://www.youtube.com/watch?v=8mb4v6-MWA8>

https://www.youtube.com/watch?v=xDmAnM_9dxE

<https://www.youtube.com/watch?v=zDK8gY0EKoo>



The Cerrado Initiative - Aligning Conservation, Business and Social Development

- **Halt the conversion** of natural ecosystems
- **Use already cleared areas more efficiently** and rehabilitate degraded soils for production
- **Restore natural vegetation** on a large scale
- **Promote biodiversity-based business** and sustainable use of the ecosystems
- **Create Protected Areas** (strict and of sustainable use)



Golden Grass, Mumbuca TO

Zé Batata, a subsistence farmer stands by the grave of his mother which has been covered entirely by corn.

<https://news.mongabay.com/2018/09/connect-the-dots-cerrado-soy-drives-inequality-to-provide-eu-with-chicken/>

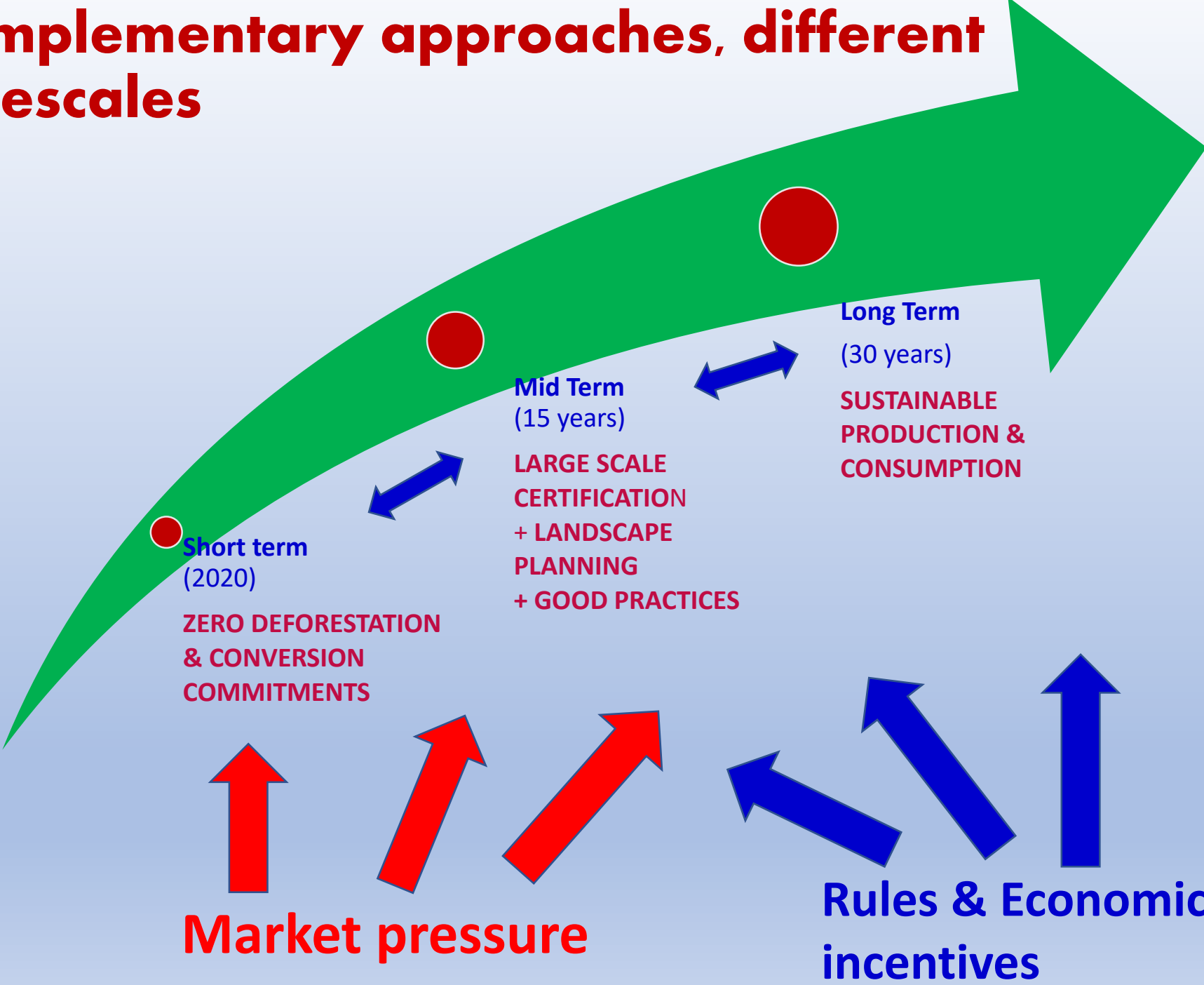


Home of 7.000 Kalungas for centuries (threatened by private hydrodam project)





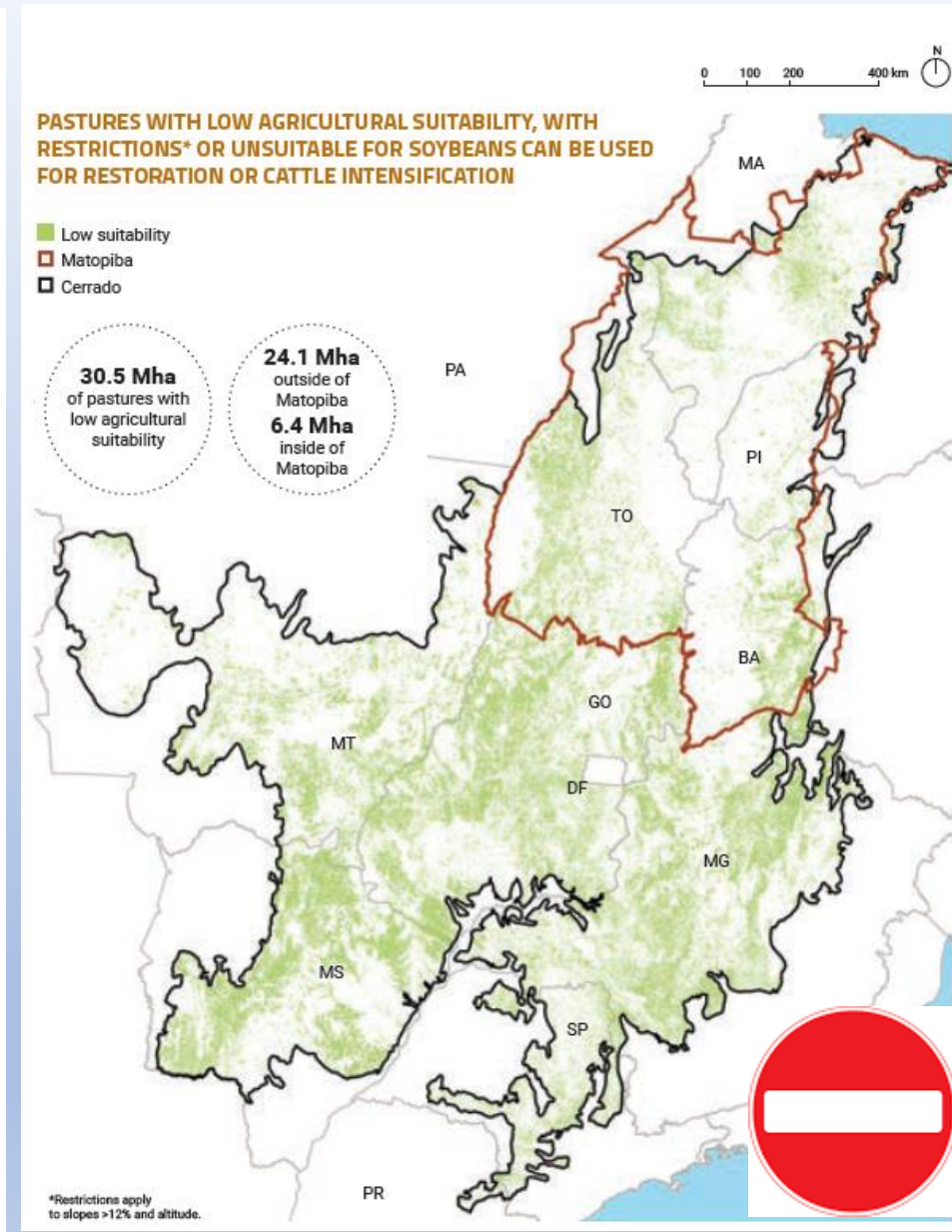
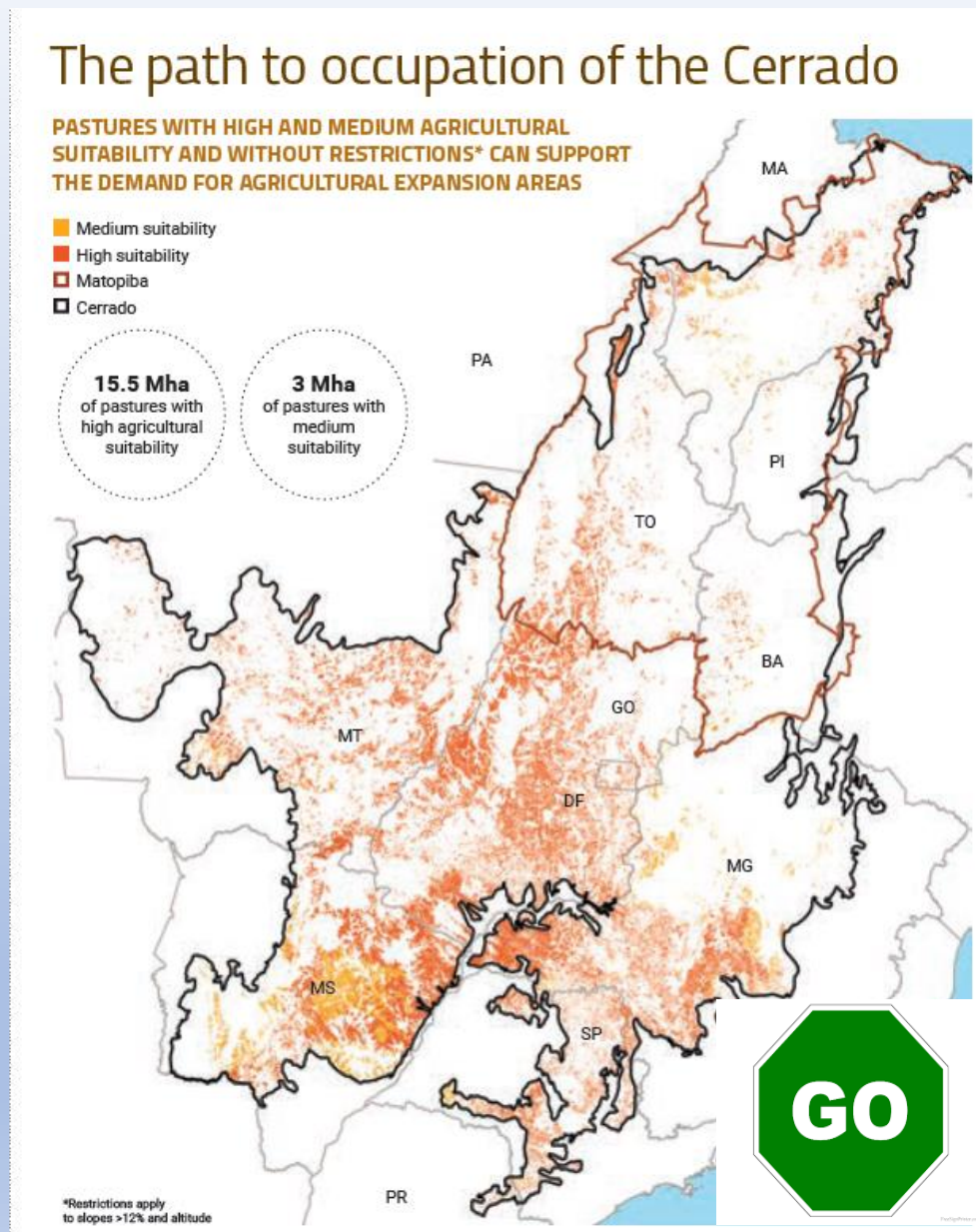
Complementary approaches, different timescales





Precise maps of **go – no go for soy**, suitable and zero conversion.

New data: 25 million hectares of highly suitable, degraded pastures are available in the Cerrado, **to more than double Cerrado soy production** without any single new deforestation /conversion.



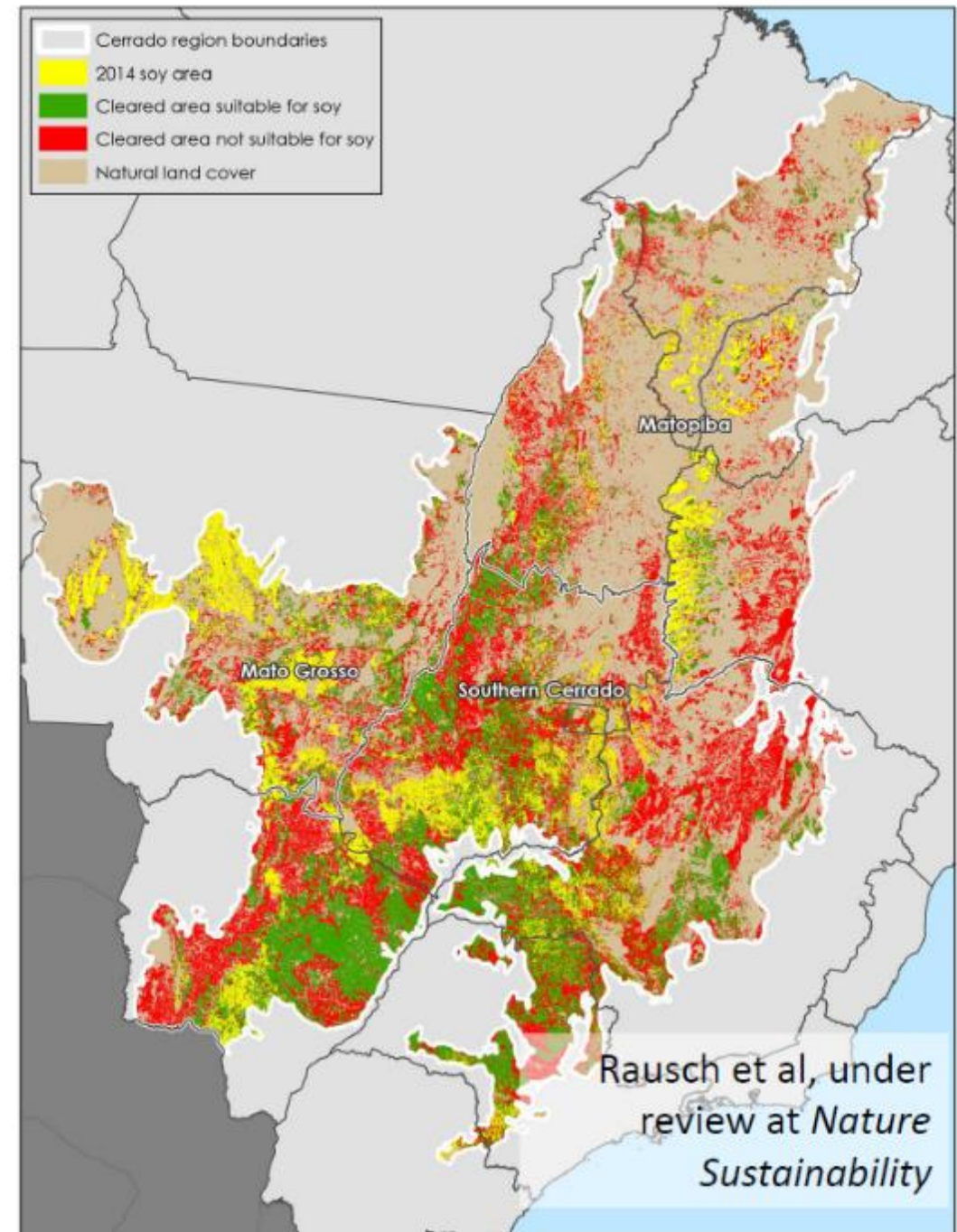


Other approach, considering all land:
38 million hectares of highly suitable, already cleared land available in the Cerrado, **to triple Cerrado soy production** without cutting one single native scrub (or tree).

There is enough cleared and suitable land to triple soy area in the Cerrado – up to 38Mha

Cleared and suitable area is concentrated in the Southern Cerrado

70% of highly suitable, cleared area is currently used as pasture



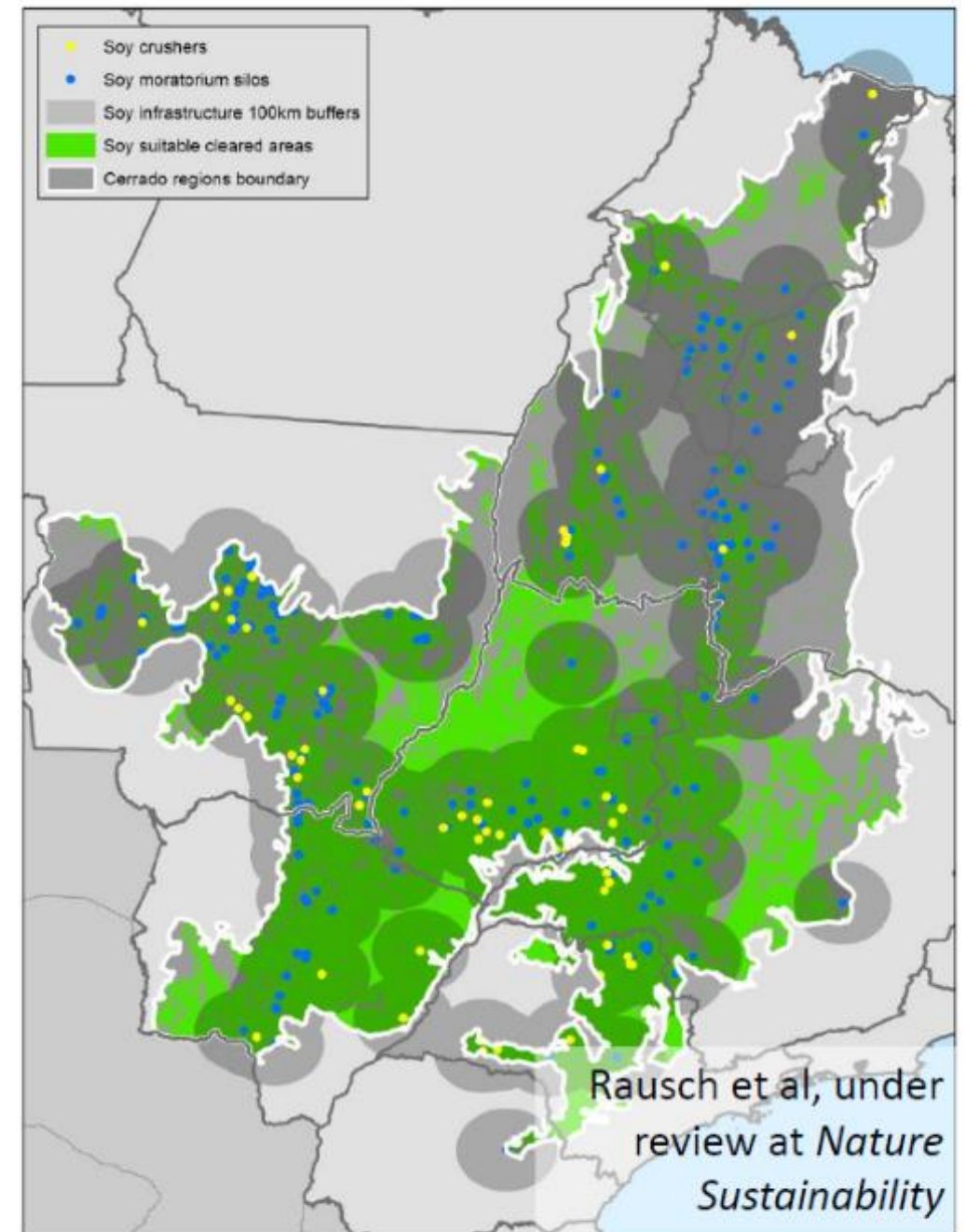


Cleared and suitable land is accessible

78% of cleared and suitable land is within 100km of a major soy trader silo

99% of cleared, suitable area is within 25Km of a major road

What is needed to encourage soy expansion in these areas?

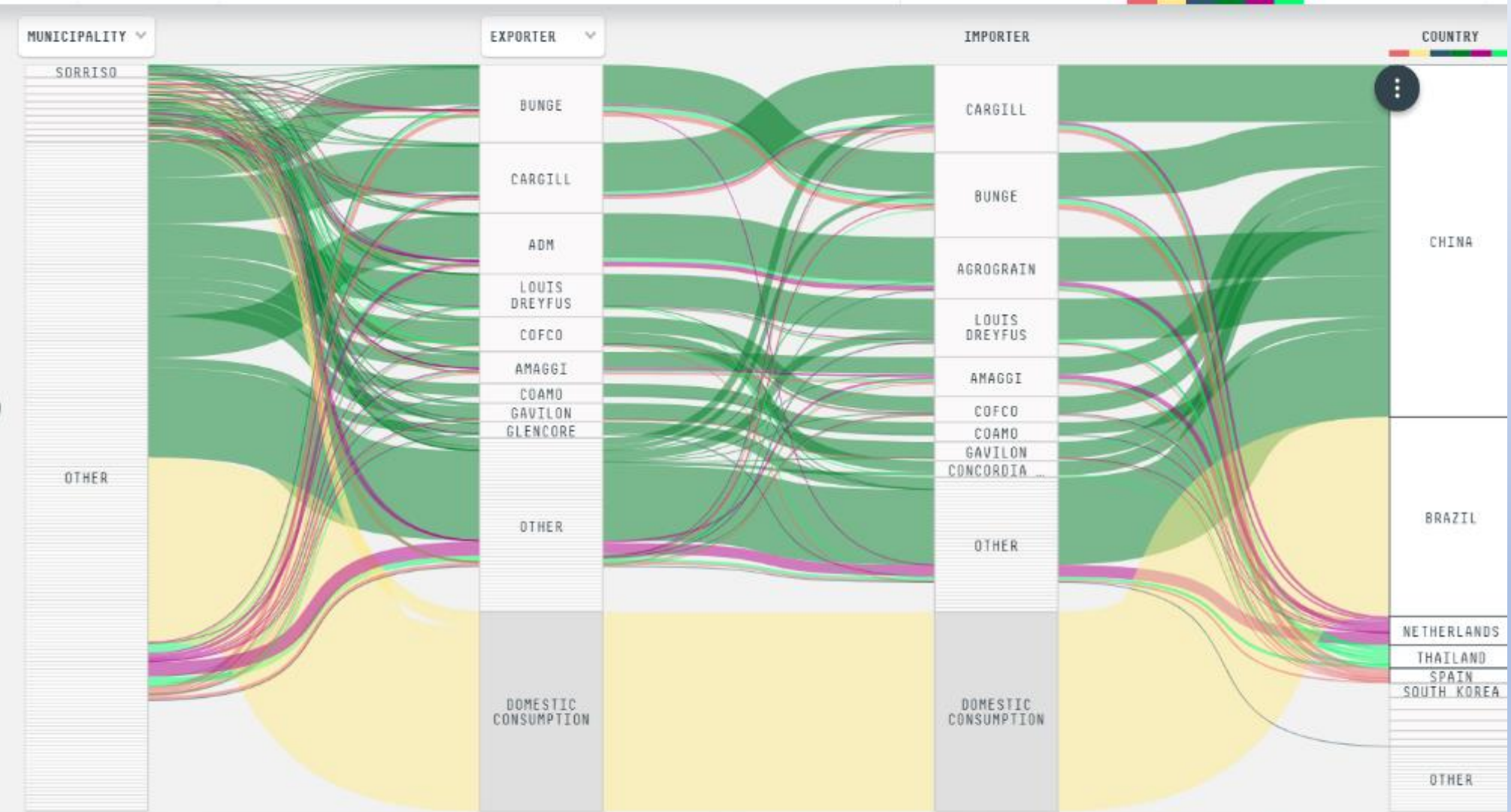
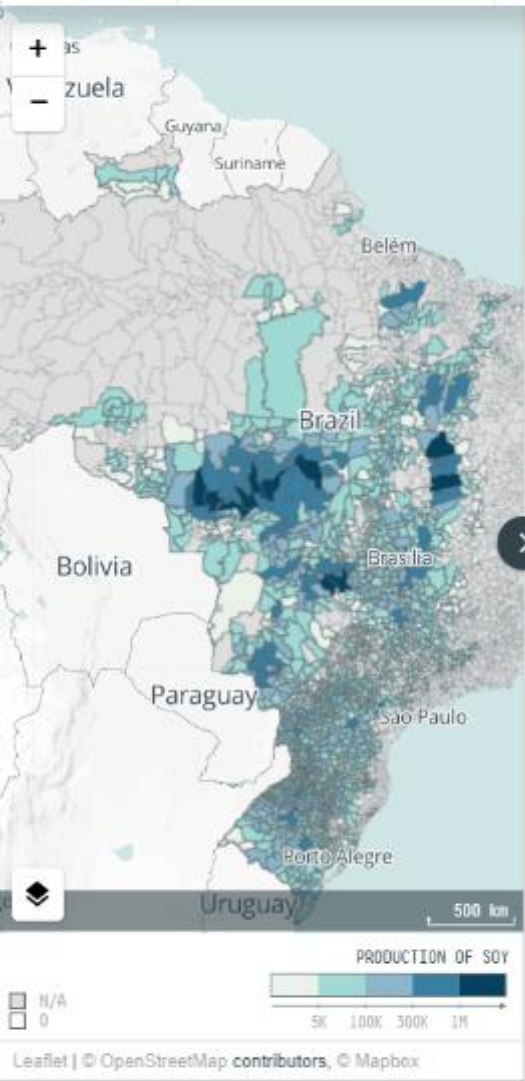


Transparent traceability



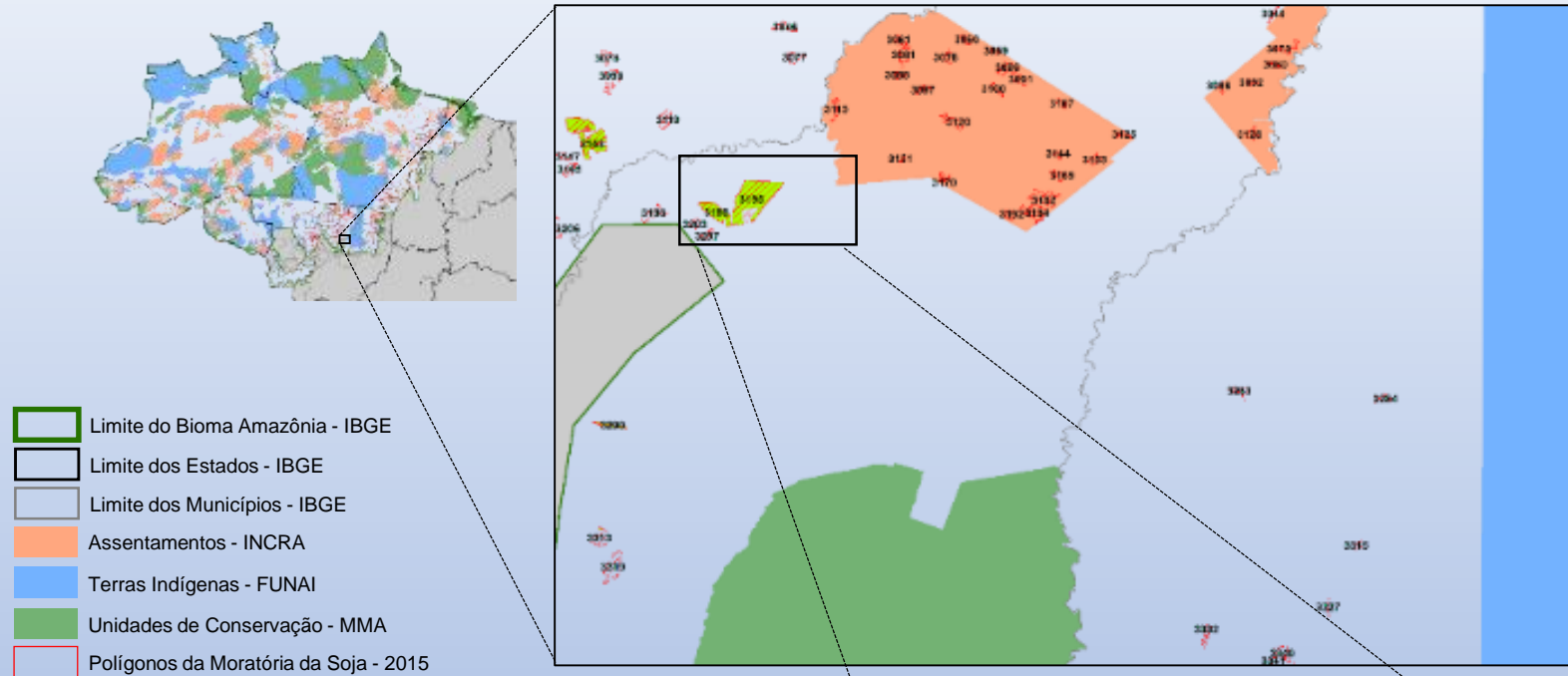
Browser address bar: <https://trase.earth/flows?state=eyJzZWxlY3RIZENvbnRleHRJZCI6MSwic2VsZWN0ZWRZZWFycyl6WzlwMTcsMjAxN10slmRldGFpbGVkVmldyl...>

Navigation and filters: **BETA** | COUNTRY - COMMODITY: **Brazil - Soy** | BIOME: **All** | YEAR: **2017** | RESIZE BY: **Trade Volume** | RECOLOUR BY: **Selection** | CHANGE VIEW: **Summary**

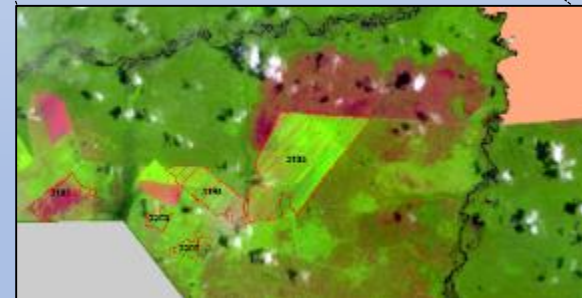
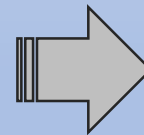




HOW TO DO IT? Market pressure: Amazon Soy Moratorium



Deforested area with soy,
detected on Landsat

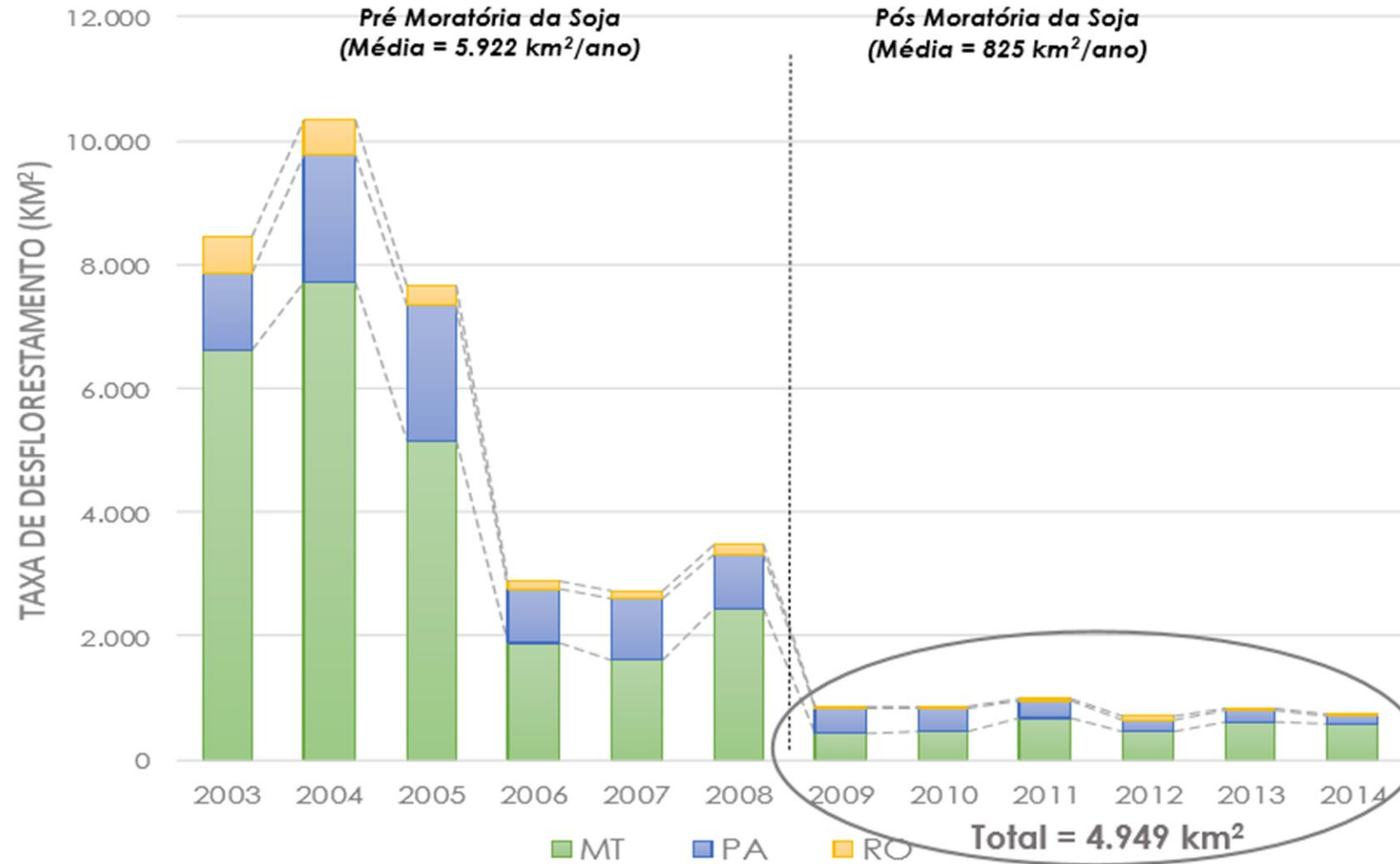


Benchmark of large scale, precise deforestation control of soy supply.
Region – District – Farm.



It works!

Taxa de desflorestamento nos 76 municípios monitorados



Desflorestamentos estaduais no bioma Amazônia de 2009 a 2014 = 26.571 km²

RO=4.155 km²; MT=5.441 km²; e PA=16.975 km²

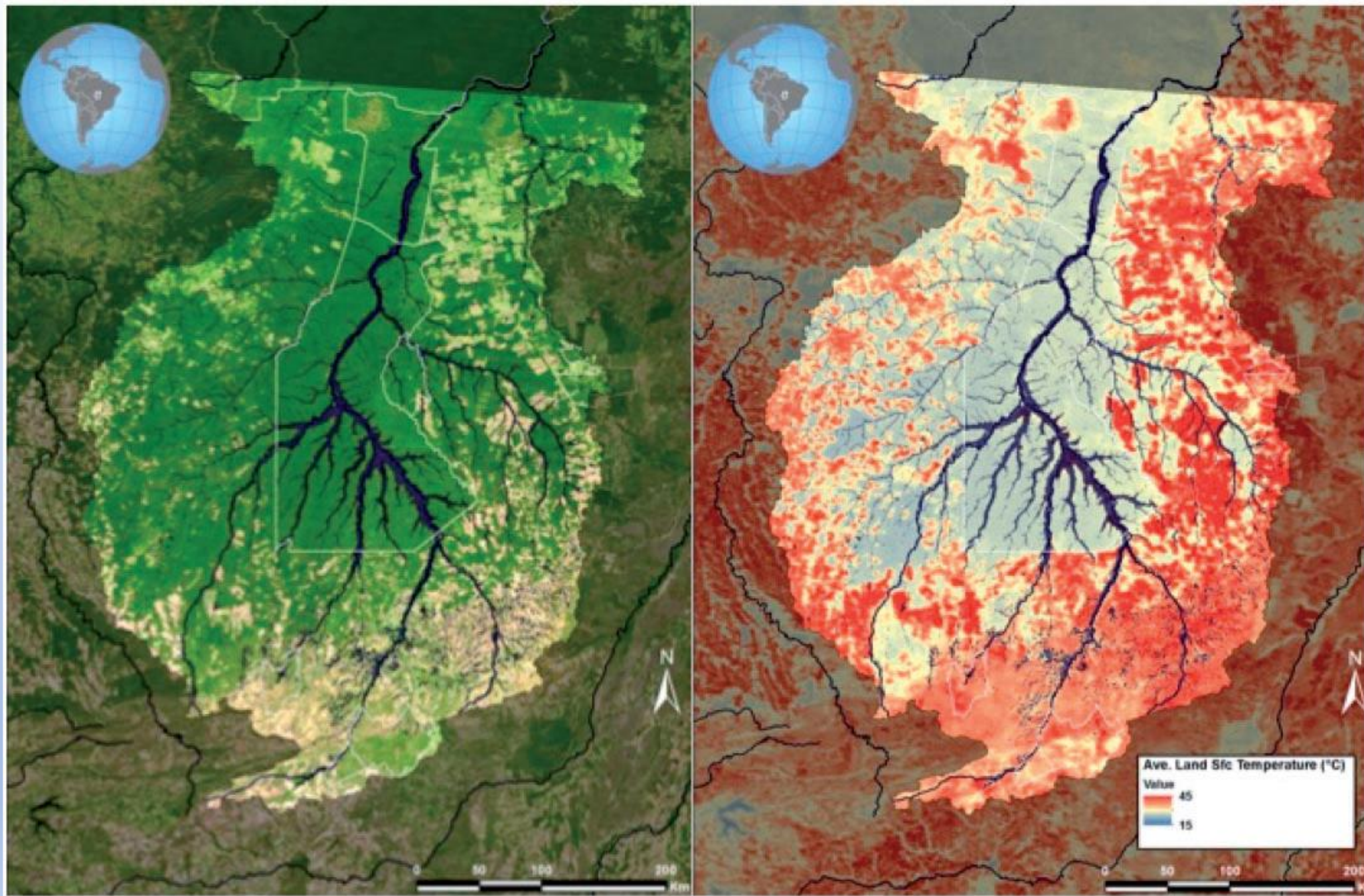
Fonte: Adaptado de INPE, 2015.



Result: immediate deforestation curb.



Direct Impact of Deforestation and Conversion on regional climate: shift of rain system





Impacts of Deforestation and Conversion on Agriculture

Flying Rivers:

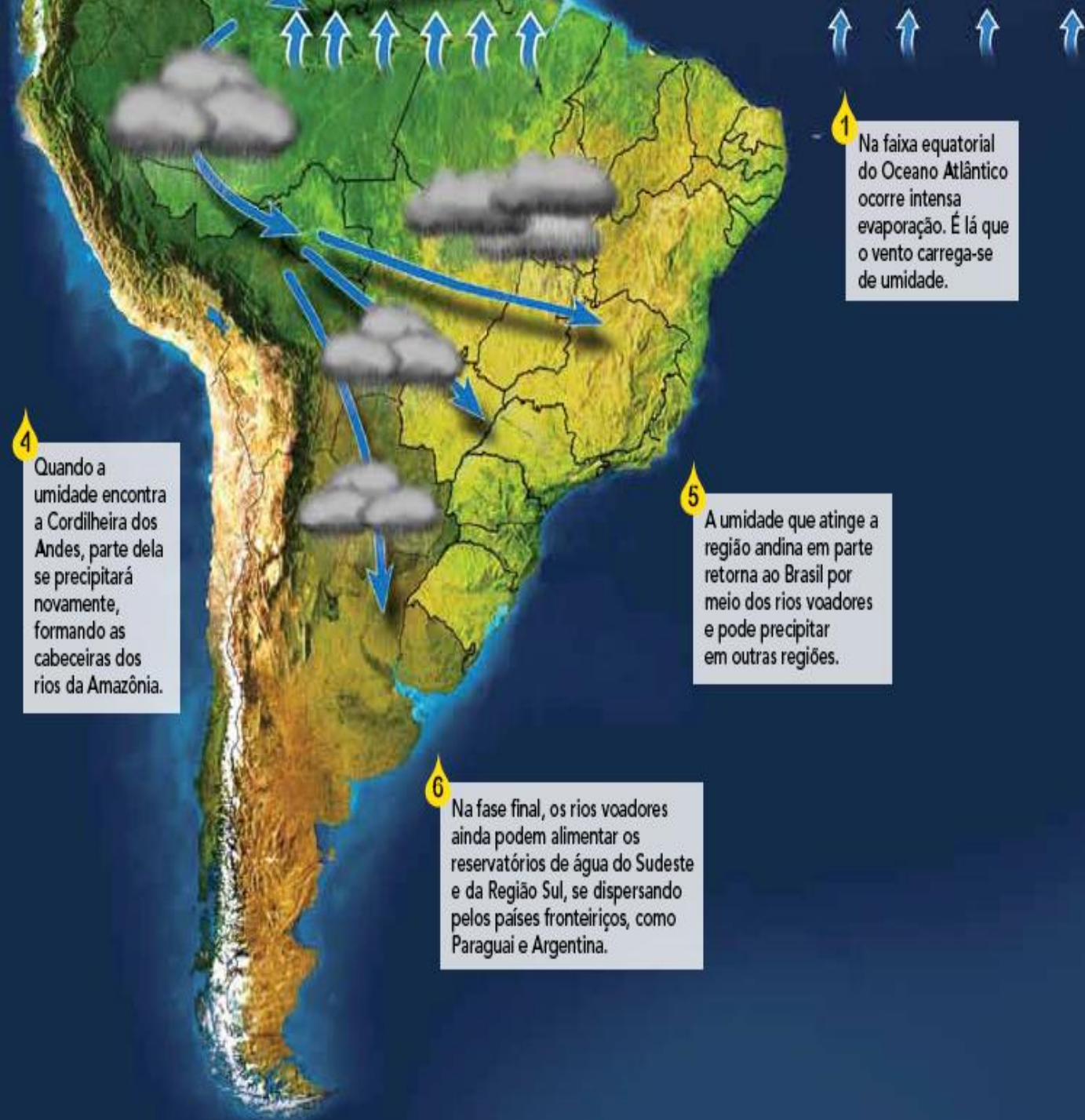
Deforestation of the Amazon may **reduce by 50%** the rains southwards,

Impacts on crop production in Brazil, Argentina and Paraguay
+ water supply of half of population
+ 80% of Brazilian energy.

<http://riosvoadores.com.br/english/the-flying-rivers-phenomenon/>

<http://www.bbc.com/future/story/20130326-amazons-invisible-flying-rivers>

<http://news.nationalgeographic.com/news/2009/12/091217-amazon-flying-rivers-climate/>





By Frits Ahlefeldt



Recent Developments

- [Cerrado Manifesto](#): 09/17: 60 Brazilian NGOs signed a **call for action** to companies and investors **in defence of Brazil's Cerrado**.
- [Statement of Support \(SOS\)](#) of the Manifesto: 10/17: 10/17: 23 global companies **declared support of the Manifesto**. Now they [reach 132](#), including more than 50 global investors managing [over US \\$5.6 trillion in assets](#). SOS companies are engaging global traders and Brazilian producers' associations on a concrete **implementation roadmap**.
- [Chinese Sustainable Meat Declaration](#) was signed by the China Meat Association (CMA) and 64 Chinese leading meat companies (out of CMA's 11,000 members). It pledges to **avoid conversion of natural vegetation in livestock production and feed value chains**.
- Unprecedented opportunity for **curbing of the World's largest deforestation and conversion front** (in average one million hectares / y) **by 2020**.
- [Cerrado as a new priority](#) of the global conservation agenda (opening it for other non-forest ecosystems).



Cerrado Manifesto



THE
DE

The undersigned civil society organizations call for immediate action in defense of the Cerrado by companies that purchase soy and meat from within the biome, as well as by investors active in these sectors. This includes the adoption of effective policies and commitments to eliminate deforestation and conversion of native vegetation and disassociate their supply chains from recently converted areas.

THE MARKET:
DEFORRESTATION MUST BE STOPPED

September 11th, 2011

MANIFESTO COSIGNERS

- WWF-Brazil
- Greenpeace Brazil
- Amazon Environmental Research Institute (IPAM)
- Institute of Agricultural and Forest Management and Certification (Ima)
- The Nature Conservancy (TNC)
- Earth Innovation Institute (EII)
- Institute for Society, Population and Nature (ISPN)
- Conservation International – Brazil (CI-Brasil)
- Association for the Preservation of the Upper Itajaí Valley (APREMAV)
- Green Initiative

- GeoLab/USP
- Lagesa/UFGM
- Lapig/UFG
- PHS
- Life Center Institute (ICV)
- Amazon Institute of People and Environment (IMAZON)
- Socio-Environmental Institute (ISA)
- Pro-Nature Foundation (Funatura)
- Conservation Strategy Fund (CSF)
- Minas Gerais Association for Environmental Defense (AMD)
- LABAQUAC/Hippocampus Project
- Ecological Research Institute (IPÊ)
- Boticário Group Foundation for Nature Protection

- BVRio Institute
- Law for a Green Planet Institute
- Amigos da Terra - Amazônia Brasileira
- Wildlife Conservation Society – Brazil (WCS-Brazil)
- Institute for the Conservation and Sustainable Development of the Amazon (IDESAM)
- Çarakura Institute
- Biodiversitas Foundation
- American Man Museum Foundation (FUMDHAM)
- National Wildlife Federation (NWF)
- Ecoa – Ecology and Action
- GTA Network
- Zero Deforestation Group
- Forest Code Observatory

Chinese Meat Declaration

Continuously move to conserve nature and resources by avoiding land degradation, deforestation and conversion of natural vegetation in the livestock production and feed value chains.



中国肉类可持续发展宣言 Chinese Sustainable Meat Declaration

2017.10.17·青岛·Qingdao

日益增长的人口对肉产品的需求给环境、社会和经济带来了前所未有的压力和风险。肉类生产对自然资源造成的生态影响非常深远。正对肉类的压力造成巨大挑战，威胁到我们的后代留下一个可居住和繁荣的星球的能力。

我们承诺将肉类生产作为全球经济、社会与环境可持续发展的关键组成部分，努力使其成为完全有益于民生的产业。整个肉类供应链的透明度和可持续性，是取得可持续发展的关键。我们承诺将采取切实措施，确保肉类供应链的可持续性，社会和环境发展生产知识和能力是至关重要的。

世界自然基金会和中国肉类协会联合发布倡议，中国肉类产业从业者共同承诺将采取切实措施来改善生产，通过我们的共同努力，提高肉类生产、贸易与消费的可持续性。

我们承诺_____声明，并在此项宣言下，公开承诺对社会、经济、环境等方面负责。进一步承诺提高肉产品的可持续性发展。实施如下行动：

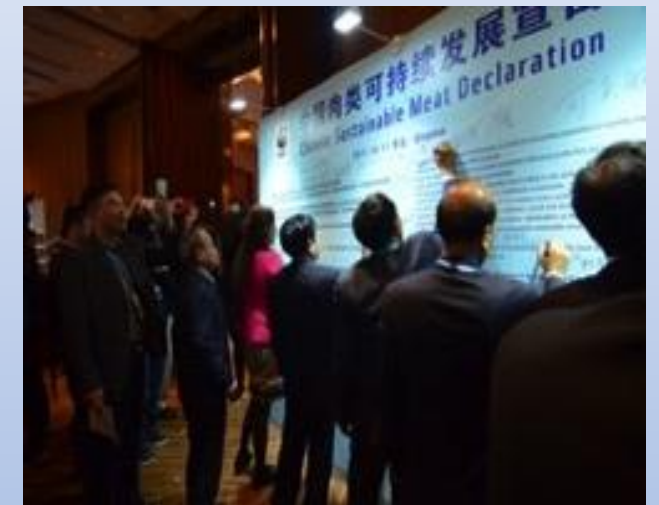
1. 在畜牧业饲料种植过程中，加强土壤保护和恢复，防止土壤退化、盐碱化和生物多样性丧失问题；
2. 在畜牧业、肉类生产供应链中，不砍伐森林和转换用途；
3. 持续提高节水、能源、土地等在内的资源利用效率，提高肉类产品使用价值和利用率，减少温室气体与污染物的排放；
4. 持续提高肉类产品供应链管理过程的透明度和可追溯性；
5. 持续提高肉类产品供应链中企业、中小企业的经营管理水平；
6. 改善肉类供应链的屠宰过程中动物的福利；
7. 加强供应链各方之间的对话与协作，建立共识，平衡供应链内各方利益和诉求，实现供应链的良性与推广；
8. 制定长期规划计划，建立定期汇报、监测评估和不断改进的工作机制，逐步推进中国肉类可持续发展目标的实现。

The growing global demand for meat products to feed an increasing population is creating unprecedented pressures and opportunities on the environment, society and the global economy. Impacts to natural resources and ecosystems associated with meat production are causing serious challenges to our ability to leave a healthy planet able to meet the needs of future generations. The vital positive role that meat production plays in providing for the global economy, our city, and to the environment must be developed and supported to ensure livestock is a net positive contributor to humanity. The entire meat value chain plays a major role in creating a more sustainable and positive livestock sector and supporting the promotion of production and trading practices that provide economic, social and environmental benefits now and into the future. Jointly initiated by WWF and China Meat Association, stakeholders in the Chinese meat industry jointly declare our commitments and call other stakeholders to support concerted efforts to promote sustainable meat production, trade and consumption.

We behalf of _____ we commit, and agree to promote sustainable meat with integrated efforts in social, economic, and environmental dimensions through taking the following actions:

1. Continuously move to conserve nature and resources by avoiding land degradation, deforestation and conversion of natural vegetation in the livestock production and feed value chains.
2. Continuously avoid and eliminate deforestation during animal husbandry, meat production and trade.
3. Continuously increase resource efficiency including water, energy and land, increase product value and utilization, and reduce negative impacts such as GHG emissions and pollution.
4. Continuously improve transparency and traceability in supply chain management.
5. Continuously improve the protection of rights and benefits for small & medium companies and smallholders in the supply chain of meat products.
6. Continuously improve animal welfare throughout livestock production, transportation and slaughtering.
7. Strengthen multi-stakeholder dialogue and build consensus for continuous dissemination, sharing and extension of sustainability concepts, best practices and lessons learnt in meat production.
8. Develop long-term plans, and establish the regular reporting, overall assessment and continuous improvement mechanisms to progress the sustainable meat project in China.

联合发起单位 / Co-initiators





Brazilian merganser (*Mergus octosetaceus*) is one of the six most threatened waterfowl in the world with possibly fewer than 250 birds left in the wild - and declining

<http://www.iucnredlist.org/details/22680482/0>