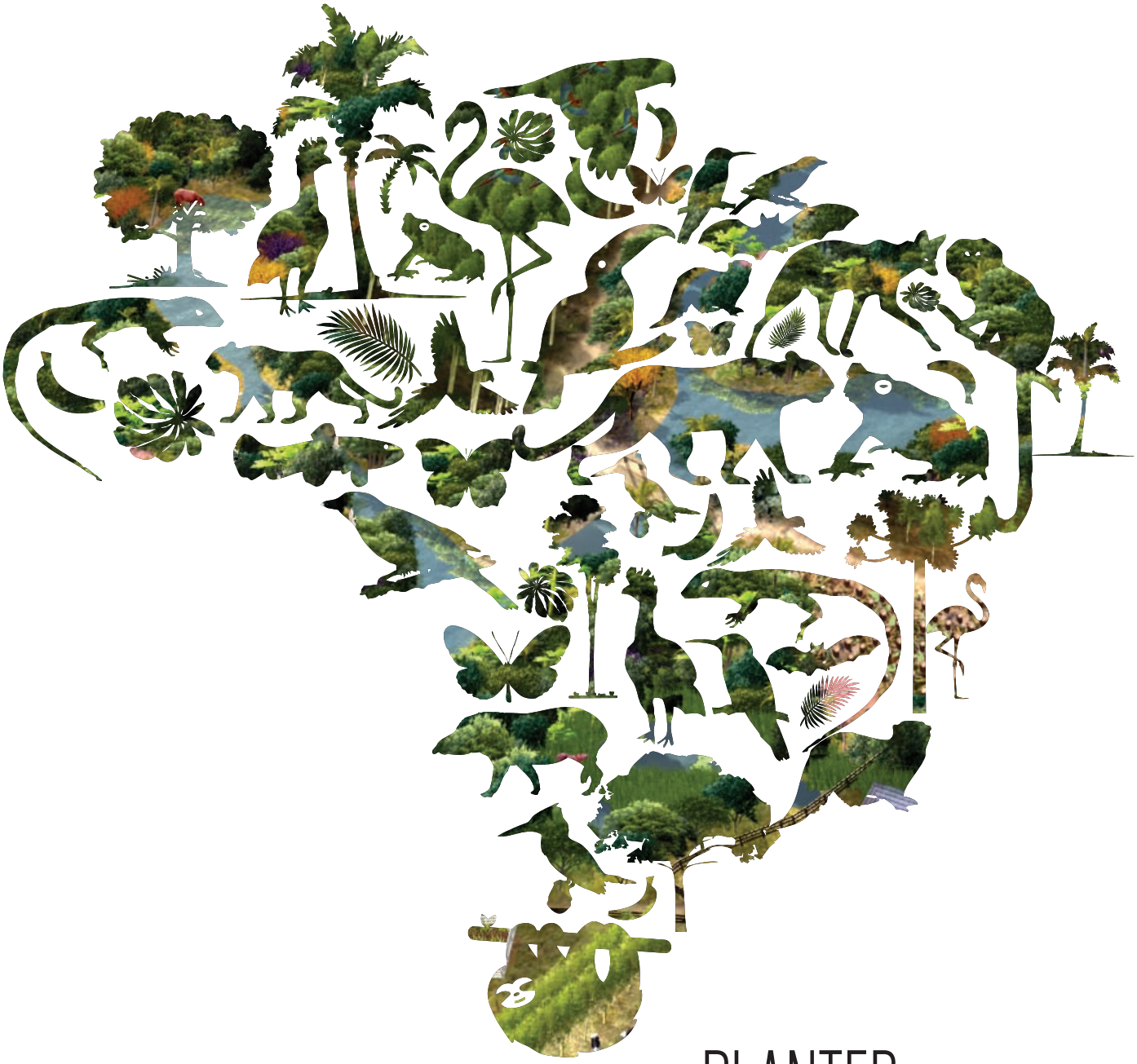
brazilian tree industry



PLANTED TREES AND BIODIVERSITY

www.iba.org

Brazil is home to the greatest biodiversity on the planet: its vast territory, distinctive biomes, and favorable climatic and soil conditions result in a huge wealth of flora and fauna. It is estimated that the country holds **20% of the world's biodiversity and 30% areas of tropical forest.**

When it comes to the use of land for productive farming, whether this is for agriculture, forestry, or other uses, there is the frequent and incorrect perception that production and conservation cannot go hand in hand.

Biodiversity has gained force in the development strategies of companies and governments. In this context, government policies and mechanisms to combat deforestation and create protected areas are essential.

But government actions alone are not enough. Studies show that if the high rates of tropical deforestation are maintained, in 100 years 40% of the species that currently exist on Earth will be extinct.

The planted tree sector believes that the **solution to conserving biodiversity should be in line with economic development projects,** and recognizes the importance of biodiversity to supplying products (such as medicines and cosmetics) as well for ecosystem services, such as quality and maintenance of water flow.

The industry has been working on initiatives to demonstrate and value biodiversity and the role of the industry in conserving this fundamental asset.

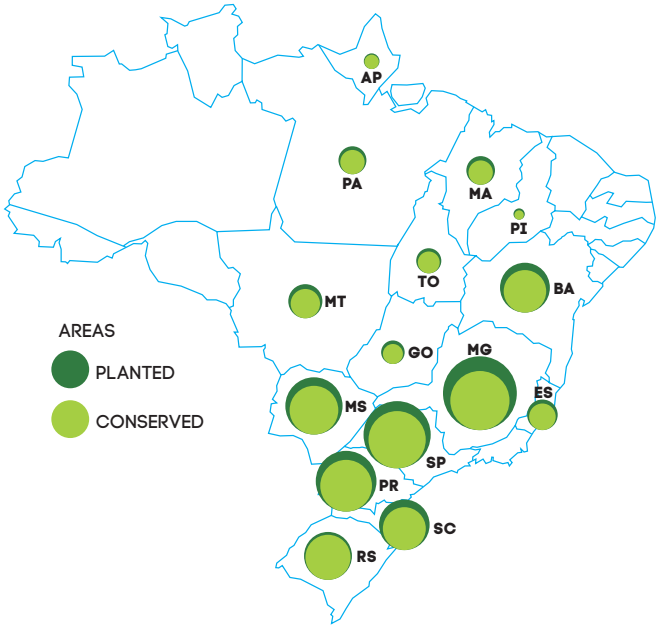
Despite having a different structure than natural forests, **trees planted for productive purposes play an important role in conserving biodiversity** and inducing the recovery of natural forests through techniques such as **mosaic planting.**

These in turn form so-called **"ecological corridors"** that comprise planted and natural areas and serve as habitat for animals, plants, and micro-organisms.

As a result, **appropriate landscape management goes against the idea that planted forests are green deserts.** Large investments in technology and best practices in management guarantees the Brazilian tree industry a groundbreaking position in efficient production, allowing **sustainable intensification**: producing more with less.

These forests are planted in areas that are suited for efficient production, preserving fundamentally important areas for this purpose. Over the following pages you will explore some concepts, practices and initiatives promoted by the sector in order to conserve biodiversity.

DISTRIBUTION AND CONSERVATION OF PLANTED FORESTS BY THE PLANTED TREE INDUSTRY



Note: in the other states where Ibá associates are active, planted and preserved areas are less significant.

THE ROLE OF THE FOREST SECTOR IN RESTORING DEGRADED LAND

The forest sector plays an important role in restoring degraded areas.
Today, companies in the sector are responsible for nearly 6 million hectares set aside for conservation - these include restoration areas, Areas of Permanent Preservation (APP), Legal Reserves (LR), and Private Reserve of Natural Heritage (PRNH). Besides helping to restore ecosystem services like regulating water and avoiding impacts on the soil, they also contribute to biodiversity conservation.

BEFORE: DEGRADED LAND

In 2015 alone, Ibá member companies began the process of restoration in 45,000 hectares of degraded land for preservation purposes.

AFTER: RECOVERED AREA

LANDSCAPE MANAGEMENT AND BIODIVERSITY

The Brazilian forest sector, in addition to its significant commitment to land use regulations (through the Brazilian Forest Code and Licensing), works with management practices which consider scale and intensity and are intended to mitigate impacts and/or promote conservation of biodiversity.
This strategy has an important role in reaching Aichi Target #7, which targets sustainable forestry management, ensuring biodiversity conservation.

1 FIRE TOWER
Structure used to identify and prevent forest fires.

2 OUTGROWER PARTNERSHIPS
Partnerships between companies and local producers that generate employment, income, guaranteed production, and environmental regularization of properties.

3 ECOLOGICAL CORRIDOR
A strip of vegetation that connects two or more similar habitat blocks.

4 APP
Areas of permanent preservation include areas of natural vegetation on hilltops and steep slopes and on the banks of streams and rivers, lakes, ponds, and springs. APP aims to preserve natural resources, promoting geological stability and the well-being of people.

5 LR
A legal reserve is a part of a property which must have its covering vegetation maintained; it may be used to generate income when this is authorized by an environmental agency or established in a management plan. The size of the area varies according to the biome.

6 APP AND AQUATIC BIODIVERSITY
Well-preserved aquatic habitats provide habitat for fish, amphibians, and aquatic plants and are essential for preserving fauna and flora.

7 HARVEST
Sustainable harvesting adopts practices that reduce impacts. One example is leaving residues (bark, branches and leaves) at the harvest site to enrich and conserve the soil. Harvesting is done in the direction of the natural forests, so wildlife can migrate to these areas.

8 ROADWAYS
Roads are planned to fulfill their function using the smallest area possible (with the least impact to the environment), but large enough to ensure the safety of operations and their users as well as to serve as firebreaks and prevent forest fires.

9 TURNAROUND
A tool for better land use when there is no space to build new roads or when the management plan avoids clearing new areas.

10 AGE MOSAIC
To ensure heterogeneity through vertical stratification (different stages of growth); the strata have different resource requirements and serve as habitat for many types of flora and fauna that live in the same environment.

11 BUFFER ZONE
These rows of the plantations are meant to supply industry and to mitigate the edge effect.

! CERTIFICATION OF FOREST MANAGEMENT
Nearly 6 million hectares are certified by FSC and/or Cerflor/PEFC.
The certification systems set several indicators for biodiversity monitoring and management, and do not allow conversion of natural areas.

! FOREST DEFENSE
Rational use of pesticides registered for use in forest production.
These are evaluated according to aspects of biosafety.

7 years
5 years
PLANTATION
2 years

BEEKEEPING
POST-HARVEST AREA
HARVESTING
NURSERY
CITY
FACTORY
GARDEN
CROP-LIVESTOCK-FOREST INTEGRATION

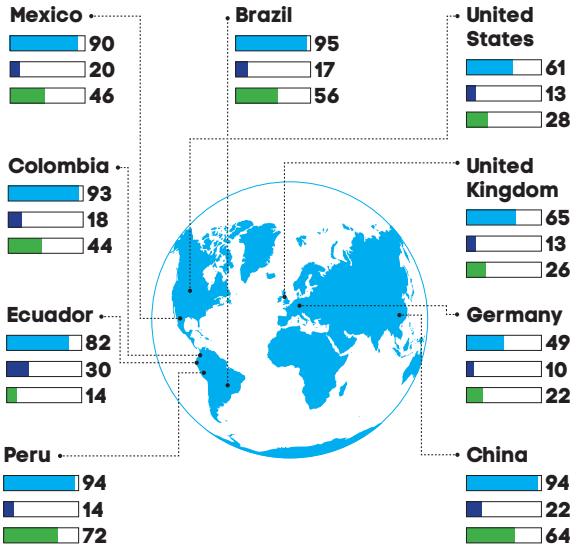
BIODIVERSITY IN THE NUMBERS

The perception of biodiversity has grown in society and among companies. The planted tree sector has played a part in identifying and managing biodiversity in its areas, which occupy less than 1% of the national territory. The first step in conservation is expanding knowlege and understanding of the topic.

GLOBAL RECOGNITION

The Ethical Union for Biotrade conducted a survey that indicated increased awareness and societal concern with regard to biodiversity and society's expectations from organizations on this topic:

- **Have heard about biodiversity (%)**
- **Partially aware of biodiversity definitions (%)**
- **Have correct knowledge of biodiversity indicators (%)**



CONSUMERS

- **Believe it is important that companies have biodiversity policies**
- **Are interested in purchasing products from companies that respect natural resources**

Brazil
92%
90%

Source: Ethical Union for Biotrade

BUSINESS COMMUNITY

86.7% **Managers who recognize the importance of biodiversity for business.**

84% **Businesspeople who recognize that the country has not taken advantage of this market's full potential.**

The main motivations are market reputation, reduced costs, and increased competitiveness.

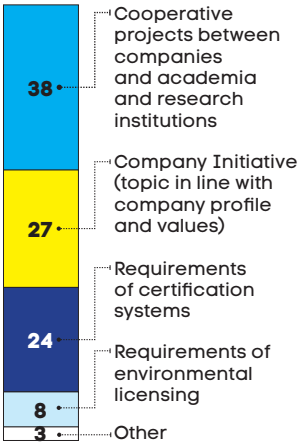
Source: CNI, 2016

DATA

A study conducted by Ibá among its associated companies, showed that the sector's contributions to biodiversity are not recent.
These initiatives date back to the early 1970s, and have intensified in recent years as companies, governments, and society see this issue as increasingly relevant.
The following are some of the results of the study.

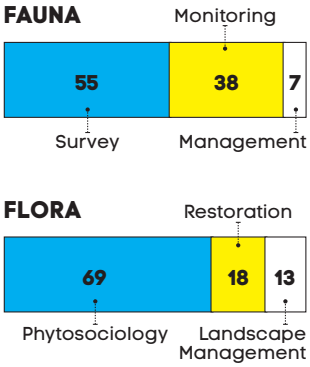
CATEGORY

Of projects (%)



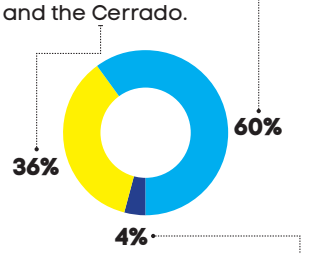
PROJECTS

Distribution (%) of projects mapped in the biodiversity database:



BIOMES

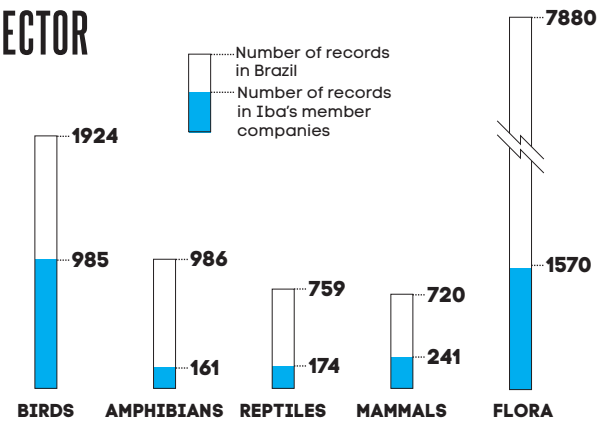
Most of the studies focused on the Atlantic Forest and the Cerrado.



These are where most of the companies are located.
Studies were also conducted in the Pampas, Amazonia, and Caatinga.

THE IMPORTANCE OF THE SECTOR

To the right you can see the sampling results of the studies surveyed in comparison to the species registered in Brazil.
Note that the small numbers of some species do not indicate that they do not exist, but rather that at this time fewer studies have been conducted or included in the sectoral database.



Birds are important environmental bioindicators, especially with regards to connectivity, the edge effect, and biodiversity corridors.

Studies recorded in the database (a small sample from a larger universe) show significant numbers of planted tree companies, and their commitment to conserving Brazilian biodiversity.

SCIENCE AND PROFESSIONAL TRAINNING

36 Universities
21 Research Institutes
117 Advisors

Professional training for specialists contributes to one of the Aichi Targets (#19) by promoting knowledge management and technical training.

Information gathered by the sector's biodiversity database indicates its relevance in biodiversity conservation, knowledge management, training on the topic, and in meeting the Aichi Targets.

CONTRIBUTIONS BY THE INDUSTRY

The importance of biodiversity is recognized and valued by the forest sector. Biodiversity offers a wide variety of environmental services and an extraordinary bank of genetic materials for solutions to global challenges through responsible use of natural resources. Flora are important as a source for wood and non-wood products; fauna are natural enemies of pests and efficient seed dispersers and pollinators. Many species are found in areas managed by the Brazilian planted tree industry.

STATUS OF THREATENED SPECIES

Vulnerable (VU) **Endangered (EN)** **Critically endangered (CR)**

Source: Brazilian List of Endangered Species

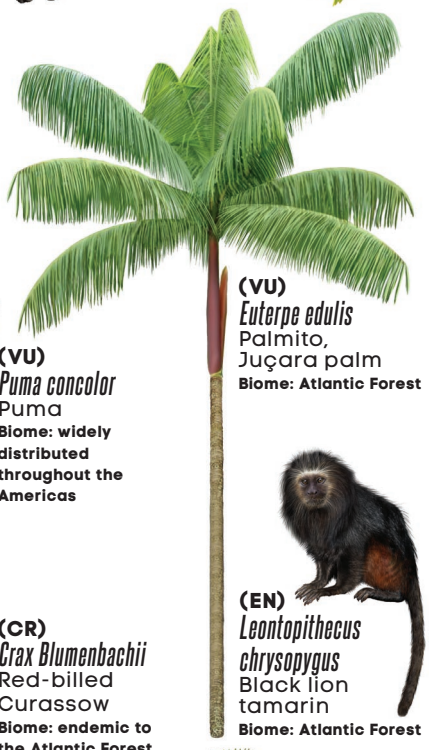
38% Mammals **41%** Birds of threatened species were found in areas pertaining to forest based companies.

Aspidosperma polyneuron
"Peroba rosa"
Biome: Atlantic Forest and Cerrado

(VU) *Chrysocyon brachyurus*
Maned wolf
Biome: Cerrado

(VU) *Amazona pretrei*
Red-spectacled amazon parrot
Biome: Atlantic Forest

(EN) *Brachyteles arachnoides*
Southern muriqui
Biome: Atlantic Forest

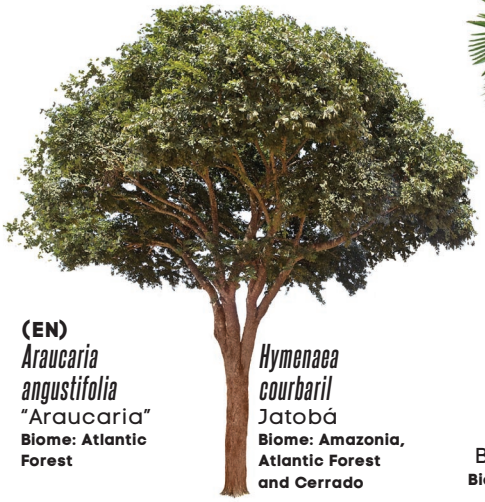


(VU) *Euterpe edulis*
Palmito, Juçara palm
Biome: Atlantic Forest

(VU) *Puma concolor*
Puma
Biome: widely distributed throughout the Americas

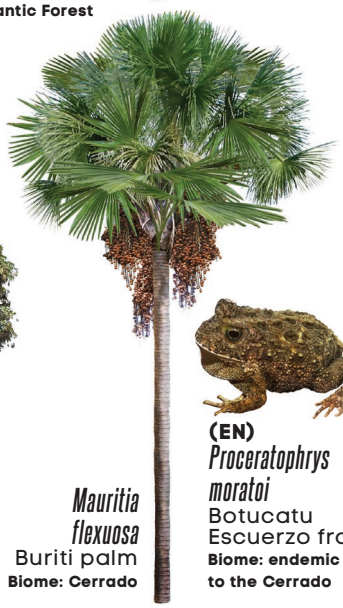
(EN) *Leontopithecus chrysopygus*
Black lion tamarin
Biome: Atlantic Forest

(CR) *Crax Blumenbachii*
Red-billed Curassow
Biome: endemic to the Atlantic Forest



(EN) *Araucaria angustifolia*
"Araucaria"
Biome: Atlantic Forest

Hymenaea courbaril
Jatobá
Biome: Amazonia, Atlantic Forest and Cerrado



Mauritia flexuosa
Buriti palm
Biome: Cerrado

(EN) *Proceratophrys moratoi*
Botucatu Escuerzo frog
Biome: endemic to the Cerrado

GLOSSARY

KEY CONCEPTS

The Aichi Targets
Twenty proposals grouped into five major strategic objectives meant to reduce the loss of biodiversity worldwide.
They should be implemented by 2020.

Bioindicators
Species of fauna or flora that indicate environmental quality.
The choice of biological indicators in biodiversity monitoring takes a variety of factors into account, for example: the number of individuals in the study area, how easy it is to view the species, well-known identification methods, and the number and availability of experts to conduct research.

Habitat fragmentation
A process whereby the continuity of a natural ecosystem is interrupted for other land uses.
The study of fragmentation analyzes how the landscape has been altered by humans, affecting the size, shape, and frequency of landscape elements (Odum and Barrett, 2011).

Edge effect
This is the tendency for species density and variety to increase at the point where communities meet (Odum and Barret, 2011).
It can also be a set of harmful factors that affect the physical and biological characteristics at the edges of a forest fragment (Lovejoy et al., 1986).
Both definitions address areas where two environments come together, a condition that deserves attention when cultivating land near conservation areas.

FSC
Forest Stewardship Council.

PEFC
Programme for the Endorsement of Forest Certification.