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Brazil's new Forest Code:

A guide for decision-makers in supply chains and governments

Brazil's new Forest Code:

A guide for decision-makers in supply
chains and governments

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2012

DEFORESTATION
RATES IN THE AMAZON
REACHED THEIR
LOWEST LEVELS
SINCE MONITORING
STARTED IN 1980

LAW 12.651

WHICH IS IN FORCE SINCE 25
MAY 2012, WITH IMPORTANT
REGULATIONS APPROVED IN
2014 AND OTHERS UNDER
DEVELOPMENT

365 MILLION

OF NATIVE VEGETATION ARE
OUT OF PUBLIC PROTECTED
AREA. MOST OF IT IS UNDER
THE FOREST CODE PROTECTION.

INTRODUCTION

Brazil's new Forest Code (Law no. 12.651) has been in force since 2012. This Code introduced new instruments that, once effectively implemented, allow for better monitoring of land use which will be crucial in the combat against deforestation and in ensuring environmental compliance, as well as in attaining Brazil's goals with respect to the reduction of greenhouse gas emissions.

The implementation of the forest law is a task that involves governments, businesses and ordinary citizens and Brazil is making progress in putting the Forest Code into practice. WWF-Brazil, in collaboration with WWF-US, decided to use its constructive interaction with agricultural, livestock and forestry commodity supply chain actors, into an engagement with this sector to firmly embrace the challenge ahead to ensure compliance with the law.

It is for this reason that we published "Brazil's New Forest Code, Guide for Decision-makers in Supply Chains and Governments.

The document arrives at a moment that society is adapting to the Law's new requirements and seeking to comply with the legal deadline for registration of rural properties into the federal registry, which is going to aggregate all information, followed by the preparation and implementation of the Environmental Compliance Programs and other mechanisms introduced by the law.

The Guide contains essential information and recommendations for decision-makers and on opportunities for different actors. It includes a technical supplement which provides access to the main aspects of the Forest Code and case studies with experiences that may help to define actions.

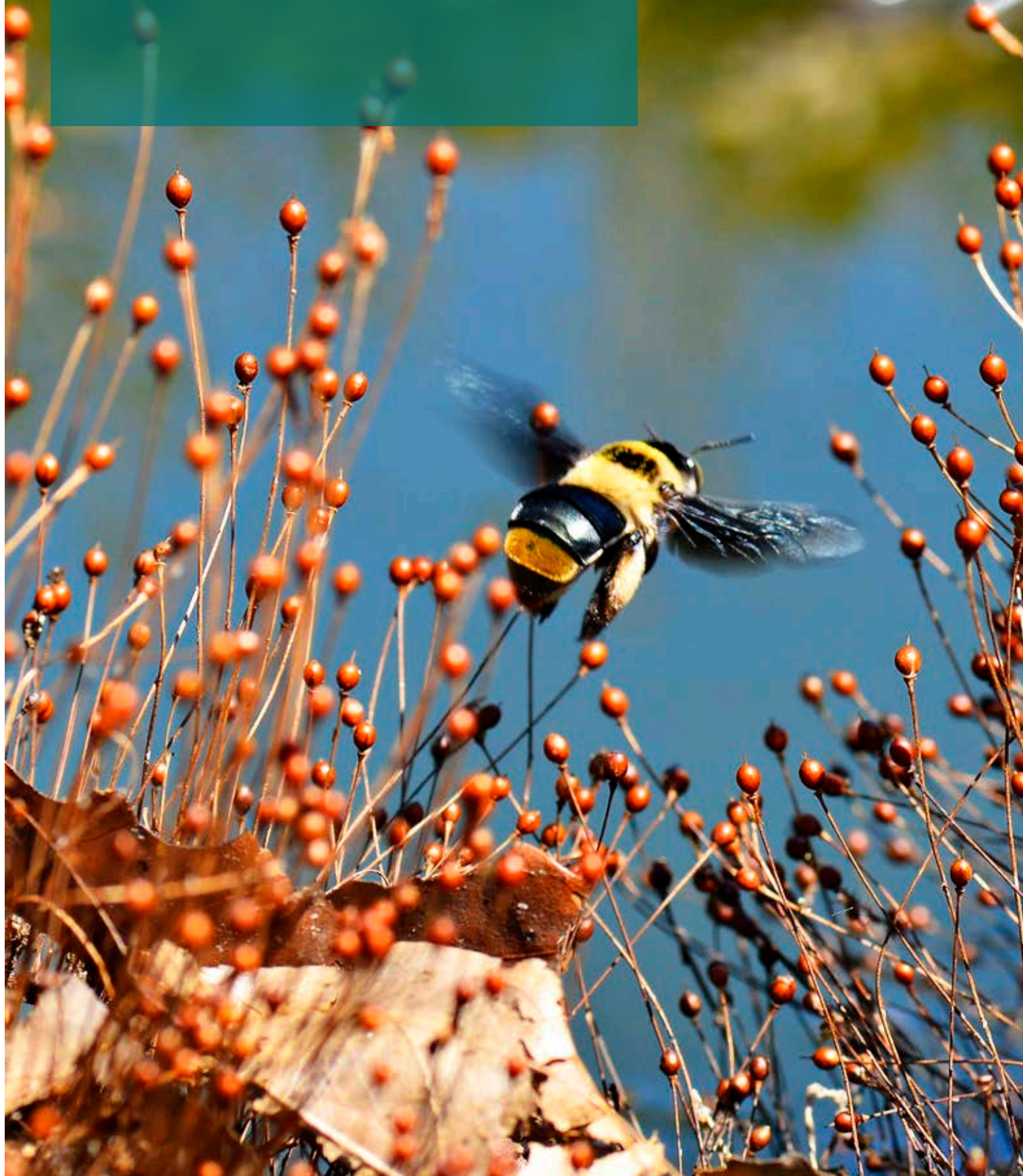
Besides the efforts expected from government in making the instruments introduced by the Forest Code fully operational and in ensuring compliance with the legal deadlines, we strongly believe in the potential of the private sector to contribute to this agenda and to further its implementation.

Enjoy reading

Carlos Nomoto
Secretary – General

SUMMARY

This document is intended to provide guidance to those who seek to improve their understanding of this law, in particular, decision-makers and supply chain actors who promote, regulate, produce, consume, export or import Brazilian agricultural.





Brazil's new Forest Code (Law nr. 12.651) has been in force since May 25, 2012, with important regulations approved in 2014 and others under development. This document is intended to provide guidance to those who seek to improve their understanding of this law, in particular, decision-makers and supply chain actors who promote, regulate, produce, consume, export or import Brazilian agricultural, livestock and forest commodities. To encourage implementation of this law and production that is in compliance with it, this guide presents a general overview of its key elements, the main challenges ahead and the opportunities it offers to the national and international private and public sectors.

Without the effective participation of decision-makers and supply chain actors, it is unlikely that the new Forest Code will be fully and effectively implemented. Therefore, we offer suggestions for commitments and other actions that agribusinesses, banks, governments at all levels, farmers and other stakeholders may take onto accelerate implementation of the new law. We also provide sector-specific recommendations through case studies of production chains important to the Brazilian economy: sugarcane, beef, soybeans, and paper and pulp.

Public and private sector actors should consider Forest Code compliance a first step towards responsible agricultural production, cattle ranching and forestry. Within the law, new legal instruments were introduced, which may lead to better environmental management and land use planning in Brazil. Of particular relevance are the Rural Environmental Registry (CAR, the acronym in Portuguese) and the Environmental Compliance Program (PRA, the acronym in Portuguese) which envisions the reforestation, restoration or offset of historically illegally deforested areas



This guide also provides suggestions for sound and effective implementation of these legal instruments, including a proposal for Smart Compensation from properties with deficits to properties localized in Priority Areas for Conservation and Sustainable Use.

FOR AGRIBUSINESS COMPANIES THAT BUY BRAZILIAN PRODUCTS, WWF'S MESSAGE IS TO WORK ONLY WITH SUPPLIERS THAT COMPLY WITH THE LAW AS A FIRST STEP TOWARDS A MORE COMPREHENSIVE APPROACH TO RESPONSIBLE PRODUCTION. THE CAR IS THE MECHANISM FOR DEMONSTRATING COMPLIANCE WITH THE FOREST CODE, BUT IT MAY ALSO BE USED TO GENERATE MORE ROBUST COMMITMENTS TO ZERO DEFORESTATION AND CERTIFIED PRODUCTION. THE RURAL ENVIRONMENTAL REGISTRY IDENTIFIES THE PROPERTY, ITS BORDERS AND ITS ENVIRONMENTAL DEFICITS. PRODUCERS, PRODUCER GROUPS, AND SUPPLY CHAIN ACTORS SHOULD COMMIT TO REDUCING THOSE DEFICITS THROUGH LEGAL COMPLIANCE, AND GO BEYOND.

WE RECOMMEND THAT FINANCIAL INSTITUTIONS STIMULATE IMPLEMENTATION OF CAR AND PRA BY OFFERING MORE FAVORABLE CREDIT CONDITIONS TO LANDOWNERS WHO COMPLY WITH, OR GO BEYOND WHAT IS REQUIRED BY LAW. IN ACCORDANCE WITH LAW NO.12.651/2012, THOSE LANDOWNERS WHO FAILED TO REGISTER THEIR PROPERTY IN THE CAR WILL NO LONGER HAVE ACCESS TO CREDIT FROM FINANCIAL INSTITUTIONS, AS OF 2017.

FOREIGN GOVERNMENTS ARE EXPECTED TO GUARANTEE THAT BRAZILIAN COMMODITIES ARE ONLY IMPORTED WHEN THE LEGALITY OF PRODUCTION CAN BE PROVEN, AND PREFERABLY, WHEN THE COMMODITIES COMPLY WITH ZERO DEFORESTATION COMMITMENTS AND RECOGNIZED SUSTAINABILITY STANDARDS.

WE ALSO RECOMMEND THAT BRAZIL'S FEDERAL AND STATE GOVERNMENTS ADOPT POLICIES TO ACCELERATE AND FACILITATE THE IMPLEMENTATION OF THE LAW. IN PARTICULAR, GREATER OPERATIONAL CAPACITY AND TECHNOLOGICAL INTEGRATION AS WELL AS THE DEVELOPMENT OF STRUCTURAL POLICIES FOR RESTORATION AND SMART COMPENSATION ARE NECESSARY. FURTHER, THE GOVERNMENT SHOULD FACILITATE CONDITIONS FOR TRANSPARENCY AND DEFINE AUTOMATED PROCEDURES FOR MONITORING AND ANALYSIS (VALIDATION) OF CAR AND PRA. IN ADDITION, THE GOVERNMENT SHOULD PROMOTE ECONOMIC INCENTIVES FOR PRODUCERS WHO CONTRIBUTE TO ENVIRONMENTAL CONSERVATION OVER AND ABOVE WHAT IS REQUIRED BY LAW.

The new Forest Code permits further deforestation¹ of native habitats. According to Soares-Filho et al. (2014), about 880,000 square kilometers are still legally eligible for deforestation—that is equivalent to the land area of France and the United Kingdom combined, or to the total combined land area of the Brazilian States of Rio de Janeiro, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul. This despite the fact that Strassburg et al. (2014) estimate that, through increases in productivity and restoration of degraded lands, Brazil can increase the production of commodities without further deforestation until at least 2040. Therefore, we recommend that private and public sectors take on commitments including not only legal compliance but also clear goals and a system of incentives that support the transition to a highly productive rural economy with low levels of emissions, conservation of biodiversity and ecosystems, and zero net deforestation and degradation.

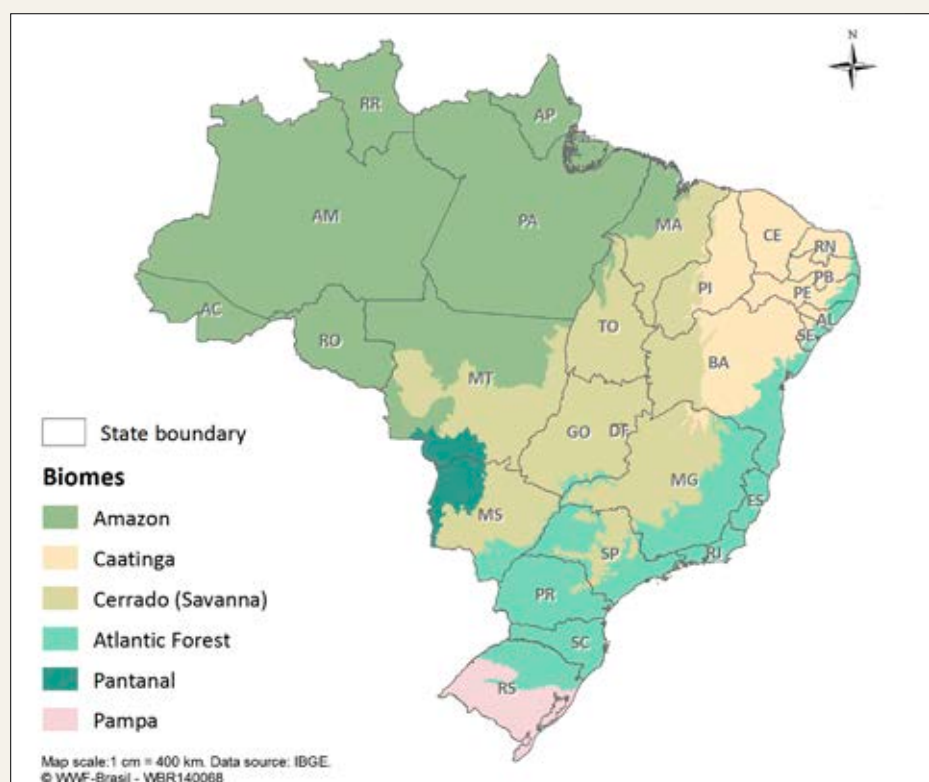
¹ The concept of deforestation used in the Guide refers to the conversion or removal of natural vegetation (forests or not), and the vegetation in medium or advanced stages of recovery.

CONTEXT

Although Brazil has had legislation in place to protect forests since 1934, this has never stopped deforestation. Pressure on native habitats increased, in particular during the 1980s, as a result of agricultural modernization. During this period, the Amazon lost more than 700,000 square kilometers, while the Cerrado lost approximately 1 million square kilometers. It was only in the 1990s that national and international pressure made deforestation a priority. Beginning in 2004, with the implementation of a plan for the prevention and control of deforestation in the Amazon, deforestation rates started to decline significantly. In 2012, deforestation in the Amazon reached its lowest level since monitoring began. However, similar efforts to prevent and combat deforestation did not take place in other threatened biomes, such as in the Cerrado, where the production of commodities continues through outright expansion, making it the main driver for deforestation. Between 2009 and 2012, the annual deforestation rate in the Cerrado increased dramatically by 156%, from 2,989 km² to 7,652 km² (Soares-Filho et al. 2014) .

Despite the reduction in deforestation in the Amazon, recent data indicate the need for maintaining the efforts. According to Prodes (the satellite monitoring system of the Amazon Forest)—managed by the National Institute for Space Research (INPE, the acronym in Portuguese), deforestation increased by 29%, from 4,571 square kilometers to 5,891 square kilometers between August 2012 and July 2013 compared to the previous period. Although the numbers for 2014 indicate a reduction by 18%, in absolute terms deforestation is still greater than in 2012 by 4,844 square kilometers.

Figure 1 - Brazil Biomes





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WWF DEVELOPED AND ADVOCATES FOR THE CONCEPT OF ZERO NET DEFORESTATION AND DEGRADATION (ZNDD)

This concept does not imply the simple ecological restoration of an area equivalent in size to a deforested or converted area. Rather, zero net deforestation means that primary or well-conserved ecosystems should not be deforested or converted for agribusiness activities. It allows only for very low levels of conversion of ecosystems, or what is called residual deforestation, exclusively for maintaining the livelihoods and the subsistence of local communities. In order to offset this inevitable deforestation, an area of the same size with equivalent social and environmental characteristics should be restored. With net zero degradation, it is anticipated that there will be no net decline in the quality of forests through human intervention or degradation processes.

This concept of ZNDD is shared by other important international organizations, both in civil society and the private sector. For example, the Consumer Goods Forum, which brings together senior leadership of about 400 retailers, manufacturers, service providers, and other stakeholders across 70 countries, adopted ZNDD for implementation in their supply chains by 2020. In addition, the concept is fully compatible with the text of the New York Declaration on Forests¹ and with a letter by Brazilian civil society suggesting a roadmap to tackling deforestation entitled Zero Deforestation and the Future of Brazil.²

Naturally, in an economy without deforestation, there should be a collection of public and corporate policies on the sustainable use of ecosystems that create and add value to the products, such as drugs, cosmetics, food and timber. The enormous market potential for payment for environmental services³ should also be considered. Brazil possesses an incredible natural heritage that will be crucial in times of climate change and its conservation and sustainable use can and should advance economic prosperity.



¹ More information on: <http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/07/New-York-Declaration-on-Forest-%E2%80%933-Action-Statement-and-Action-Plan.pdf>

² More information on: http://www.wwf.org.br/informacoes/sala_de_imprensa/247802/Em-carta-aberta-ONGs-sugerem-caminhos-para-combater-o-desmatamento

³ Retribution, monetary or not, for conservation activities and improvement of ecosystems that generate –in isolation or cumulatively– environmental services, such as those linked to water, carbon, biodiversity, scenic beauty, etc. More information on: http://d3nehc6yl9qzo4.cloudfront.net/downloads/diretrizes_pnpsa_final.pdf

CHALLENGES OF THE RURAL ENVIRONMENTAL REGISTRY – CAR

The approval of Law 12.651/2012 concerning the protection of native forests, ordinarily called the new Forest Code, was the result of an intense debate and negotiation process in society and in the National Congress.

Compliance with the Rural Environmental Registry (CAR, the acronym in Portuguese²), the Code's main legal instrument, is not yet complete, partly because landowners in some regions still have concerns about CAR registration. In this context, challenges, incentives, and even tangible market support may become essential.

Here are some examples:

- At the end of 2015, the Government informed that 60% of all rural areas was already registered in the CAR. However, to include the remaining 40% is likely to be more challenging as it consists of the more resistant producers. In addition, given the variable quality of already registered data in the CAR, improvement of this data for subsequent stages in the compliance process will also be challenging.
- Some modules of the SICAR system are still under preparation which makes it all the more important to accelerate the process in order to avoid delays in the analysis of existing data, monitoring and the implementation of the environmental compliance program.
- The federal and state governments missed the two-year deadline to implement their Environmental Compliance Program (PRA). Three years have passed and the majority of the states still have not implemented their programs.
- Rural sector leaders are already stating their desire to revise the legislation, due to their disagreement with many aspects of the law. The same is true for civil society organizations. Both movements may cause legal insecurity and divert attention from what really matters, which is the sound and effective implementation of the Forest Code.

**DESPITE THE RECENT
REDUCTION IN
DEFORESTATION IN THE
AMAZON, ILLEGALITY IN
CONVERSION OF NATURAL
BIOMES IS STILL HIGH
THROUGHOUT THE
COUNTRY.**



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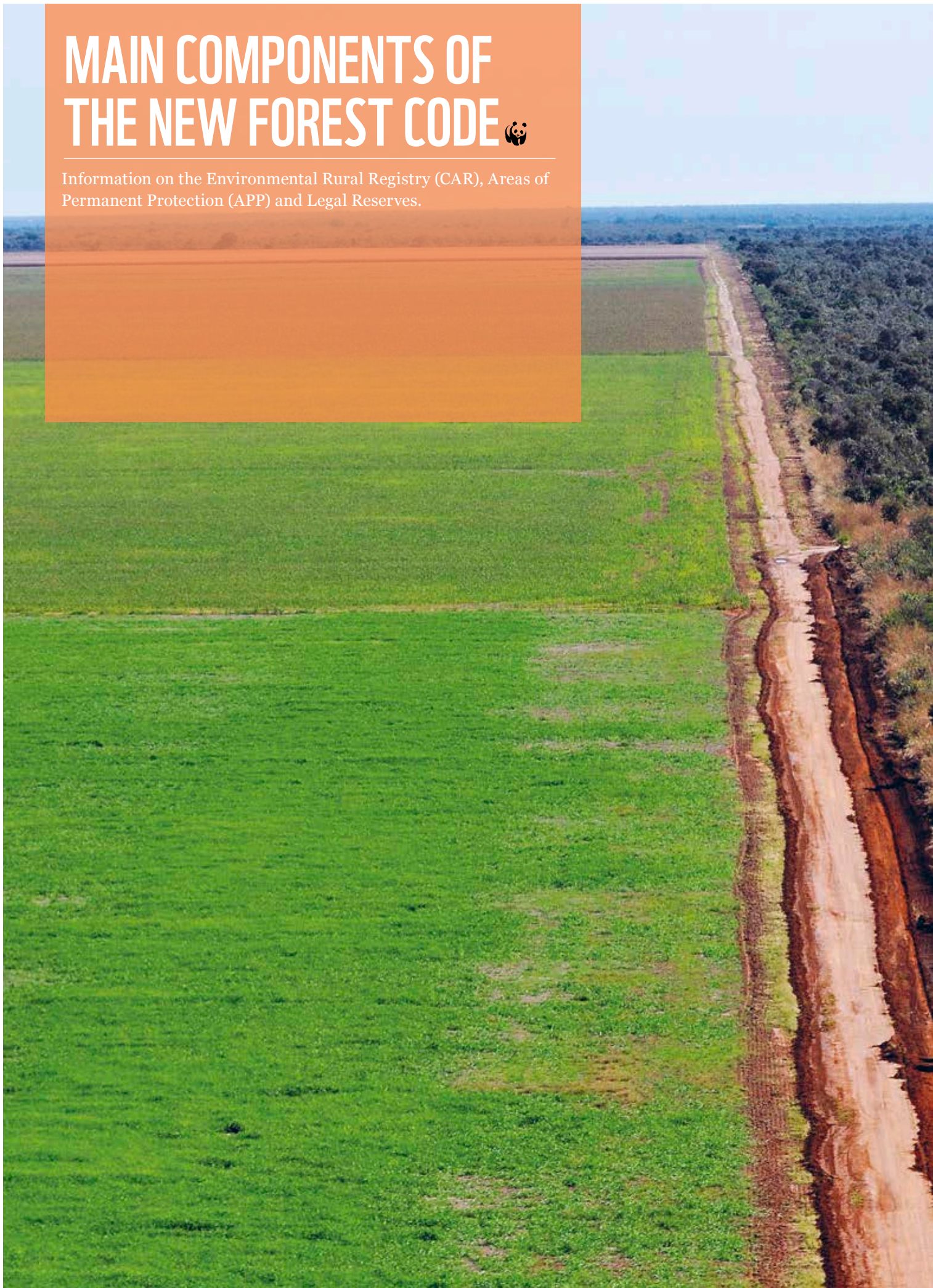
² The majority of acronyms in this guide are in Portuguese.



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MAIN COMPONENTS OF THE NEW FOREST CODE

Information on the Environmental Rural Registry (CAR), Areas of Permanent Protection (APP) and Legal Reserves.





WWF STRONGLY SUPPORTS THE CONCEPT OF SMART COMPENSATION, WHEREIN PRIORITY CONSERVATION AREAS—THAT IS, THOSE IN LANDSCAPES THAT POSSESS IMPORTANT FUNCTIONAL AND ECOLOGICAL ATTRIBUTES, SUCH AS HABITAT INTEGRITY, HABITAT FOR ENDEMIC OR ENDANGERED SPECIES

One of the innovative features of the new Forest Code is the CAR. Registration is the basis for environmental regularization of farms. The goal of the CAR is to provide an integrated database with information about each property and their environmental situation that allows municipalities, states, and the federal government to control, monitor and identify environmental deficits, conduct environmental and economic planning, and combat deforestation. The CAR will help landowners and possessors³ to protect natural resources and improve the planning of their production

The CAR system (SICAR, the acronym in Portuguese) is a national electronic system operated by the Ministry of Environment that provides high-resolution satellite images that landowners can use to locate and register their property. Implementation of the CAR is the responsibility of the states.

The CAR should contain georeferenced information such as the location of the property, its borders, as well as identification of Areas of Permanent Protection (APPs), Legal Reserves and Areas of Restricted Use⁴. An APP is a protected area, covered by native vegetation or not, with the environmental function to preserve water resources, landscapes, geological stability and biodiversity, facilitate genetic flows of fauna and flora, protect the soil, and ensure human wellbeing. Examples of APPs are as riparian areas, springs, hilltops, mountain slopes, and mangroves.

Legal Reserves are portions of land that must be set aside in native habitat, depending on property size and location. Legal Reserves ensure sustainable economic use of natural resources, support conservation and provision of ecological processes, and promote conservation of native fauna and flora. The size of a Legal Reserve depends on where the property is located. For example, an area of land within the “Legal Amazon”⁵ has size requirements that differ from those of the rest of the country.

Land Use	Legal Amazon			Rest of Brazil
	Forest	Cerrado	Grasslands	
Legal Reserve	80%	35%	20%	20%
Productive Use	20%	65%	80%	80%

³ Possessor, or a squatter, is a person who unlawfully occupies an uninhabited or unused land.

⁴ Areas of restricted use are swamps and Pantanal plains that require special regimes of sustainable use. This category also includes areas with declivity between 25° and 45° where deforestation is prohibited.

⁵ The Legal Amazon covers the states of Acre, Pará, Amazonas, Roraima, Rondônia, Mato Grosso, Amapá and Tocantins as well as the region west of longitude 44° W in the state of Maranhão.

Figure 2 - Legal Amazon

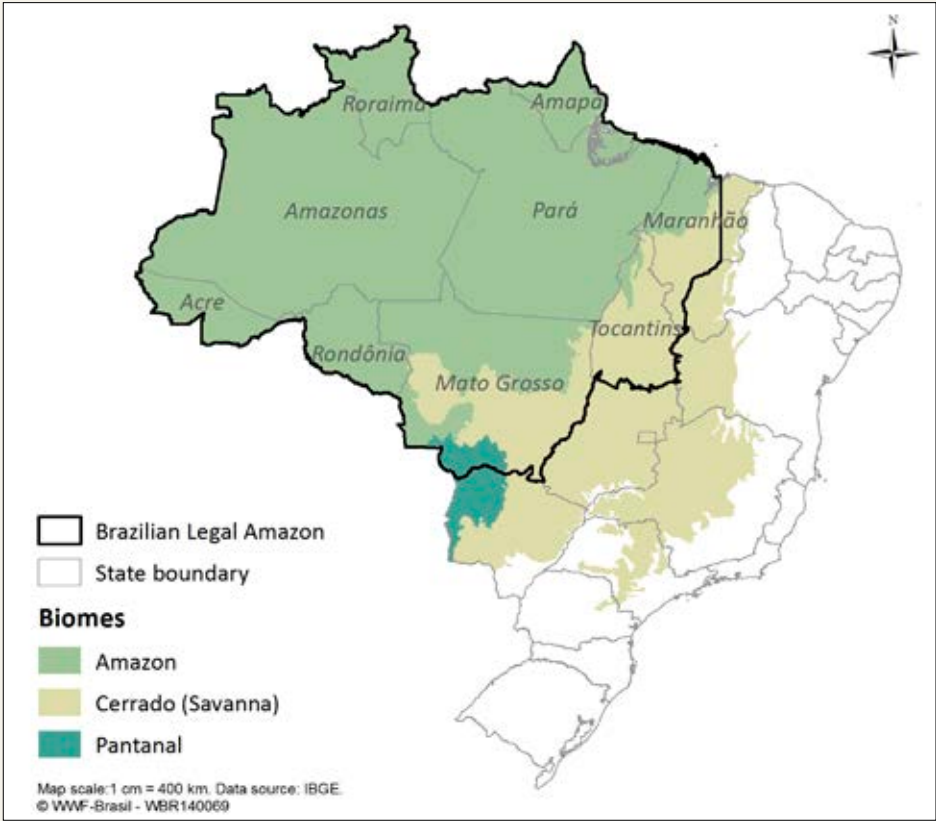
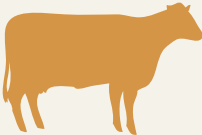
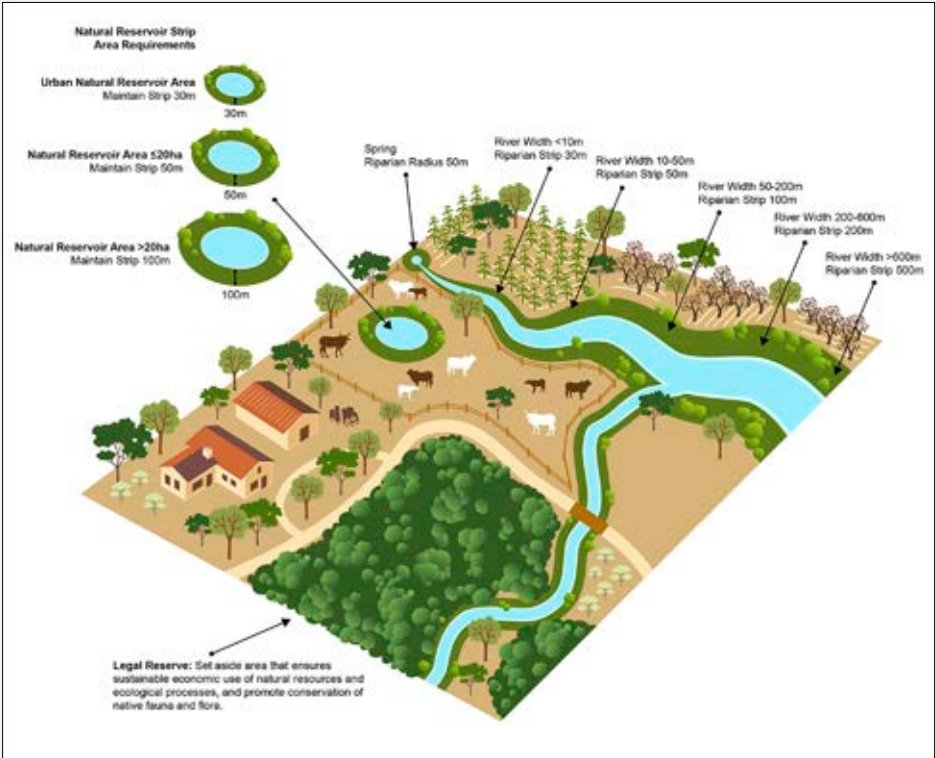


Figure 3. Areas of Permanent Protection



Medium and large landowners and possessors (with areas larger than four *fiscal modules*⁶) who deforested more than what was allowed before July 22, 2008,⁷ are obligated to take action. They must either restore their Legal Reserves on the property itself or via an “offset” through a compensation process in areas of equivalent size in the same biome. Compensation options include: a) the Environmental Reserve Quota (CRA, the acronym in Portuguese); b) a direct lease from another property owner⁸; or c) a land purchase for or donation to the state or federal government of a private area within a Conservation Unit.

If compensation is considered outside the state of the rural property’s location, the law requires the federal government and the states to indicate priority areas for compensation. WWF strongly supports the concept of **Smart Compensation**, wherein priority conservation areas—that is, those in landscapes that possess important functional and ecological attributes, such as habitat integrity, habitat for endemic or endangered species, wildlife corridors, carbon stocks, sources of water, or that have specific socioeconomic importance—are used for compensation. These Priority Conservation Areas⁹ are officially identified by the Ministry of the Environment. WWF advocates that landowners aggregate their offsets in those areas as this will allow for the protection of relevant areas that would otherwise be eligible for legal deforestation. For more information about WWF’s vision on this theme, consult the supplementary technical document.¹⁰

Owners of APPs that have been converted may not use compensation to become compliant and, instead, must restore the APP. Reforestation must be completed within 20 years, with at least 10% of the total area rehabilitated every two years. A formal plan describing how APPs and Legal Reserves will become compliant must be developed and submitted with Terms of Commitment (a legal document) and a validated CAR registration. This plan will be part of the PRA. There are additional components (described in the supplementary technical document) that need to be considered to ensure that rural properties comply with the law.

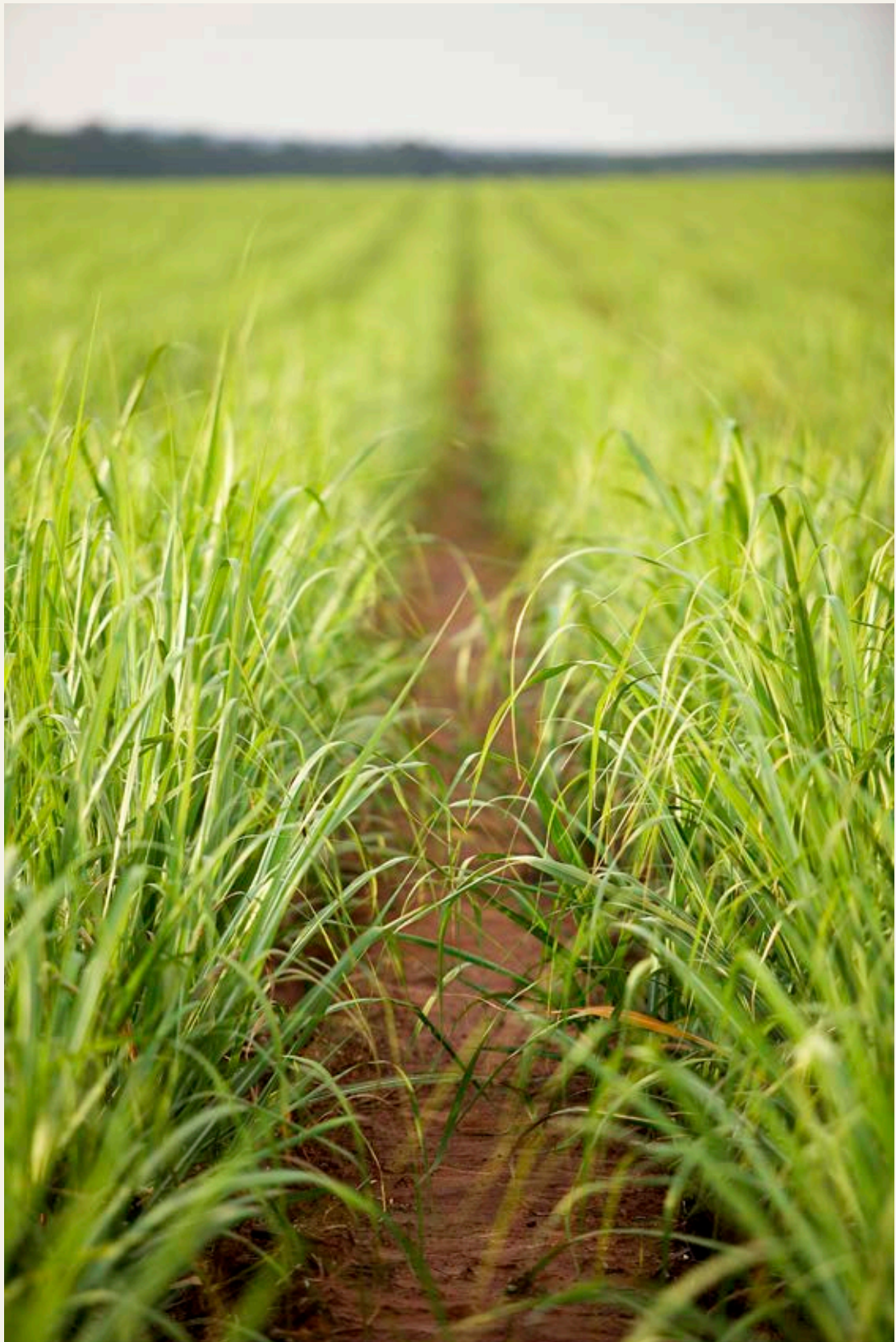
6 The size of a fiscal module is established by law and varies from one region to another. Thus, the maximum size of a small property varies, depending on the location, between 20 hectares and 44 hectares. Small properties were exempt from the obligation to restore or offset legal reserve deforested before July 2008.

7 Landowners who deforested after this date, besides being obligated to restore the area, should respond for the environmental crimes related.

8 Landowners interested in direct lease should put their RL surplus under an easement regime for at least 15 years and limit the use of the area to the use allowed by law in a RL.

9 Priority Conservation Areas are identified by the Ministry of the Environment and the Secretary of Biodiversity and Forests in consultation with society. More information on: <http://www.mma.gov.br/biodiversidade/projetos-sobre-a-biodiversidade/projeto-de-conserva%C3%A7%C3%A3o-e-utiliza%C3%A7%C3%A3o-sustent%C3%A1vel-da-diversidade-biol%C3%B3gica-brasileira-probio-i/%C3%A1reas-priorit%C3%A1rias>.

10 In this document we present and discuss the main technical content of the Forest Code.



CHALLENGES AND OPPORTUNITIES

Decisions that should be taken by public and private sectors in order to promote a sound implementation of the Forest Code.





Brazil has some of the most biodiverse regions in the world, including the Amazon, Cerrado, Caatinga, Atlantic Forest, Pantanal, and Pampa. Brazil also has some of the largest reserves of freshwater – about 12% of global freshwater – and a third of the world's remaining tropical forests. One in every 10 existing species of plants and animals is thought to live in these regions (WWF Brazil).

This environmental heritage is under strong pressure from deforestation that continues at disturbingly high levels. At the same time, the country contains large areas of degraded or otherwise underutilized pastures with very low levels of productivity. Estimates from the National Agricultural Research Institute (EMBRAPA, the acronym in Portuguese) indicate that more than 70% of the 152 million hectares of pastures are to some degree degraded or little productive (MAPA, 2013). According to Strassburg et al. (2014) more than 50% of all pastures in the Cerrado and more than 60% in the Amazon biome are degraded. This situation suggests that potential economic and environmental gains can be obtained just from the adoption of best agricultural practices or the substitution of one type of production for another without the need for new deforestation.

Engagement of the international community, the national public sector, and the private sector will determine the success of Forest Code implementation.

ROLE OF THE INTERNATIONAL COMMUNITY

Induce the implementation of the Forest Code through requiring proof of legality

- Governments and international organizations should ensure that Brazilian commodities and forest products are traded only when they are produced legally and, preferably, in accordance with recognized sustainability standards and zero deforestation, much like the commitment made by the Government of Norway.¹¹
- Trading blocs should establish clear norms on the legality of production, establishing penalties including fines and confiscation of merchandise and vessels, among others. Existing commitments of this nature include the U.S. Lacey Act (2008)¹² and the timber regulation of the European Union (2013)¹³, which should be strengthened and broadened to other supply chains and become a benchmark for countries that consume Brazilian commodities, such as China and India.

12%
OF GLOBAL FRESHWATER
ARE IN BRAZIL – AND A
THIRD OF THE WORLD'S
REMAINING TROPICAL
FORESTS

¹¹ More information on: <http://www.denofa.no/admin/common/getImg.asp?FileId=1209>

¹² More information on: http://assets.worldwildlife.org/publications/735/files/original/WWF_Lacey_Fact_Sheet.pdf?113830473.

¹³ More information on: http://barometer.wwf.org.uk/what_we_do/government_barometer/the_illegal_logging_issue/?_ga=1.139004915.1345145792.1418144273

International cooperation for the promotion of sustainable production

- The international community should support the implementation of Brazilian laws that improve environmental management and land-use planning. Recommended actions include, in collaboration with Brazilian organizations, the creation of funds to support sustainability by strengthening Brazilian government agencies and civil society organizations; payment for environmental services; and payment of a premium for sustainable certified production. An example of this type of initiatives is the Amazon Fund, created through cooperation between Brazil and Norway.

ROLE OF THE PRIVATE SECTOR (BUYERS AND PRODUCERS)

Implement sustainable purchase commitments

- Companies that produce transform, purchase, trade and sell commodities should urge their suppliers to comply with the law to avoid contaminating their supply chains with products linked to illegal deforestation.
 - Supply chain actors along the value chain—from retailers to commodity traders to processors—have started to use their influence with the industry and farmers, mobilizing them to comply with the Forest Code. For example, companies have helped establish international certification standards and commodity roundtables, such as the Brazilian Roundtable on Sustainable Livestock (GTPS, the acronym in Portuguese)¹⁴, Bonsucro (a certification system for sustainable sugarcane growers and processors), the Round Table on Responsible Soy (RTRS), the Forest Stewardship Council (FSC), and moratoriums on purchasing soy and beef from the Amazon biome.
- Companies that buy Brazilian products should also incorporate compliance with the Forest Code in their purchasing policies. These policies should not be limited to legality but also include commitments to zero deforestation, as well as principles and criteria of the aforementioned roundtables and certification systems.

Commitment with the implementation of the Forest Code

- **Registration in the CAR:** Supply chain actors should work with their suppliers (mills, meatpacking plants, granaries, etc.) to support and encourage landowners to register their land in CAR. Examples include preferential purchasing, campaigns, trainings, partnerships with governmental agencies, and direct support for CAR registration.
- **Environmental Compliance Program and terms of commitment:** Landowners and possessors who do not have the required APPs and Legal Reserve areas set aside on their property are obligated to deve-

¹⁴ More information on: <http://www.pecuariasustentavel.org.br/en/>

lop plans that describe how they will restore those areas, or compensate for Legal Reserve areas and formalize those plans in an agreement (terms of commitment) with state environment agencies.

- To that end, supply chain actors should develop incentives for rural property holders to prepare ecological restoration and priority compensation plans. They can do this by for example, preparing guides and teaching materials, training producers and their organizations, implementing ecological restoration models, supporting the creation of regional restoration supply chains, and providing commercial and economic incentives to create markets for Smart Compensation. Should landowners opt for restoration of a Legal Reserve during the compliance process, best practices for ecological restoration¹⁵ should be adopted, including measures to monitor progress.¹⁶

Commit to deforestation-free supply chains through the promotion of Zero Net Deforestation and Degradation

- To attain zero deforestation as defined in the New York Declaration on Forests, buyers of Brazilian agricultural, livestock and forestry products should commit to:
 - Purchase only from suppliers who fully meet Forest Code requirements, taking into account the deadline of May 2016 and monitor compliance plans for those with APP and LR deficits;
 - Implement measures that ensure that their supply chains meet zero net deforestation and degradation objectives by 2020; and
 - Purchase only from supply chains that comply with certified responsible or sustainable commodity standards that subscribe to the Credibility Principles of ISEAL, a global association for sustainable standards which include Bonsucro, FSC, roundtables on responsible soy and palm oil (RTRS and RSPO).
- **Suppliers** of Brazilian agricultural, livestock and forestry products should commit to:
 - Enroll property in CAR no later than May 2016;
 - Maintain APPs or implement a plan to recover APPs based on ecological restoration methods;
 - Maintain Legal Reserve areas at least as large as the percentages established by the new Forest Code, or, in cases where landowners have legal reserve deficits, establish plans to achieve compliance preferably through restoration of native vegetation or Smart Compensation; and

¹⁵ The Water Brazil Program, a partnership between Banco do Brasil, WWF-Brazil, Fundação Banco do Brasil and the Brazilian Water Agency, is one of the main references in ecological restoration in many Brazilian watersheds. More information on: <http://www.blogaguabrasil.com.br/agua-agricultura/>

¹⁶ One of the most recognized Brazilian networks on ecological restoration is the Atlantic Forest Restoration Pact, which offers on its website a collection of publications and guides: <http://www.pactomataatlantica.org.br/>. Several organizations have sound experience with respect to ecological restoration, e.g.: WWF-Brazil; Banco do Brasil; Embrapa; Esalq/USP; TNC; CI; IPÊ; CEPAN; IIS; UnB; UFLA; UFPE; ISA; Fibria; Suzano; BNDES; and several others

- Refrain from measures that might promote expansion of agricultural production into native habitats and adopt (preferably certified) best practices.

ROLE OF THE FINANCIAL SECTOR

Establish sustainability policies and criteria with respect to credit and investments that ensure compliance with environmental legislation

- Through adoption of social and environmental lending criteria, the financial sector has a fundamental role as driver of change and in promoting the use of best practices. Compliance with environmental legislation as a requirement for credit would effectively serve as an enforcement mechanism. The Forest Code establishes that, by 2017, Brazilian banks are not allowed to provide credit anymore to producers who did not register their lands in CAR.

The banking sector, therefore, should:

- Establish lending criteria that require compliance with Brazilian environmental legislation. Specific types of credit or other financial instruments should be developed for clients who opt for ecological restoration, Smart Compensation, or zero deforestation;
- Implement Resolution BC 4.327/2014 and clearly identify and manage social and environmental operational risks, since this is an activity subject to a risk management unit. It should also set sustainability goals and timelines, and implement policies, standards, and procedures.
- Establish employee performance assessment policies that not only take into account volume of operations and short-term profit, but also assess degree of decision alignment with sustainability policies, as well as short, medium and long-term social and environmental impacts; and
- Join the Banking Environment Initiative (BEI) and commit to the Soft Commodities Compact, which seeks to align the banking industry with the Consumer Goods Forum resolution to achieve zero net deforestation by 2020. Two commitments are particularly important:
 1. Finance the transformation of supply chains, and
 2. Raise industry-wide banking standards and prioritize internal mechanisms such that, by 2020, all corporate and investment banking customers can verify that operations are consistent with zero net deforestation.

THE FOREST CODE ESTABLISHES THAT, BY 2017, BRAZILIAN BANKS ARE NOT ALLOWED TO PROVIDE CREDIT ANYMORE TO PRODUCERS WHO DID NOT REGISTER THEIR LANDS IN CAR

ROLE OF THE PUBLIC SECTOR

Accelerate implementation of the Forest Code while ensuring public transparency and social control

- The Brazilian federal and state governments should enact policies that accelerate and guarantee effective implementation of CAR and PRA, such as increasing the operational and technological capacity of state governments; developing ecological restoration policies, including Smart Compensation and the promotion of landscape connectivity, establishing the conditions for transparency and access to information; engaging the civil society and the agricultural and forestry sectors in the implementation of the new Forest Code.
- **CAR Validation and Evaluation**

In general, the State Environmental Agencies, which are the governmental bodies responsible for CAR implementation, do not have sufficient financial and technical capacity to deal with the volume of properties that will need to be validated after CAR registration. In particular, there is a need for quality control of registered land given that the accuracy of the information submitted by landowners is not currently assessed in a robust way. A Validation Module is being developed by the Brazilian Forest Service (SFB), with support from the Federal University of Lavras¹⁷. We recommend that:

- The State Environmental Agencies (or the responsible state institutions) should establish clear milestones with respect to registered properties as well as deadlines for CAR validation. To accelerate that process, standardization and automation will be fundamental. In addition to assessing the borders of the property, evaluation must also take into account the landscape within which the property is situated and optimize connectivity between APPs, Legal Reserve areas and other environmental features.
- The Federal government and the international community should provide resources to support the State Environmental Agencies to increase their operational capacity with respect to qualified staff, technology, equipment and operating expenses at a level that is sufficient to meet demand.

¹⁷ The entire geotechnological base for the CAR system and its different modules are being developed in a partnership between the Brazilian Forest Service and the Federal University of Lavras. Significant efforts are being made by both institutions to the development of the concept, the structure and to the integration of data and systems of SICAR, as well as to the training of state staff.

▪ **Drainage systems**

To ensure accuracy in the CAR Validation Module, a high-quality, georeferenced database of watersheds, or catchments, is required, which is not yet available in Brazil. Without this database, it is difficult to analyze the riparian APP areas—that, by law, must be located on the borders of reservoirs, rivers, springs, and ponds—which may result in negative conservation outcomes. Without detailed satellite images of the watersheds, the ability of the SICAR system to identify APP areas is constrained. Without vectorized images, the CAR Validation Module will have difficulties to verify the existence of drainage systems. In some cases, riparian APPs could be omitted from registration and, consequently, the vegetation will remain unprotected.

Therefore, resources must be invested in the development of a nationwide database of high-quality, vectorized watershed images¹⁸ that closely correspond to the satellite images used in the CAR system in order to guarantee a minimum of dislocation errors and ensure precise positioning of APPs.

Ensure the consolidation of SICAR as the system that integrates state data

- With respect to the development and implementation of the SICAR, it has become a priority to strengthen the relation between the federal government and the states. A common understanding between all stakeholders will be decisive in finalizing the current development phase and in starting analysis of registered data and implementation of the PRA.
- State agencies responsible for environmental regulation should establish clear milestones with respect to registered properties as well as deadlines for CAR validation.
 - State agencies and the Brazilian Forest Service should provide biannual reports with summarized information on the number of properties registered and validated (by municipality and state), problems identified, system progress, challenges foreseen for the next period, etc.;
 - The public should have ample access to the data registered in SICAR, including a model to visualize georeferenced information about individual CARs, such as polygons of each property, APPs, Legal Reserves, areas of consolidated use, restricted use, and areas for regeneration or restoration.
 - There is a pressing need to develop independent tools for monitoring of the implementation of the Forest Code, among which currently Inovacar¹⁹ is a good example.



¹⁸ With respect to initiatives that are underway, the Federal University of Lavras and Incra have a partnership to develop, among other elements, shape files, based on high-resolution satellite images, of the drainage systems of all rural settlements in the country. TNC and Imazon, have, in partnership with the state government of Pará developed similar initiatives in some regions of the state.

¹⁹ Inovacar is a Conservation International initiative with support from WWF for observation and verification of and lesson learning about CAR and environmental regularization. Its focus is on monitoring, exchange of experiences and the creation of a space for constructive discussion between managers and technical staff of public entities and civil society. More information at: <http://www.inovacar.org.br/>

- Parallel to SICAR, satellite deforestation monitoring systems should be strengthened that include other Brazilian biomes and have the capacity to detect with precision subtle changes in land use, including degradation.

Implement the Environmental Compliance Programs (PRA) in the states

- About 4 million properties currently do not have a sufficient amount of land set aside for APPs and Legal Reserve areas—an area corresponding to a minimum of 21 million hectares, of which 78% are Legal Reserve areas and 22% are APPs (Soares-Filho et al. 2014). The PRA provides a unique opportunity to reverse part of the illegal deforestation that historically occurred in Brazilian biomes. As this constitutes one of the main opportunities in the new Forest Code for environmental gains, this merits the development of a good implementation strategy. From a geo-technological point of view, it is vital to develop a PRA module that is linked with the CAR System in order to allow for the monitoring of progress (at a minimum of 10% of the total area rehabilitated every two years) in the implementation of the Terms of Commitment of landowners with conservation deficits.
- The federal and state agencies had two years when the new Forest Code came into effect to implement their environmental compliance programs. More than three years have passed since the approval of the law and the majority of the states still do not have any basis for making their programs operational. Further, SICAR does not even allow for validation of registered data or adherence to PRA, given that these modules are under development or being tested.

**IN THE AMAZON,
FOR EXAMPLE, IT IS
ESTIMATED THAT ONLY
14% OF PRIVATELY OWNED
LAND HAS A LEGAL TITLE**

Adoption of actions that ensure the protection of forest remnants and the recuperation of environmental deficits

- Two initiatives are critical to ensure the protection of forest remnants and to promote the recovery of degraded areas. First, Smart Compensation will encourage landowners to focus their compensation efforts on areas of high conservation value. Second, a national policy for the restoration of native ecosystems²⁰ would create a supply chain linked to forest restoration. Such a policy could integrate several legal instruments with the market to restore the millions of hectares required to comply with the law and generate a dynamic forest economy²¹.
 - Investments are required to update official maps of priority conservation areas and areas for sustainable use. Similar efforts are needed to facilitate a formal process through which producers may obtain or rent lands within these priority areas and guarantee their protection²²;

²⁰ In this context, the Ministry of Environment is, since 2013, developing, in consultation with sectors of society, an interesting initiative, entitled Plan for the Recovery of Native Vegetation. There exist as yet no indication on when the plan will in fact be implemented.

²¹ Different experiences in the country show that the costs for restoration of one hectare varies between R\$10 and R\$50 thousand, depending on the level of organization of the restoration chain (supply of seeds, seedlings, services, etc.) and applied methods. Assuming costs of R\$10,000 per hectare and taking only in consideration the deficit in APPs of approximately 4,6 million hectares, the operational costs for restoration would add up to R\$46 billion.

²² More information can be obtained in the Technical Supplemental Document of this Guide.

- The restoration supply chain should be strengthened in different regions in the country, including sustainable management of planted areas in order to obtain products with market value.
- Regional markets for forest products may yield an economic return as Legal Reserves are restored. The public sector should invest in the generation and dissemination of technical knowledge about best practices for restoration at various levels for different sectors. Investments are also necessary to expand producer trainings, develop technical and academic courses, and improve public extension services for forestry.

Promote land tenure regulation and clear property rights

- In Brazil, an estimated 1% of the population owns 45% of all land (USAID 2010) . Land tenure insecurity complicates implementation of the Forest Code. In the Amazon, for example, it is estimated that only 14% of privately owned land has a legal title (Council on Hemispheric Affairs 2011) .
- Strengthening of initiatives, such as the Terra Legal (Land Program), is critical to promoting clear land tenure—whether in the Amazon where the problem is most grave, or in the other regions of the country where vulnerable groups continue to seek access to land and secure property rights. Linking joint implementation of CAR and the Terra Legal program would amplify conservation impacts, as has been realized states like Acre, with support of WWF.
- CAR does not have the objective of land titling, which is the remit of government land tenure agencies. Nonetheless, it is important that information about land ownership be shared during CAR registration in order to guarantee legal tenure security in the market for offsets of Legal Reserve deficits.



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CASE STUDY – SUGAR CANE

Brazil is the largest sugarcane producer in the world, with 739 million tons in 2013. The majority of the production occurs in the states of São Paulo (55%), Minas Gerais (10%), and Goiás (9%). There are areas planted in different Brazilian biomes, including in the Atlantic Forest, which is one of the world's five most biologically diverse biomes and a WWF priority ecoregion. The Atlantic Forest is one of the most threatened ecosystems in the world. It once covered much of Brazil's territory, but today it is extremely fragmented and has been reduced to only 7% of its original footprint (WWF) .

WWF is a founding member of Bonsucro, a certification standard developed by several stakeholders which and has certified 40 sugarcane mills representing 818,000 hectares in Brazil (or 7% of the sector). Legal compliance, including compliance with the Forest Code, is one of the sustainability pillars of Bonsucro, and WWF is working with other institutions to develop spatial maps of priority areas in the Atlantic Forest for Smart Compensation. WWF, the Banco do Brasil and other institutions are identifying and sharing with the sector best restoration practices.

Recommendation: In order to ensure that legal, sustainable sugarcane is being produced and purchased, downstream consumers of sugarcane should engage their suppliers, including sugarcane producers, and producer associations to identify opportunities and incentives to become compliant with the Forest Code and with best production practices, including the Bonsucro certification.



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CASE STUDY -BEEF

A variety of initiatives, platforms and organizations in Brazil and beyond are working on issues related to deforestation and best ranching practices, such as the GTPS (the Brazilian Roundtable for Sustainable Beef), the GRSB (Global Roundtable for Sustainable Beef) and the Leather Working Group. For example, the government is holding the beef industry more accountable for unsustainable production practices through a new Conduct Adjustment Agreement; the tannery sector established an environmental auditing protocol; and the Brazilian association of supermarkets developed initiatives for sustainable purchasing. Large meatpackers have been working to ensure that their supply does not come from illegally deforested areas. Since 2009, Greenpeace has been working with the three biggest meatpackers in Brazil—JBS, Marfrig and Minerva—to commit to avoid buying cattle from properties linked to deforestation, legal or illegal, in the Amazon biome. These meatpackers have implemented deforestation monitoring systems of their supply chains with a certain degree of success. However, there have been reports of loopholes in the quality control mechanism due to deficiencies of the Animal Transport Guide (GTA, the acronym in Portuguese) (Datu Research, 2014).

Among the sector's challenges are adding value to or establishing favorable conditions for production without deforestation and in compliance with the law, as well as the question as to how to influence other meatpackers and slaughterhouses not to purchase from sources in recently deforested areas. At a minimum, suppliers should register their properties in the CAR and, once their environmental deficits with respect to APPs and Legal Reserves have been verified, submit their terms of commitment and ban the deforestation of native ecosystems.

Recommendation: Promote registrations of suppliers in the CAR and the implementation of monitoring systems that ensure deforestation-free supply chains. In addition, stimulate the adoption of best agricultural and cattle ranching practices, including the payment of a premium to producers with the best production and environmental performance.



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CASE STUDY: PULP AND PAPER

Brazil is the fourth largest producer of pulpwood in the world—15.1 million tons in 2013—and the largest producer of paper and cardboard in Latin America—10.4 million tons in 2013 (IBÁ 2014) . There are 2.4 million hectares of industrial pulpwood plantations that are concentrated mostly in the states of Bahia, Espírito Santo, Mato Grosso do Sul, Minas Gerais, São Paulo, and Paraná. These states have important remnant areas of the Atlantic Forest and the Cerrado. As the sector plans to increase current production from 15.1 million tons of pulp to about 22 million tons by 2020, the plantation area will also increase, mainly for the production of industrial eucalyptus and pine. It is critical that this expansion be in already converted areas, avoiding additional deforestation.

The majority of planted pulpwood plantations is certified by FSC, which, among other rigorous criteria and sustainability indicators, requires compliance with legislation and prohibits conversion of natural forests. In addition, the pulp and paper sector has made important contributions to conservation; the area that has been restored and set aside is equivalent to the size of current productive plantations (the total of APPs, Legal Reserves, and other protected areas). The pulpwood sector sets a national example with respect to the large-scale implementation of best restoration practices with native vegetation. Many of the sector's conservation efforts align with the New Generation Plantations principles, including that plantations should contribute positively to ecosystems and communities (NGP 2014) .

Recommendations: Considering that the quantity of wood sourced from small landholders is likely to increase, one of the challenges is to support them in complying with the Forest Code and certification. About 30% of pulpwood is currently sourced from local smallholders enrolled in technical assistance and forestry promotion programs which provide financial and/or technical resources.

Because FSC certification can be expensive for small landowners, pulp and paper companies play an important role in facilitating group certifications and requiring compliance with the law and criteria for restoration of deforested APPs and RLs. In addition, expansion of productive areas should be restricted to already converted lands, whether owned by the industry or by smallholders.



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CASE STUDY: SOYBEANS

Soybean producer groups and traders have committed to the Soy Moratorium, which has banned the purchase of soybeans produced in deforested areas of the Brazilian Amazon since 2006. The Moratorium has been very successful in the Amazon; since its implementation, it is estimated that deforestation directly caused by soy cultivation in the Amazon is less than 1% of total deforestation. In contrast, soy cultivation has been one of the main drivers of increased deforestation in the Cerrado.

The Soy Moratorium was renewed until 2016. The Soy Working Group (GTS, the acronym in Portuguese)—comprised of soy industry, the federal government, NGOs and soy consumer companies—is developing new ways to promote deforestation-free soy. Key concerns for the Soy Working Group include the effective implementation of CAR and PRA, continuous improvement of best practices for soy production, development of economic incentives, and continuation of zero deforestation in the Amazon biome.

The challenge faced by the Soy Working Group is clear: pressure to convert native ecosystems into productive areas is again on the rise. There was an increase of 29% in deforestation in the Amazon between August 2012 and July 2013 and there is a strong tendency for new increases after September 2014. The completion of construction of the BR 163 road (between Cuiabá and Santarém) will improve logistics. Access to the heart of the Amazon and new large ports on the Tapajós river (the construction of which is being completed) will unlock exports. Shipping capacity is expected to double to 20 million tons by the end 2015 and may reach 50 million tons by 2020. Traders such as Bunge and Cargill are investing \$2.5 billion on infrastructure projects in the region. Archer Daniel Midlands, one of the largest exporters of soybean meal from Brazil, plans to double its South American barge fleet and increase shipments from the port of Belém to 6 million tons in five years, from 1 million this year (Bloomberg 2014).

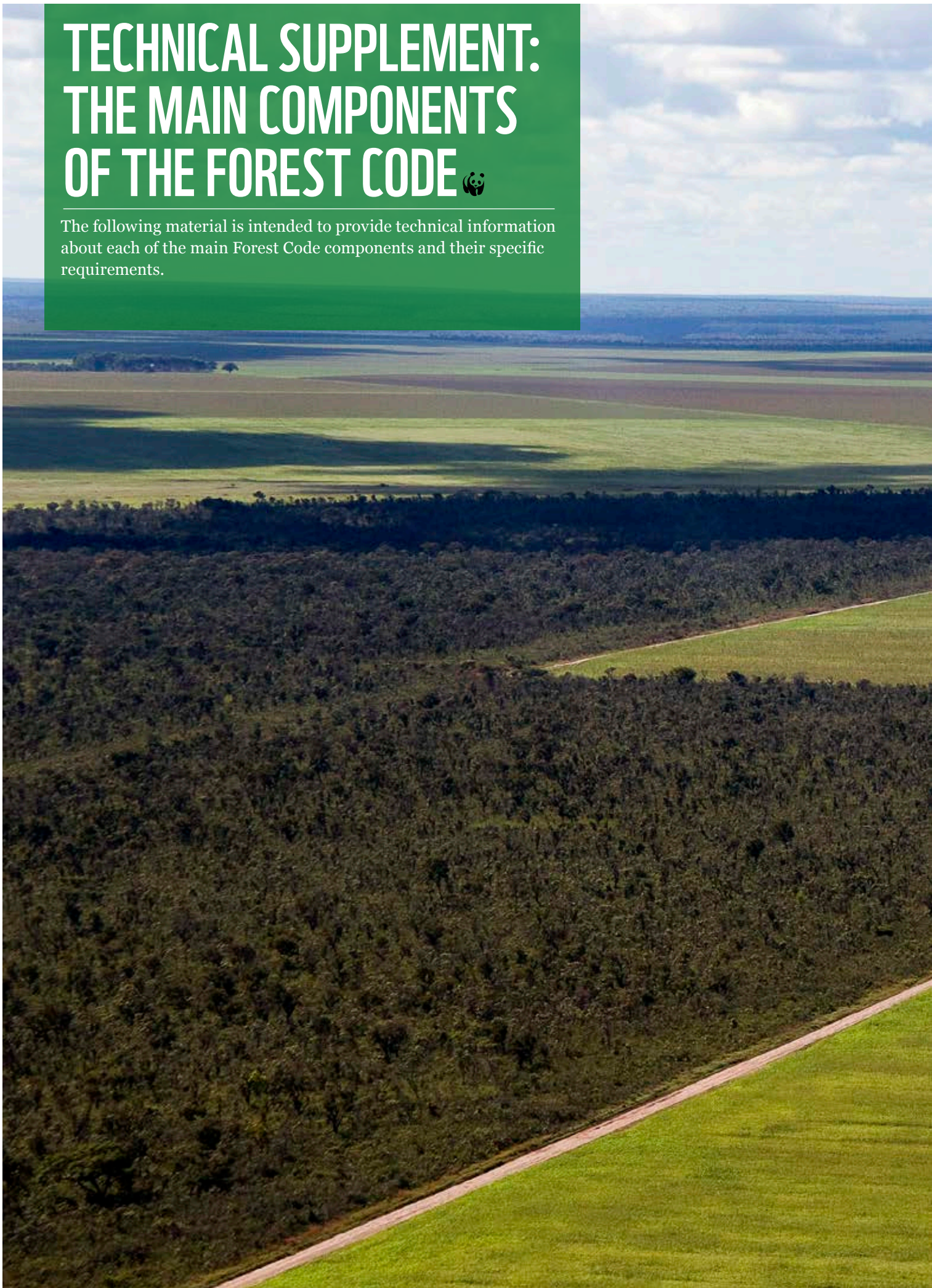
Recommendations: Supply chain actors should support the GTS with the development of a mechanism that recognizes and rewards the production of “deforestation-free” soy. A “greenlist” of producers that did not deforest, not only in the Amazon biome but also in the Cerrado, could be created in order to establish a mechanism for preferential purchase as well as other incentives. In contrast to those who deforested illegally, the Ministry of the Environment (specifically, its fiscalization arm, IBAMA) should embargo the property, what has been done, but partially.

Satellite monitoring for all soy municipalities should be continued. Environmental data registered in the CAR, as well as information from other sources about land tenure, should be integrated in the monitoring process in order to facilitate traceability. Similar monitoring and interventions measures should be established in the Cerrado.

The continuous improvement of better production practices should be based on internationally recognized standards for the production of responsible soy, such as the Round Table on Responsible Soy and Pro-Terra certifications.

TECHNICAL SUPPLEMENT: THE MAIN COMPONENTS OF THE FOREST CODE

The following material is intended to provide technical information about each of the main Forest Code components and their specific requirements.





THE RURAL ENVIRONMENTAL REGISTRY (CAR)

The Rural Environmental Registry (CAR, the acronym in Portuguese)¹ is a mandatory national public environmental registry for the integration of environmental information of all rural properties. Registration in the CAR should be done through the Rural Environmental Registry System

(SICAR) which is part of the National Environmental Information System (SINIMA), managed by the Ministry of Environment.

Based on information in the CAR, the SICAR constitutes a strategic database to control, monitor and combat the destruction of forests and other forms of native vegetation in the country and to facilitate environmental and economic planning for rural properties. Data provided by the CAR will help to identify deficits with respect to the areas legally required to be conserved, monitor areas under restoration and, in general, contribute to the environmental management capacity of the country.

Registration of a rural property into the CAR can be accomplished directly through SICAR or through one of the integrated state systems. It requires from the landholder or possessor the following information:

- Identification of the landholder or possessor;
- Proof of land title or possession;
- Identification of the property through a map and written records, containing geographical coordinates with at least one point of reference for the property's perimeter and information about the location of remaining native vegetation, Areas of Permanent Protection (APP), Areas of Restricted Use, consolidated areas and, if relevant, the location of Legal Reserves.

Registration in the CAR must then be validated by the environmental agency of the state where the property is located. Registration should be entered in the state's CAR registration module and then uploaded electronically to the SICAR system. Users can download the registration module and upload data regarding their land onto each state's CAR website. Despite the primary role of the state, implementation of the CAR is a shared responsibility of the federal and state governments.

The national SICAR system website, <http://www.car.gov.br/#/> provides links to state systems. Some examples of states with active websites for the registration of rural properties follow:

- In São Paulo, the site is: <http://www.ambiente.sp.gov.br/sicar/>
- In Mato Grosso do Sul, <http://siriema.imasul.ms.gov.br>
- In Bahia, <http://www.sistema.seia.ba.gov.br>

THE CAR WILL HELP TO IDENTIFY ENVIRONMENTAL DEFICITS AND MONITOR AREAS UNDER RESTORATION

¹ Acronyms throughout this document are in Portuguese.

RURAL PROPERTY

Rural property is defined by laws 4.504/1964 (Land Statute) and 8.629/1993 as pastoral real estate, a continuous area intended for agriculture, ranching or forestry. The property may consist of one or more parcels, and may even be located in around an urban area if the holder pays rural land tax (ITR).

FISCAL MODULE

Based on property size (measured in “fiscal modules”), the new Forest Code makes a distinction between landowners who are obligated to restore degraded APPs and Legal Reserves. Fiscal modules reflect the minimal area necessary in a given municipality for economic subsistence. They are measured in hectares and, depending on the municipality, a fiscal module can vary from 5 to 110 hectares². For instance, municipalities with large metropolitan areas generally have fiscal modules that are much smaller than in regions located further from urban centers. In many municipalities in the South and Southeast of Brazil, the size of a small property is 20 to 40 hectares, while in the North, a small property may be 350 to 400 hectares. The fiscal module provides a parameter for the definition of the concept of family agriculture and for the public policies for this type of agriculture.

REGISTRATION OF SMALL PROPERTIES

Properties with fewer than four fiscal modules benefit from a simplified process for registration in the CAR. They are required to provide only:

- Identification of owner or possessor;
- Proof of ownership or possession; and
- A sketch (rough map) of the property’s perimeter, the APPs, Legal Reserve areas, easement areas, consolidated areas and restricted use area, if any.

In this case, the state environment agency (or its delegated institution) is responsible for registering the geographical coordinates in the SICAR. The state government should also provide technical and legal support to smallholders for CAR enrollment.

² Imaflora made a list of fiscal modules in Brazil, their dimension by municipality, which can be accessed here: http://www.imaflora.org/downloads/biblioteca/52a2105fba20a20amodulofiscal_br.xls.

AREAS OF PERMANENT PROTECTION (APPS)

APPs are areas that are physically and ecologically fragile—such as riparian areas, springs, hilltops, mountain slopes, and mangroves—and are characterized by the important environmental services they provide at a landscape level, such as preservation of water resources, biodiversity, soil protection, geological stability, and facilitation of gene flow³ of fauna and native flora.

Different types of APPs, described in Article 4 of the new Forest Code, are summarized in the following figure and tables.

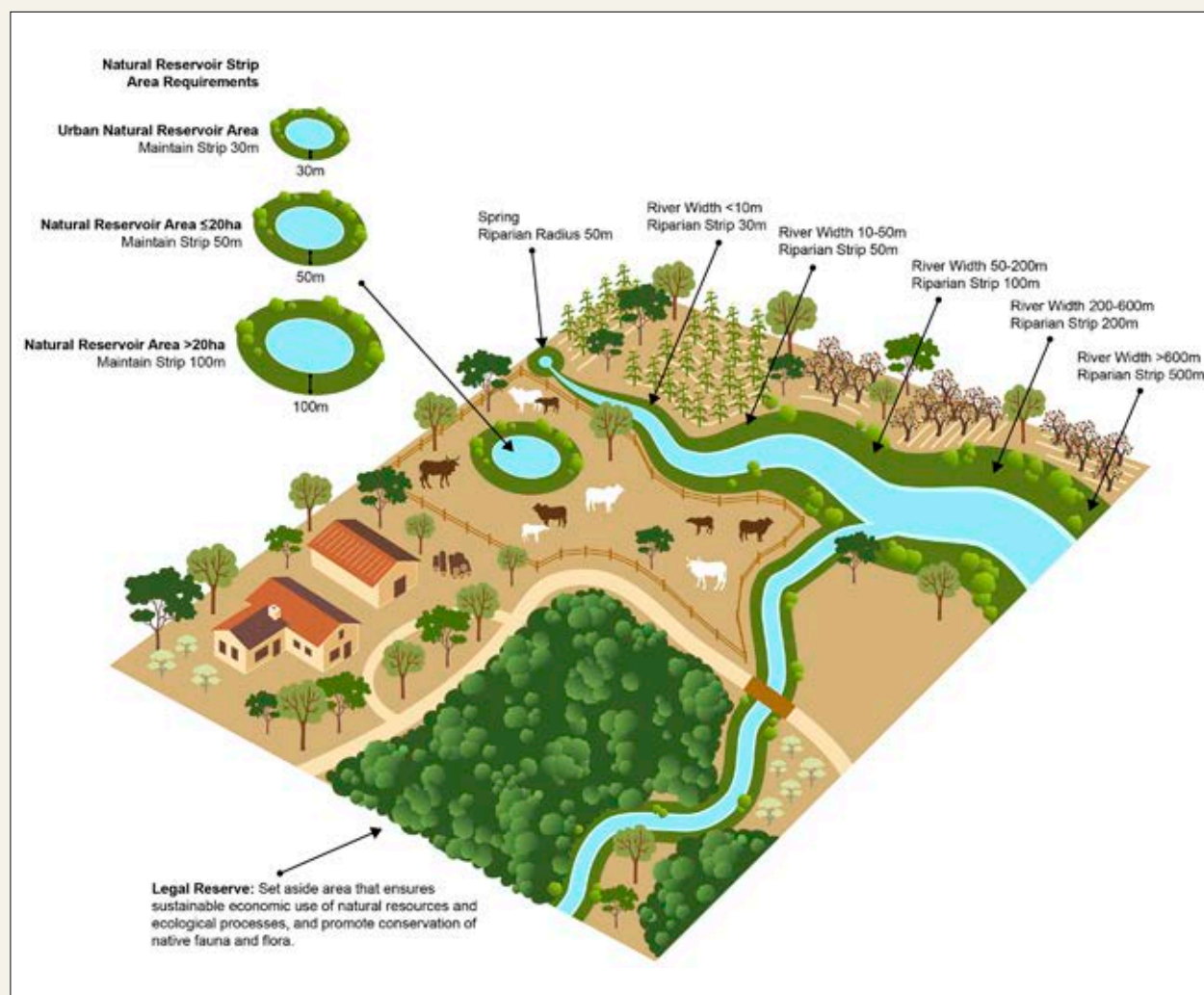


Figure 1. Areas of Permanent Protection and Legal Reserve

³ Gene flow (also known as gene migration) is the transfer of alleles or genes from one population to another.

Table 1. Description of Areas of Permanent Protection

WATERCOURSES

Riparian strips alongside any perennial and seasonal watercourse must maintain the following minimum widths from the edge of the channel:

- 30 meters for watercourses that are less than 10 meters wide
- 50 meters for watercourses that are 10 to 50 meters wide
- 100 meters for watercourses that are 50 to 200 meters wide
- 200 meters for watercourses that are 200 to 600 meters wide
- 500 meters for watercourses that are greater than 600 meters wide

RESERVOIRS

Areas surrounding lakes and natural reservoirs must maintain a strip of:

- 100 meters, except for water bodies with less than 20 hectares of surface area, which must maintain a strip of 50 meters
- 30 meters in urban areas where there are manmade lakes or reservoirs

Areas in the vicinity of perennial springs, regardless of topographical situation, must maintain a strip of:

- A minimum radius of 50 meters

PLATEAUS, HILLTOPS, MOUNTAINS, RIDGES, MANGROVES

- Areas with a slope of at least 45 degrees or higher must maintain native habitat
- Areas with salt marshes, dunes, or mangroves must maintain native habitat
- Areas up to the edge of plateaus must be maintained at not less than 100 meters from a horizontal projection
- Areas on hilltops, mountains, and ridges with a minimum height of 100 meters and an average slope greater than 25 degrees must maintain native habitat
- All areas with an altitude exceeding 1,800 meters must maintain native habitat
- Areas along swamps and wetlands measured horizontally from the edge of the flooded area must maintain a minimum width of 50 meters

APPS ARE AREAS THAT ARE PHYSICALLY AND ECOLOGICALLY FRAGILE—SUCH AS RIPARIAN AREAS, SPRINGS, HILLTOPS, MOUNTAIN SLOPES, AND MANGROVES

CONSOLIDATED AREAS: DIMENSIONS OF APPS

All APPs should be maintained by the landowner or possessor, whether an individual or public or private entity. When unauthorized removal of vegetation has occurred, the landowner will be fined and obligated to restore it. When APPs were deforested before July 22, 2008 (considered consolidated areas by the law), the landowner receives amnesty from the fine on the condition that he or she signs an agreement (Terms of Commitment) to restore it.

Table 2: Restoration of riparian APPs by fiscal module

Size of the property in fiscal modules	Recovery requirement*
Up to 1	Strip of 5 meters.
Between 1 and 2	Strip of 8 meters.
Between 2 and 4	Strip of 15 meters.
More than 4	Strip between 20 and 100 meters, as determined in the PRA

*According to the Forest Code, APPs along a natural waterway are measured from the edge of the regular channel flow, regardless of the width of the watercourse.

Table 3: Transitional rules for the recovery of APPs in consolidated areas

Type of APP	Activities allowed	Restoration obligation
Vicinity of perennial springs	Agricultural, forestry and ranching activities; ecotourism and rural tourism	Strip with a minimal width of 15 meters
Around lakes and ponds	Agricultural, forestry and ranching activities; ecotourism and rural tourism	Strip with a minimal width of: -5 meters for properties with up to one fiscal module -8 meters for properties of 1-2 fiscal modules -15 meters for properties of 2-4 modules -30 meters for properties of more than 4 fiscal modules
Wetlands (Veredas)	None	Areas horizontally measured from the edge of flooded areas to the widths of: - 30 meters for properties of up to 4 fiscal modules - 50 meters for properties of more than 4 fiscal modules

Observation: In addition, the law establishes that APPs in consolidated areas are limited to a fixed percentage of the total size of the property:

- 10% of the total area for properties of up to 2 fiscal modules
- 20% of the total area for properties between 2 and 4 fiscal modules.

Table 4: APP Transitional Rules for Riparian Area Restoration

Location of APP	Riparian width by fiscal module			
	Up to 1	1-2	2-4	Over 4
Along rivers	5 meters	8 meters	15 meters	20-100 meters
Along springs	15 meters	15 meters	15 meters	15 meters
Along lakes and ponds	5 meters	8 meters	15 meters	30 meters
Wetlands	30 meters	30 meters	30 meters	50 meters

LEGAL RESERVES

Legal Reserve (RLs) are areas located in a property with the function to protect vegetation. They ensure the sustainable economic use of natural resources, support the conservation and rehabilitation of ecological processes, promote the conservation of the biological diversity, and provide shelter and protection to wild fauna and native flora. All rural properties must maintain a Legal Reserve area and register it in the CAR. Depending on the biome in which the property is located, the new Forest Code, establishes the following percentages for legal reserve:.

Table 5 – Legal Reserve percentage requirements by region

Land use	Legal Amazon			Rest of Brazil
	Forest	Cerrado		Forest
Legal reserve	80%	35%	20%	20%
Productive use	20%	65%	80%	80%

The Legal Amazon covers 59% of Brazil and comprises the states of Acre, Pará, Amazonas, Roraima, Rondônia, Mato Grosso, and Amapá as well as regions north of latitude 13° S in the states of Goiás and Tocantins and west of longitude 44° W in the state of Maranhão.

LOCATION OF LEGAL RESERVES

When deciding the location of Legal Reserves in rural properties, the following criteria must be considered:

- Connectivity and the creation of ecological corridors with other Legal Reserves, APPs, Conservation Units, or any other legally protected areas;
- The areas of greatest importance for biodiversity conservation;
- The areas of greatest environmental fragility;
- The watershed plan; and
- Ecological-Economic Zoning (ZEE).

LEGAL RESERVE PROTECTION SYSTEM

The landowner or possessor must maintain native vegetation cover on the Legal Reserve. Forest management and the collection of timber and non-timber (fruits, vines, leaves and seeds) forest products is permitted as long as harvesting periods and harvested volumes obey existing regulations and observe maturation seasons and practices that do not jeopardize conservation.

THE LEGAL
AMAZON COVERS
59%
OF BRAZIL

LEGAL RESERVES ENSURE THE SUSTAINABLE ECONOMIC USE OF NATURAL RESOURCES, SUPPORT THE CONSERVATION AND REHABILITATION OF ECOLOGICAL PROCESSES, PROMOTE THE CONSERVATION OF THE BIOLOGICAL DIVERSITY, AND PROVIDE SHELTER AND PROTECTION TO WILD FAUNA AND NATIVE FLORA

Sustainable management of the vegetation in Legal Reserve areas may be implemented in one of two ways:

1. Sustainable management for non-commercial purposes:

- Must be for consumption within the property itself;
- May be implemented independently of authorization by responsible agencies;
- Must be declared to the environmental agency prior to activity and state the reason and the volumes to be extracted, up to 20 cubic meters of timber per year.

2. Sustainable management for commercial purposes⁴:

- Requires a sustainable forestry management plan and authorization from responsible agencies;
- Should guarantee conservation of a diversity of species;
- Should not disfigure the plant cover or harm conservation of native vegetation in the area; and
- May involve the introduction of exotic species when the Legal Reserves are under restoration, if plantings are interspersed with native species and do not exceed 50% of the area.



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⁴ WWF strongly recommends that management of forest products meet the standards established by recognized institutions, in particular the Forest Stewardship Council (FSC), in order to guarantee sustainability of the activity. Brazil already has large areas certified by FSC.



EXCEPTIONS FOR LEGAL RESERVE AREAS IN THE AMAZON

There are two exceptions for rural property owners in the Amazon that allow for a reduction in the requirement to set aside 80% of the property as Legal Reserve:

1. Rural property owners or possessors who removed native vegetation on up to 50% of the property in the Amazon in accordance with what was previously allowed by law (until August 1996) will be exempt from recovering or compensating the 80% required by the current law. Properties with more than 50% of native vegetation in a Legal Reserve are not allowed to remove this surplus but instead may put this surplus on offer to the compensation market through, for example, CRA.
2. The Legal Reserve percentage can be reduced to 50% when:
 - a. The state has Ecological-Economic Zoning (ZEE) approved, over 65% of its territory is occupied by public conservation units and/or approved indigenous lands, and when agreed by the state environment council;
 - b. More than half of a municipality's area is occupied by Conservation Units or indigenous lands.

CALCULATION OF LEGAL RESERVE AREAS

The new Forest Code allows APPs to be included in the calculation of Legal Reserve areas provided that:

- The APP does not include the conversion of new areas;
- The APP is currently under conservation or is in the process of restoration; and
- The landowner has enrolled the property in the CAR.

LEGAL RESERVES IN PROPERTIES WITH LIABILITIES

Landowners who do not have the amount of Legal Reserve area required by law may achieve compliance through adoption, individually or as part of a group of landowners, of the following alternatives:

- **Restoration:** on the property through natural regeneration or active restoration;
- **Compensation:** compensation outside of the property in an area of less than or equal to the area of the Legal Reserve, as long as it is in the same biome and preferably in the same state⁵. The property used for compensation should be registered in the CAR and covered by vegetation or in the process of natural regeneration or restoration. Only the surplus in Legal Reserve areas (the area that is above the percentage required by law for the region) may be used for compensation. Compensation may be done through:
 - Acquisition of an Environmental Reserve Quota (CRA);
 - Lease of an area in an environmental easement⁶ or Legal Reserve;
 - Donation to the state or federal government of an area within a Conservation Unit that has a land title and is in the process of legal registration;
 - Registration of an equivalent surplus area in the same biome, either held by the same property owner or acquired from a third party, that has the required set-asides of native vegetation or is under regeneration or restoration.



⁵ The Law only allows for compensation outside the state in areas identified by the federal government or states as priority areas.

⁶ An area of the property designated to conserve or recover environmental resources, which must be established for at least 15 years, as the Law 6,938/1981, Art. 90.

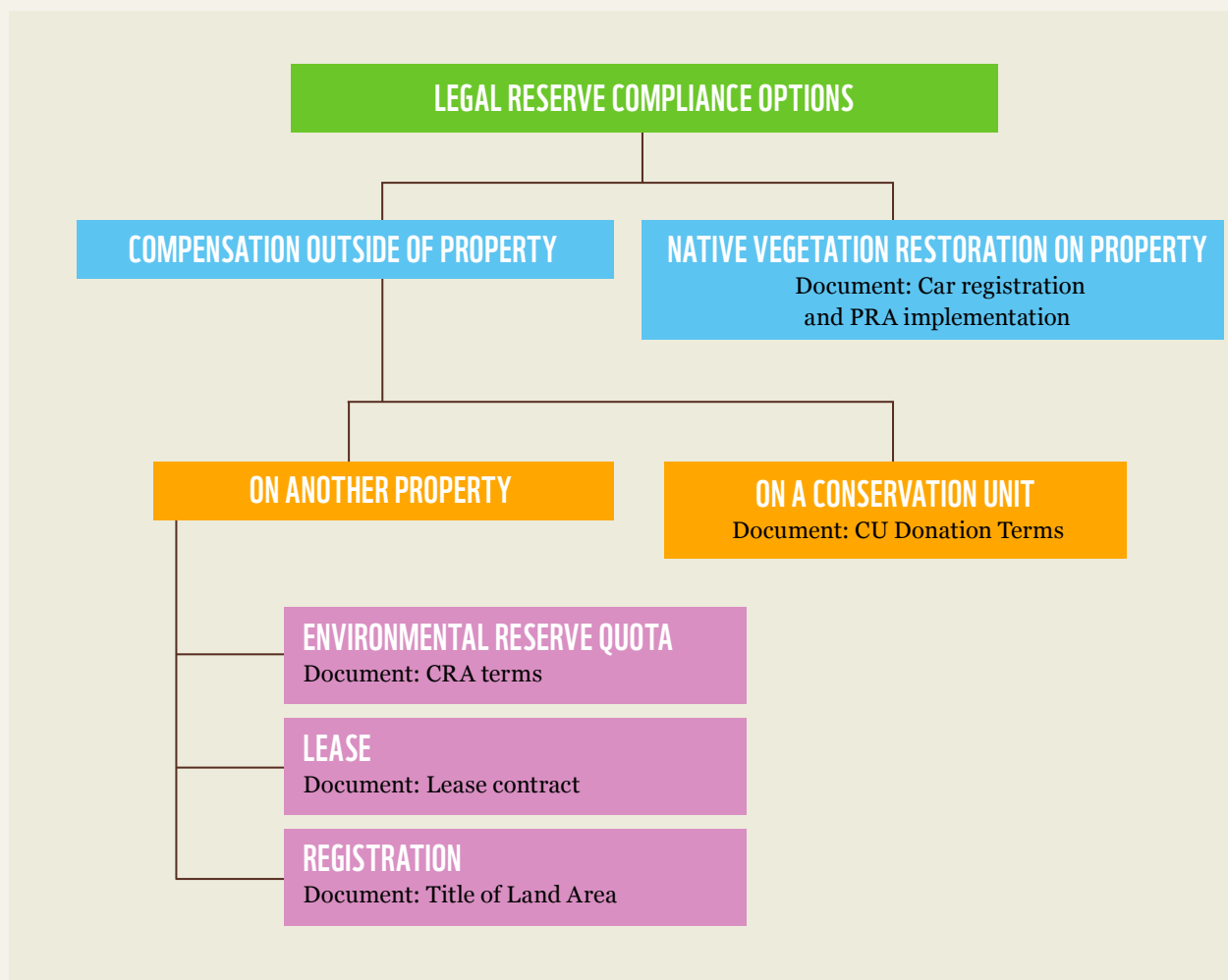


Figure 2. . Legal Reserve compliance options

The restoration of the Legal Reserve area must be completed in 20 years, with at least 10% of the total area rehabilitated every two years.

Rural properties of fewer than four fiscal modules, of which native vegetation was cleared before July 22, 2008 and currently with an area of legal reserve smaller than what is required by law, are not required to reforest or compensate for those deficits. In contrast, properties of more than four fiscal modules with vegetation cover deficits are obligated to use one or a combination of the above listed alternatives for restoration or compensation.



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SMART COMPENSATION IN PRIORITY CONSERVATION AREAS

Compensation is a new option for rural properties with Legal Reserve areas that do not meet the requirements of the new Forest Code. About 4 million properties currently do not have sufficient land set aside as Legal Reserve areas. The total deficit in Legal Reserves and APPs corresponds to at least 21 million hectares, of which about 78%, or about 16.4 million hectares, are Legal Reserve deficits (Soares-Filho et al., 2014) .

The new Forest Code establishes that compensation of Legal Reserves outside the state in which the property is located should be in priority areas identified by the federal or state governments. The new Forest Code provides the following definition for selection of priority areas for Legal Reserve compensation (Art 66, § 7, law 12.651):

- a. Recovery of watershed basins which have been excessively degraded;
- b. Creation of ecological corridors;
- c. Conservation of large protected areas; and
- d. Conservation or recovery of threatened ecosystems or species.

WWF strongly supports the concept of “Smart Compensation,” which seeks to ensure conservation and benefits to society, through prioritization of compensation in ecosystems that are currently underrepresented in Conservation Units, and also when it promotes the connectivity and the maintenance of ecosystem services between landscapes. For those rural properties that maintain native vegetation cover, the mechanism adds economic value to areas with high environmental relevance and reduces incentives for clearing native vegetation given that conserved areas would effectively become an economic asset.

From an environmental point of view, WWF believes that compensation in priority conservation areas can, in certain cases, be a better option than restoration. For example, this can be the case when restoration is undertaken:

- a. In very small areas without the adoption of criteria or adequate technical practices for the restoration of ecosystems;
- b. Without the use of native species or the planning of ecological succession;
- c. Without connectivity between remnants of native vegetation;
- d. In areas that suffer from spillage of pesticides; or
- e. In areas disturbed by livestock.

In many other cases, WWF considers restoration to be the most appropriate option, especially in regions that show risk of ecosystem collapse¹ (stressed water resources, pollinator decline, and low species diversity), and provided that best ecological restoration practices are applied.

Some producers, especially on established farms, may prefer compensation rather than restoration due to opportunity costs of land with consolidated production or in areas with high real estate value. In addition, relevant challenges in restoration includes costs (usually higher than US\$3,000 per hectare) and technical demands, including supply of seeds and seedlings, and planning, planting and implementation. Smart Compensation, on the other hand, allows property owners or possessors to maintain consolidated areas for agricultural production or ranching and to direct compensation to the conservation of areas with significant ecosystem value.

In the case of compensation in extant Conservation Units (UCs), WWF understands that priority should be given to areas facing significant land-use conflicts². In other cases, WWF believes that the costs for titling UCs should be covered by different means and borne by the various federal, state or municipal entities responsible for their creation. For example, cost recovery could be achieved through budgetary solutions or environmental compensation from the licensing of construction works. Compensation as established in the Forest Code should not happen arbitrarily but be based on prioritization of the most vulnerable conservation areas, with high levels of conflict, deforestation pressure and biological importance.

In 2007, the Ministry of Environment, in consultation with different sectors of society, produced and published an official map of all Priority Conservation and Sustainable Use Areas in the country³. The definition of priority areas is based on the broad evaluation of biological and ecological attributes, such as biological diversity, habitat integrity and resilience, ecological corridors, occurrence of endemic, endangered and migratory species, and carbon stocks. Priority areas also take into account a combination of socioeconomic criteria and an assessment of vulnerability and urgency of conservation actions, due to demographic pressure, and expansion of urban areas and of agribusiness or economic activities in general. This map should be updated every five years.

¹ It is important to stress that there are priority areas in this situation. Hence, when compensation is directed towards these areas, it will be linked to best practices for ecological restoration of local ecosystems.

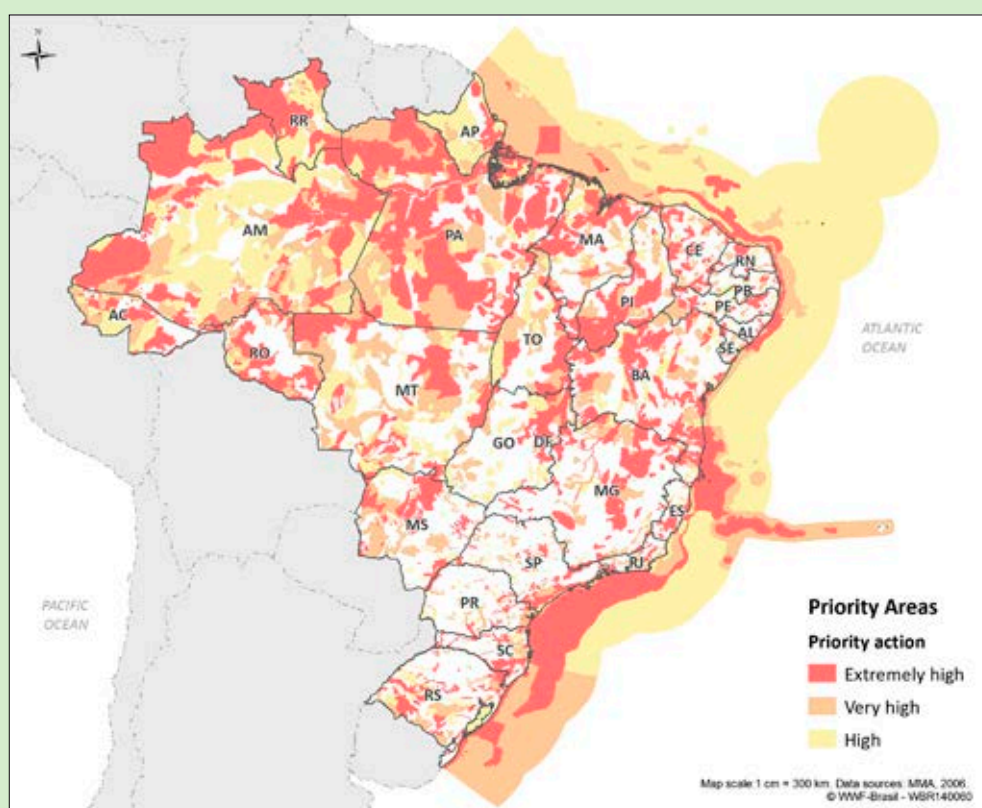
² ICMBIO, WWF-Brazil and other organizations have information about Conservation Units in this situation. A debate about this information could be an incentive for the preparation of a comprehensive list.

³ Available here: http://www.funbio.org.br/wp-content/uploads/2012/08/areas_prioritarias_mar07_v21.pdf

Several states prepared their own maps that, because of their scale, use more refined data. While this allows for more detailed analysis, it impedes a biome-wide perspective. From WWF's perspective, if the states followed a methodology more similar to the federal government, then priority areas defined in these more-detailed maps could be used as a supplementary reference.

Priority areas may also be established based on specific characteristics or their relevance in particular landscapes. For example, maps may be prepared with a focus on water resources, carbon, biodiversity, ecological restoration, ecological corridors, and social and cultural aspects.

Figure 6: Priority conservation areas in Brazil



NEXT STEPS FOR SMART COMPENSATION

Along with other organizations and researchers, the federal government and some states, WWF-Brazil is supporting efforts to update priority conservation areas maps.⁴ Beyond the maps, WWF-Brazil recommends that:

a) Federal government, state governments and the federal district focus on Smart Compensation as a key mechanism for regulation and action plans for the implementation of PRA, and on the incorporation of this concept in other public policies, such as the national plan for the restoration of native vegetation (Planaveg), plans of action on Brazilian biodiversity goals, the ABC program, municipal plans for the Atlantic Forest, etc.

b) Agribusiness corporations develop strategic plans for the implementation of Smart Compensation that, for example, identify groups of producers with environmental deficits interested in joint compensation and direct compensation efforts towards priority areas (through support for land-title assessment and land value negotiation), and develop commercial incentives that benefit these producers.

c) Commercial businesses create market mechanisms that facilitate Smart Compensation by simplifying land purchasing and selling procedures (or lease and CRA, as established in the Forest Code), with clear, step-by-step procedural instructions and an explanation of guarantees and legal certainty of transactions⁵ avoiding areas with land conflicts.

d) Legislators, the executive branch and the private sector directly or indirectly involved in agribusiness (including the financial sector) establish economic instruments, such as specific credit lines with more favorable conditions, tax exemptions and returns (ICMS Ecológico or a Green Income Tax), favorable land tax (ITR), preferential purchase of production, payment for environmental services, etc.

e) All sectors of society, in particular landholders, transform Priority Conservation Areas—once they have been compensated—into conservation areas to ensure their conservation over the long term. Options for privately owned land include the creation of Private Natural Heritage Reserves (RPPNs) or the creation, in dialogue with the public sector, of Natural Monuments, Wildlife Refuge, or Areas of Relevant Ecological Interest. Landholders can also donate land for the creation of conservation areas managed by the federal and state governments, including the federal district or municipal governments.

⁴ Although official, some maps are outdated (from 2007), while others were already updated (in the case of the Cerrado) or in the process of being updated. For the Amazon, for example, a new and better version should utilize the Systematic Conservation Planning method. There are also maps prepared by states that may be of relevance in a wider analysis and others with a focus on a specific aspect, as mentioned in this document

⁵ The mechanism being used by BVRio may provide an interesting example for the compensation of properties located in Conservation Units, even though the concept behind this initiative differs partly from compensation in priority areas

RESTRICTED USE AREAS (AURS)

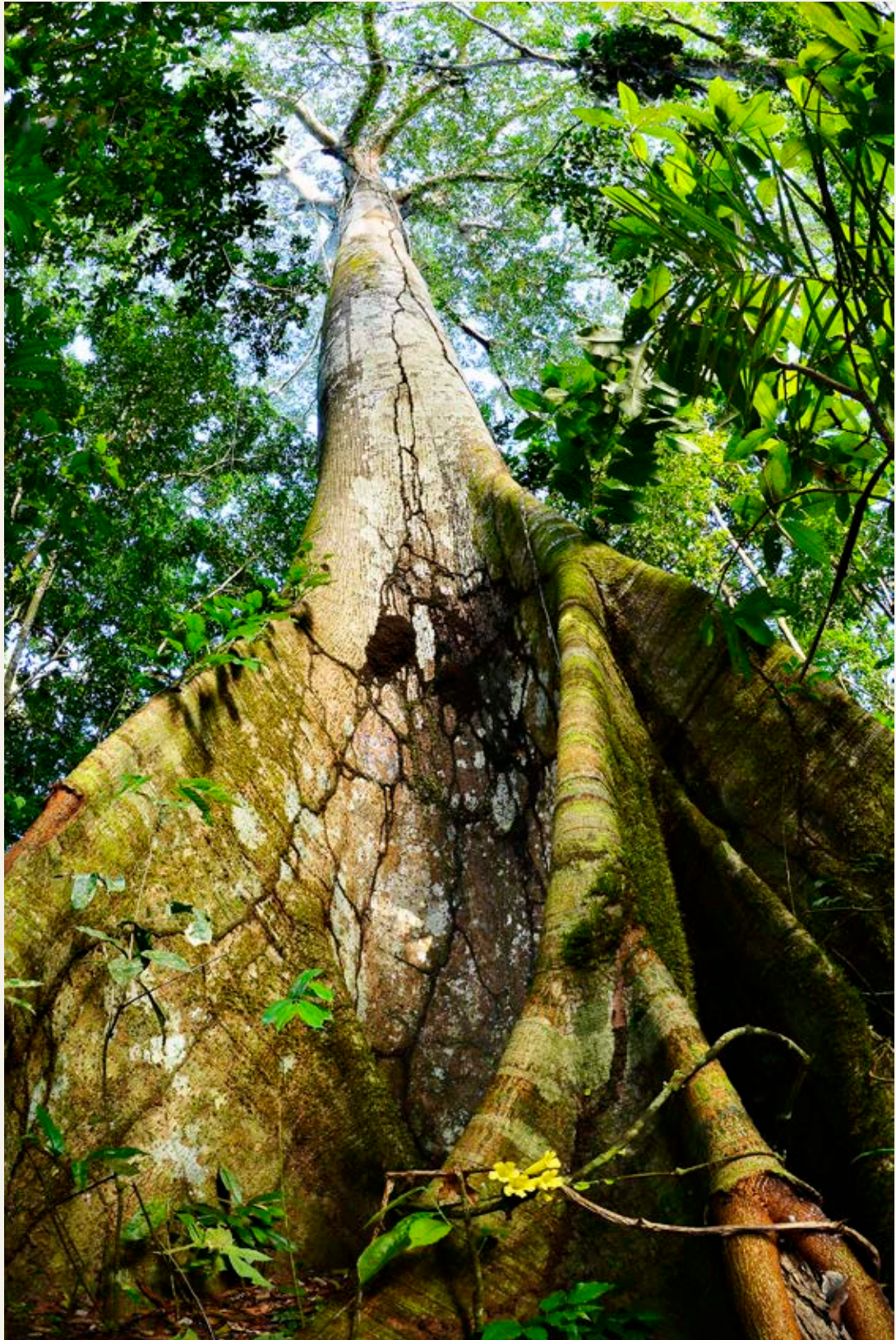
The new Forest Code defined Restricted Use Areas (AURs) in articles 10 and 11, as follows:

- I. In the Pantanal and other wetlands, ecologically sustainable use is allowed, as long as technical recommendations of official research entities are taken into account and the removal of native vegetation is authorized by the state environment agency.
- II. In areas with a slope between 25 and 45 degrees, the law allows sustainable forest management, agricultural, ranching and forestry activities, including the necessary physical infrastructure, as long as best agronomic practices are applied. Conversion of new areas is not allowed, except in cases of public utility.

COMPLIANCE: PENALTIES, LEGAL ACTION, FINES, AND AMNESTY

The new Forest Code (paragraphs 4 and 5 of Art. 59) establishes that there will be no legal action for offenses committed before July 22, 2008, with respect to the illegal removal of vegetation in APPs, Legal Reserve areas and AURs, provided that the landowner has registered his or her lands in the CAR and has signed and is fulfilling the Terms of Commitment (or has adhered to PRA). Once the Terms of Commitment are signed or the landowner has enrolled in PRA, penalties and fines are waived and redirected to the provision of conservation services, including improvement and recuperation of the quality of the environment and registration of consolidated areas, as defined in the PRA. If the landowner does not comply with the provisions identified in the Terms of Commitment, the penalties will be reinstated. Fines and penalties for offenses committed after July 22, 2008, are still in full effect.





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GLOSSARY OF TERMS

Atlantic Forest: One of the world's five most biologically diverse biomes and a WWF priority ecoregion. The Atlantic Forest is one of the most threatened ecosystems in the world today, as it is extremely fragmented and has been reduced to only 7% of its original footprint.

BVRio: Bolsa Verde do Rio de Janeiro, or the Rio de Janeiro Brazilian Environmental Exchange, which aims to provide market solutions for Legal Reserve compensation.

Cerrado: Covering more than 20% of Brazil, the Cerrado is a wooded grassland with diverse vegetative characteristics and more than 1,600 species of mammals, birds, and reptiles. The Cerrado is one of the most threatened and over-exploited regions in Brazil, second only to the Atlantic Forest in vegetation loss and deforestation.

Conservation Units: To conserve areas with high biological diversity, the Brazilian government has invested in a network of protected areas—or Conservation Units—which are divided in two main categories: (1) protected areas, such as parks and biological reserves; and (2) areas for sustainable use, such as national forests, extractive reserves, and sustainable development reserves.

Consolidated Rural Area (ARCs): An area with human occupation before July, 22, 2008, with buildings and infrastructure or agroforestry and ranching activities, including fallow periods.

Environmental Compliance Program (PRA): Program that defines the activities to be implemented within or outside the rural property to comply with the Forest Code, including the conservation, reforestation or restoration of APPs, Restricted Use Areas, as well as the compensation of Legal Reserve areas.

Environmental Reserve Quotas (CRAs): The Forest Code establishes that when a property has more natural vegetation than the minimum required, the landowner has the right to emit bonds for that surplus and trade them on a futures market. In accordance with the law, each CRA corresponds to one hectare of vegetation.

Fallowing: The practice of temporarily suspending agricultural uses, livestock production, or forestry for a maximum period of five years to allow for physical recovery of soil.

Forest Stewardship Council (FSC): WWF considers the FSC the most credible certification system to ensure environmentally responsible, socially beneficial, and economically viable management of forests.

July 22, 2008: The new Forest Code references this date, when Decree 6.514, which regulates the 1998 Law of Environmental Crime, was published. The Degree deals with

environmental infractions and administrative penalties and establishes the federal administrative process for investigating these infractions.

National System of the Rural Environmental Registry (SICAR): The nationwide electronic system for managing environmental information on rural properties.

Perennial Spring: A spring that flows naturally above ground throughout the year.

Priority Biodiversity Conservation Areas: Landscapes officially identified by the Ministry of the Environment for their important functional and ecological features, such as habitat integrity, habitat for endemic or endangered species, wildlife corridors, carbon stocks, and sources of water, or specific socioeconomic factors.

Private Natural Heritage Reserves (RPPNs): Incorporated into national legislation in 2000, RPPNs are a Conservation Unit created voluntarily by the rural landowner, without expropriation of land, based on his or her commitment to permanently conserve nature.

Restoration: The science, practice and art of supporting and managing the recovery of ecosystems' ecological integrity, including a minimum level of biodiversity and variability in the structure and functioning of ecological processes, taking into consideration their ecological, economic and social value.

Rural Environmental Registry (CAR): The central tool for rural properties to become compliant with Forest Code requirements. All rural property owners must register their lands in CAR, including the location of APPs, Legal Reserves, and other elements. CAR is regulated by the National System of Information on the Environment (SINIMA).

Sketch: A rough map or simplified representation of the geographical location of the rural property that will be geo-referenced with satellite images made available through SICAR. It should include the location of remaining native vegetation, easements, APPs, Restricted Use Areas, consolidated areas, and Legal Reserves.

Soy Moratorium: An agreement that bans the purchase of soybeans produced in deforested areas of the Brazilian Amazon. The 2006 agreement has been renewed until December 2014, when it is expected to be replaced by a mechanism developed by the Soy Working Group (GTS), a body of Brazilian and international stakeholders largely focused on operationalizing the Rural Environmental Registry (CAR), PRA implementation, continuous improvement, and controlled rates of deforestation.

Terms of Commitment: A formal document signed by the rural landowner in which he or she commits to redress the environmental deficit of the property, including, at least, commitments to conserve, reforest or restore APPs, Legal Reserves and Restricted Use Areas. Legal Reserve areas may be restored or compensated.

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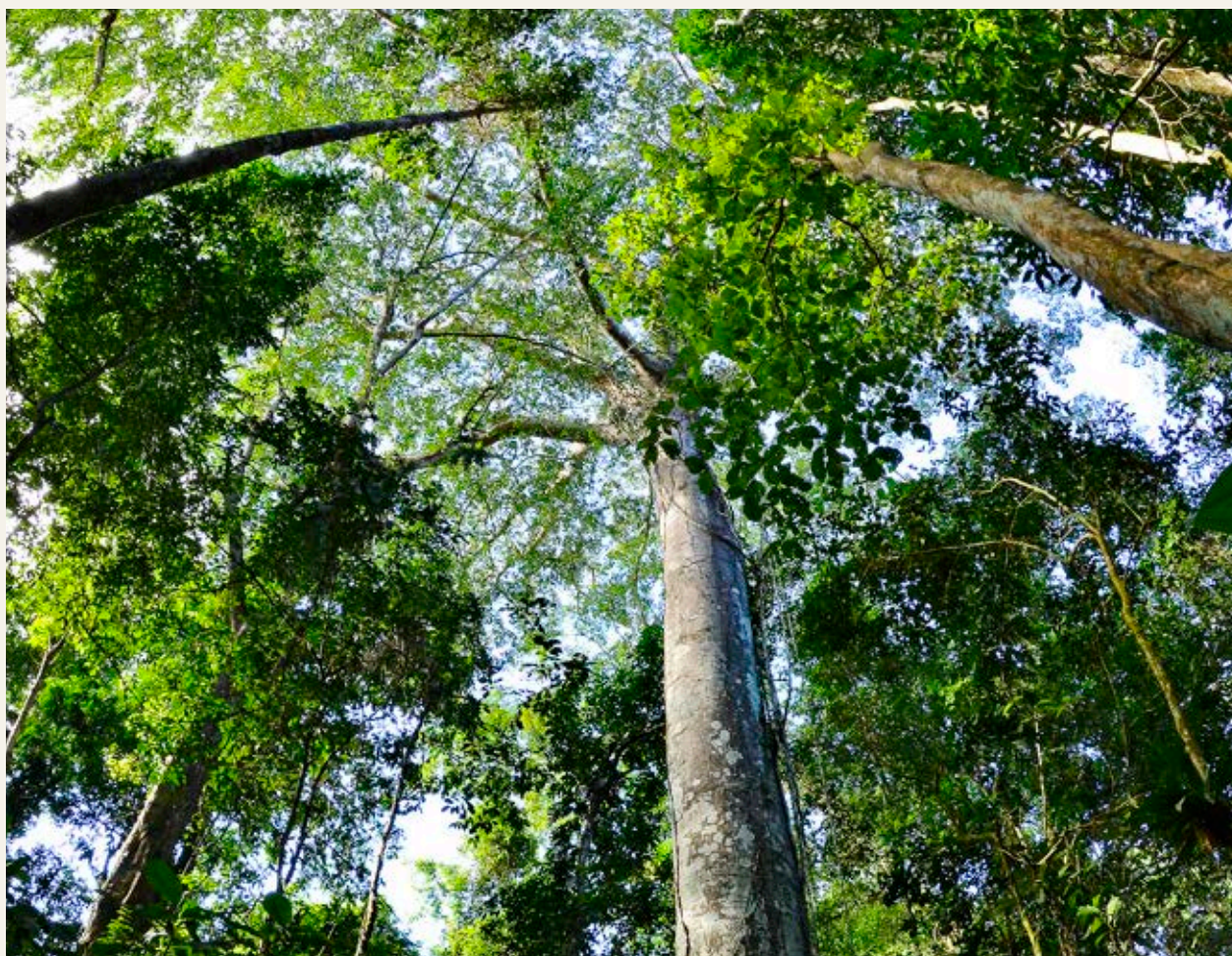
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BRAZIL'S NEW FOREST CODE: A GUIDE FOR DECISION-MAKERS IN SUPPLY CHAINS AND GOVERNMENTS

GOVERNMENTS AND INTERNATIONAL AGENCIES

should ensure that trade of Brazilian agricultural and forest products occurs only when legally produced, and, preferably, in accordance with recognized sustainability standards.

BUYERS OF COMMODITIES

and consumer companies should take on the role of drivers for legal compliance in order to avoid contamination in their supply chains, and should use their conditions to support the implementation of better practices and zero net deforestation and degradation.



THE FINANCIAL SECTOR

has a fundamental role as driver of change and in promoting the use by rural producers of better practices, through adoption of social and environmental lending criteria.

ENGAGEMENT

of the international community, the national public sector, and the private sector will determine the success of the Forest Code qualified implementation.



Por que estamos aqui

Para frear a degradação do meio ambiente
e para construir um futuro no qual os seres humanos
vivam em harmonia com a natureza.

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