

The Problem with Cattle Raising in the Brazilian Amazon



Picture 1: Deforestation has a devastating impact on the ecosystems it takes place in. Many cleared forests, such as in the Amazon, are used for cattle raising. (Credit: Photo by [Pok Rie: Pexels](#))

Cattle raising in the Brazilian Amazon is a [major driver of deforestation](#). The combination of deforestation and soy production for livestock feed compromise its sustainability. In fact, deforestation of the Amazon is reaching a critical [die-back tipping point](#). This is a problem because the Amazon contains 30% of the world's rainforest. It also holds 20% of the world's freshwater resources. As such, it's often regarded as the "[planet's lungs](#)". Amazon conservation is paramount as this impressive region provides essential ecological services. It acts as a [carbon sink](#), which are systems that absorb more carbon from the atmosphere than they release. This stabilizes the world's rainfall patterns and stores massive amounts of carbon that mitigate climate change.



Picture 2: A region of outstanding natural beauty, the Amazon potential for sustainable ecotourism is unlimited. (Photos by the author, 2015)

The only way to preserve the Amazon is to stop clearing it. This means addressing the increased demand on Brazilian farmers to raise cattle for beef consumption. This doesn't mean that everyone needs to switch to a vegetarian diet. As discussed in one of our [previous articles](#) about veganism, we can respect cultural preferences, provided the food comes from a sustainable source.

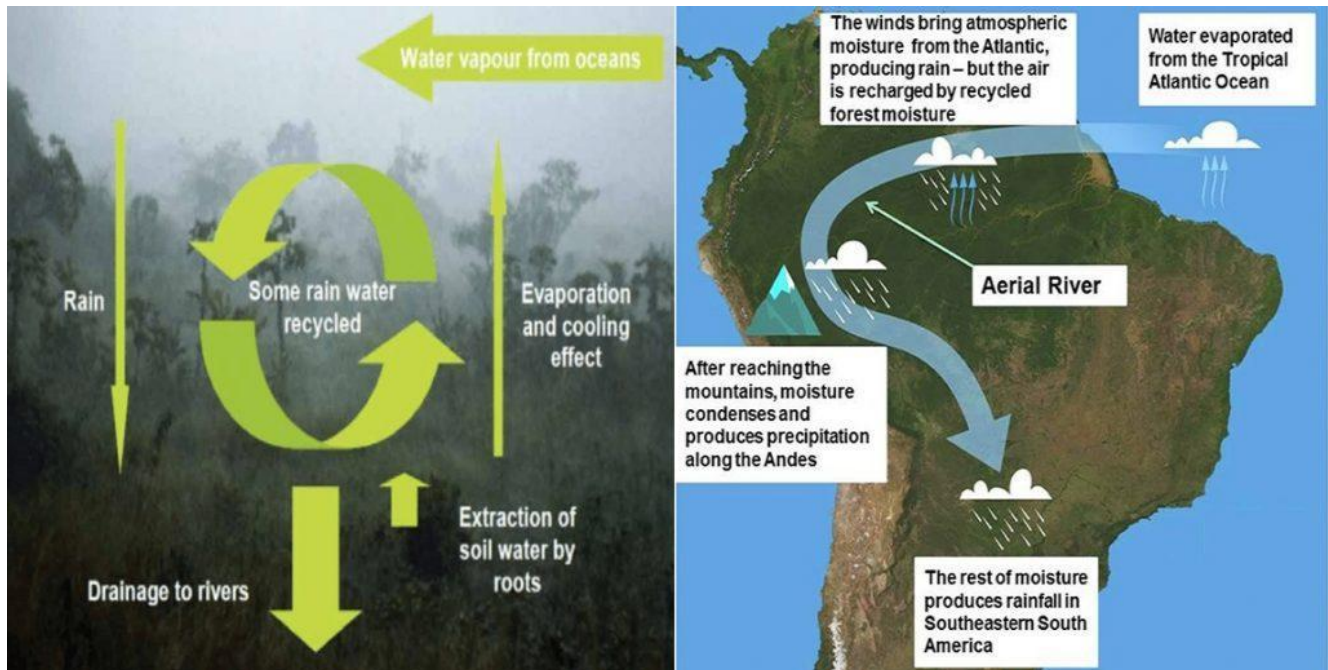
The Brazilian Amazon is huge

Brazil accounts for more than 60% of the Amazon. This area exceeds four million square kilometres and represents 49% of Brazil's territory. For perspective, that's an area equivalent in size to Western Europe. From the Brazilian population of 210 million inhabitants, 21 million live in the Amazon, [70% of these in cities](#).

This large area is under constant threat of destruction by interest groups aiming to exploit its lands for logging, mining, and cattle ranching. In 2011, [44% of the Brazilian Amazon](#) was officially protected within national parks (22%), and native Indian reserves (22%). However, due to the difficulty of policing such a large area, these reserves are not effectively protected.

Amazonian ecological services

The diagrams below illustrate how the Amazon impacts Earth's climate system.



Picture 3: rainforest water cycle, left, (By [researchgate.net](https://www.researchgate.net), 2009), and the flying river phenomenon, right, (By [Riosvoadores.com.br](https://riosvoadores.com.br), 2019)

Equatorial regions, such as the Amazon, receive an enormous amount of solar radiation all year round. Then, global circulation carries the evaporation from the Atlantic Ocean westward. There it falls as rain into the forest at an annual rate above 2000 mm. The moisture present in the soil contributes to the hydrologic cycle and overall rainfall, which in turn re-saturates the soil. An average Amazonian rainforest tree will release [1000 litres of water vapour](#) into the atmosphere every day.

The [flying rivers](#) of the Amazon are vital

The evaporation from billions of trees feeds saturated clouds and creates a stream of moisture. The clouds move southwest forming a phenomenon known as [flying rivers](#). These are responsible for the abundant rainfall over lands as far as southern Brazil and other South American countries. Scientists have associated the [drought in those regions](#) in 2020/21 with the clearing of the Amazon. They believe it caused the failure of the flying river phenomenon. Thus, it is crucial that we leave forested areas intact. We need them to maintain the process of moisture recycling and provide a natural defence against [increasing temperatures](#).

History of cattle raising in the Brazilian

Amazon

The original Amazonian inhabitants [relied on the abundance of fish, seeds, nuts and land animals](#) as sources of protein. Unfortunately, European colonisation changed this traditional lifestyle and thus their food sources. In 1960, human life expectancy was a low average of 39 years. The Brazilian Agricultural Research Enterprise, ([EMPRAPA](#)) claims this was mainly due to undernourishment. However, this information hasn't been verified. To combat this undernourishment, the Brazilian government adopted policies to incentivize cattle raising.

However, cattle ranching is unsustainable because it requires substantial rainforest clearing. After this clearing, the Amazonian shallow soils cannot sustain healthy pastures on a permanent basis. This results in further deforestation and land degradation. People constantly engage in slash and burn practices to create better pastures that [never become reality](#).

Extraction of natural resources

The original inhabitants of the Amazon were able to extract resources from the rainforest in a [sustainable manner](#). They had a simpler lifestyle and used low-technology methods to draw natural resources from the rainforest. These activities include sustainable hunting, fishing, and the extraction of rainforest products. Many plant species are still collected. These include rubber, Brazil nuts, Guarana, [Açaí berries](#), and many others. Some of these have become commercial plantations. Forest workers, known as rubber tappers, still extract the sap of the rubber tree, [Hevea Braziliensis](#). As these activities don't cause a large impact on the rainforest, they are sustainable.

By contrast, modern economic activities negatively impact the Amazonian natural environment. Such activities include agriculture, herding, trade, handicrafts, and industries such as mining. Research reports that many commercial [agricultural practices are not sustainable](#). They cause significant soil erosion and river siltation. They also cause aquatic contamination due to using agrochemicals.

Expansion of the agriculture frontier

From 1964-1985, a military government held power in Brazil. They set the pace for the colonization of the Amazon with the motto “**Integrate to not Give in**”

("Integrar para nao entregar" in Portuguese). Unfortunately, they chose cattle as the main economic activity driving its occupation. Thus the low price of land and [subsidies from SUDAM](#) (Amazon Development Agency) saw the agricultural frontier expanded by southern immigrants.

Politics and environmental protection

Reconciling Amazonian conservation with cattle raising is a controversial subject in Brazil. Brazil has 88% of the Amazon cattle herd, at about 50 million heads, on a pasture area of 36 million hectares or 360,000 km². This is about 9 percent of the Brazilian Amazon, an area equivalent to the size of Germany. Despite these numbers, the cattle ranching industry in Brazil struggles to provide [food security](#). For example, Brazil faces global criticism for deforestation that negatively impacts the rest of the world. The increased international pressure has made it [difficult to sell its beef](#).

Brazilian environmental legislation

Officially, the Brazilian Federal Union [owns most lands](#) in the Amazon. However, Brazilian legislation establishes that physical occupation of land entitles one to ownership. This encourages the practice of hostile land takeover. Companies hire armies of land grabbers with hired gunmen (*grileiros*) and squatters (*posseiros*). In fact, a 2003 study by the [World Bank](#) reported that large logging and landowning companies often finance these invaders. They hold the land until legal ownership is eventually granted to the company.

The main function of the Brazilian Environmental Protection Agency ([IBAMA](#)) is to carry out licensing and law enforcement operations. However, they face major challenges due to the immense size of the region and the difficulties of working with the local stakeholders. Thus, there is a persistent need for greater surveillance and enforcement capacity.

Democracy and reduction in deforestation

Environmental protection depends on the political faction in power. This is because governments are responsible for proposing and enforcing legislation. International pressure also plays a major role in forcing Brazil to adopt some measures to curb deforestation. From 2003 to 2014, Brazil had a more

environmentally conscious government. As such, they enacted environmental legislation to protect the forests. The chart below shows that the number of cattle heads increased from 20 thousand in 1988 to 80 thousand in 2012. However, [deforestation decreased](#) from a peak of 35 thousand km² in 1995 to 5 thousand km² in 2012.

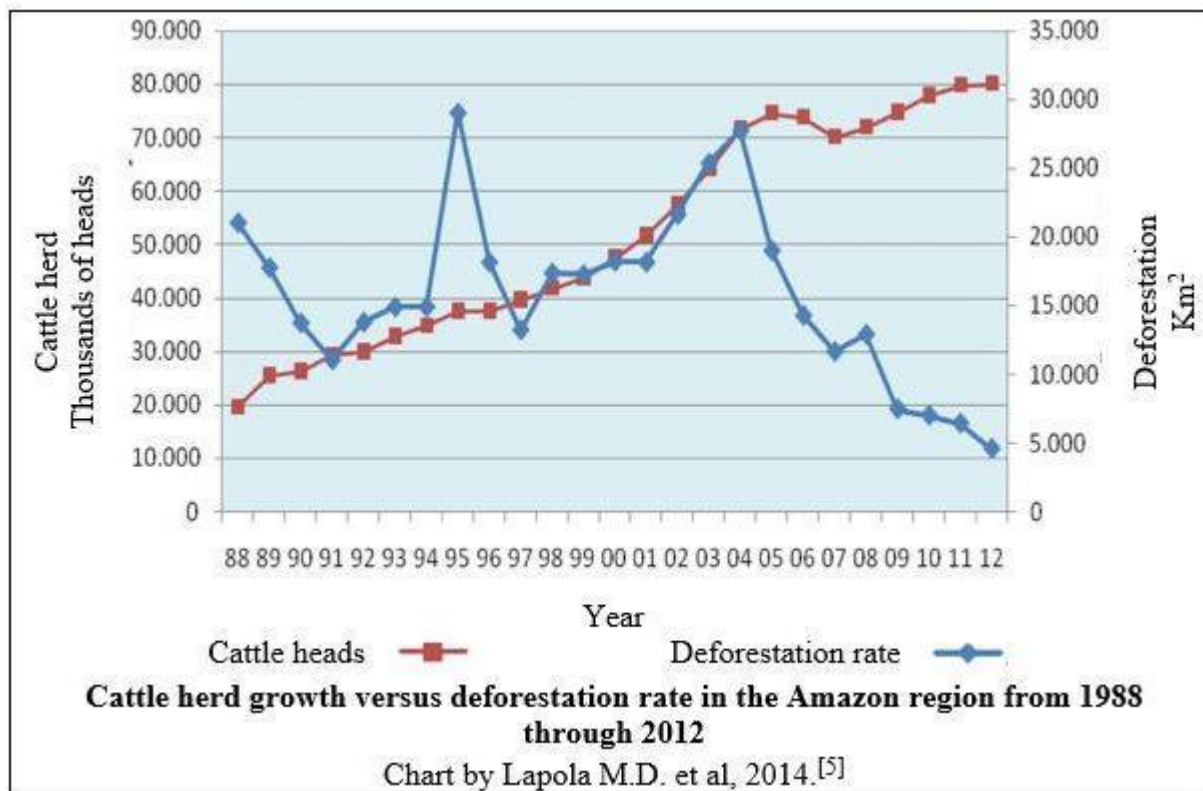


Chart 1: Positive change towards conservation in the new millennium.

Chart by [Lapola et al.](#), 2014

Political turmoil in Brazil

In 2016 the president of Brazil was impeached. Two years later, a new right-wing government took its place. Since then, the deforestation of the Amazon rainforest has surged. According to Brazil's Space Agency (INPE), it reached a 12-year high in the twelve months before July 2020. During that time an estimated 11,088 km² of forest was [logged or burned](#), an area larger than the country of Lebanon.

The current Brazilian government has dismantled or weakened environmental enforcement. As such, it has drawn widespread international criticism. It falsely accused Amazon Protection Non-Governmental Organisations (NGOs) of environmental crimes. [It also introduced legislation](#) that trampled on the land rights of indigenous tribes.

Alternatives to cattle raising

[Several studies](#) have suggested that cattle raising is not suitable for the Brazilian Amazon lands. Sustainability is key for human population and ecosystems to [THRIVE](#). From a **social** perspective, sustainable natural resources yield larger benefits than cattle ranching. However, ranching generates higher **private** financial returns. To investigate further, the [World Bank](#) evaluated a number of [sustainable](#) economic activities. It examined their capacity to produce income without causing deforestation. They then compared this to the value of income from cattle ranching, which is US\$75 per hectare/year. The study calculated the economic cost of deforestation when compared to alternative activities.

Findings:

The monetary value as shown in US\$ per hectare per year.

1. Timber and non-timber products, and Ecotourism: considered to have a **direct use value** of US\$37.7 per ha/year.
2. Preserving the forest (**carbon stocking**) yielded an **indirect use value** of US\$18 per ha/year. This means that the stored carbon in the forest won't add to the already saturated atmospheric carbon.
3. **Bioprospection** is the existence of plant products, some unknown, suitable for the cosmetic, food and pharmaceutical industries. It received a value of US\$21 per ha/year.
4. Finally, they attributed the **sole existence of the forest** a value of US\$31.2 per ha/year. This is because of its association with biodiversity conservation.

While this data is not 100% precise, using a model for estimating the cost of deforestation is a useful tool. At US\$108 per hectare/year, sustainable economic activities compared favourably to cattle ranching, at US\$75 per hectare/year. If the region's landowners accepted this value in exchange for land clearing, it could make the economic use of the Amazon viable and sustainable.

How to increase efficiency of beef production

Because farmers will not give up cattle raising in the Amazon, it must become more efficient. [Animal husbandry scientific research](#) has investigated and devised BMPs, [Best Management Practices](#), more suitable to the Amazonian environment. Below are several measures aiming to increase productivity of cattle raising without further land clearing.

- A more rational grazing system may use [pasture rotation](#). Cattle graze in a fenced-off plot of pasture, and then relocate to another plot to allow the soil and vegetation in the previous plot to recover. This measure helps to recover degraded land
- Improve productivity in the Amazon by increasing the average [density of herds](#) from 1.26 to 3 head of cattle per hectare
- Use [intercropping](#), (the strategy of planting perennial trees on pastureland), to reduce soil erosion, maintain higher soil quality and offer shade to the animals
- Development of more [appropriate grass species](#) and varieties for the particular pasture area

How to align conservation with cattle raising?

Many research programs, including the [United Nations REDD](#), (Reducing Emissions from Deforestation and forest Degradation); have suggested the following measures to [align forest conservation and cattle ranching](#).

- Governments must work with farmers and not against them, providing technical assistance in the transition to sustainability
- Government agencies in every jurisdiction must agree on a single, simple definition of success in lowering deforestation
- Beef processing companies must check the cattle source regarding their [assurance of sustainability](#), as endorsed by inspecting agencies.

[THRIVE](#)'s sustainability platform is a tool that can verify their claims

- The World Bank must change its conservative approach and seek sustainable development instead of conservation only. In doing so, the two approaches are complementary
- Governments can also introduce an ecological [value-added tax](#) at state and country level, to spend on protecting the environment

Conclusion

Many studies have confirmed that it is possible to use the Amazon economically and sustainably. The extraction of Amazonian rainforest products for human nourishment and health is key in promoting conservation.

For our survival, cattle raising practices must change, to reduce their impact on the environment and our climate. If we reduce our demand for beef, we will reduce cattle raising profitability and thus deforestation. However, the strategy should be to work with cattle ranchers and not against them.

By adopting principles of [SUSTAINABILITY](#), cattle raising and conservation can coexist in a win-win situation for cattle ranchers, traditional workers and native people. The rainforest, its animals and humans can ***THRIVE***, for the benefit of the whole planet.