Technical Report CPR - GREEN

Identification Number
GREEN ASSET

0148/24

Total Captured Carbon Quantity

10.119.664 TON C
Lagoa Grande Property
Legal Amazon, Manicoré Municipality - AM
Area 38.900,26 hectares
(link:http/blockchainxxxxxxxxx)

Our Analysis

The technical compilation of analyses carried out in the Lagoa Grande area constitutes an indispensable tool for the comprehensive understanding of the region, encompassing its geographical, geological, and environmental aspects. This multidisciplinary approach is essential for effective planning and management, allowing for the identification of specific opportunities and challenges in the area, and the formulation of strategies that align economic development with environmental conservation.

Geography and Hydrology

The topographic analysis provides a detailed map of the terrain of Lagoa Grande, identifying not only elevation variations but also characteristics that affect the water dynamics in the region. Understanding these patterns is vital for planning infrastructures such as irrigation and drainage systems, as well as for preventing natural disasters such as floods. Additionally, the identification of water resources contributes to sustainable water management, ensuring its availability for human consumption, agriculture, and preservation of aquatic habitats.

Geology and Soils

Knowledge of soil composition and rock formations offers valuable insights into the terrain's ability to support different uses. Identifying areas with fertile soils is crucial for agricultural development, while understanding geological stability guides infrastructure construction. Furthermore, geological analysis may reveal the presence of mineral resources, opening possibilities for responsible economic exploitation.

Biodiversity and Conservation

The biological richness of Lagoa Grande, highlighted by biodiversity analyses, underscores the need for conservation strategies that protect threatened species and preserve the ecological integrity of the region. Identifying critical areas for biodiversity aids in the creation of natural reserves and the development of management practices that minimize human impact on local ecosystems.

Practical Applications of the Technical Compilation

Urban and Rural Planning: Using the compiled data, it is possible to direct urban growth and agricultural expansion to more suitable areas, minimizing environmental impact.

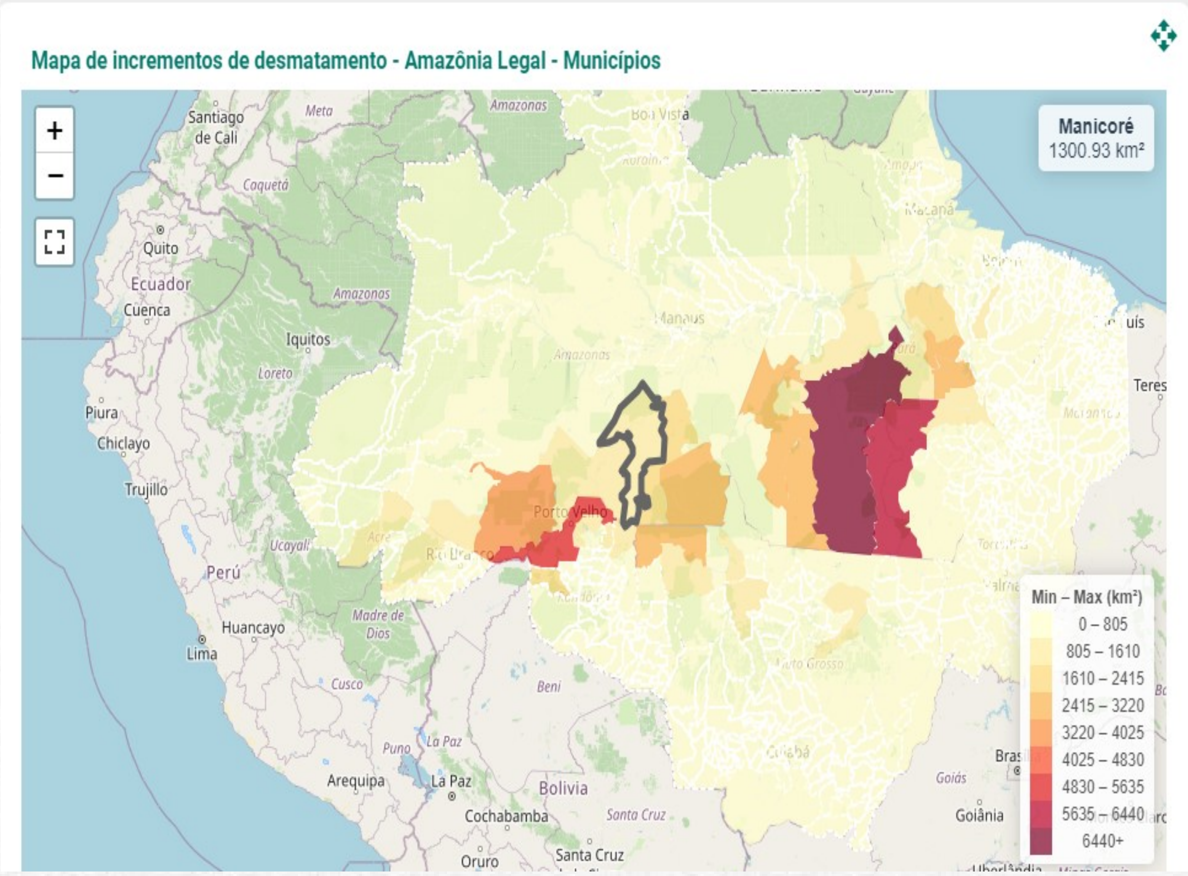
Natural Resource Management: Information on soils, water, and biodiversity guides the sustainable use of natural resources, promoting practices that ensure their renewal and preservation.

Economic Development: Detailed analysis of the area can reveal opportunities for the development of sustainable economic activities, such as ecotourism, organic agriculture, and responsible mineral exploitation.

Education and Environmental Awareness: The compiled data can be used in educational programs aimed at increasing awareness of the importance of environmental conservation in the region.

Disaster Response and Climate Change: Understanding hydrological and topographical patterns assists in preparing for extreme weather events, reducing risks to the local population.

In conclusion, the technical compilation of analyses in Lagoa Grande provides a solid foundation for informed decision-making and the implementation of public policies and private initiatives that seek to harmonize socioeconomic development with the conservation of natural resources, thus ensuring the long-term sustainability and resilience of the region.



Description: This map is a alarming indication of deforestation in the Legal Amazon, revealing that Manicoré is the most impacted municipality, with 1300.93 km² of forest lost. The color gradations, from green to red, illustrate the severity of deforestation, making it clear the critical need for preservation initiatives in Manicoré to combat environmental loss and protect the region's essential biodiversity.

Analysis of the Additionality of the Lagoa Grande Conservation Project

Project Context:

The Lagoa Grande property boasts rich biodiversity, with Dense Rainforest and Hydromorphic Fields across its 38,900.26 hectares.

Basis for Additionality:

Additionality is demonstrated by the fact that, without the project, deforestation and forest degradation would continue in Manicoré, as evidenced by previously high levels of deforestation in the region.

Evidence of Additionality:

Project documents, such as biomass analyses and studies on vegetation carbon sequestration capacity, indicate that the sustainable management and conservation practices proposed by the project are new and would not be carried out without the project intervention.

The existence of advanced technology for monitoring and managing the property's natural resources, such as the Planet satellite constellation and Hecta processing technology, suggests that the project leads to a conservation approach that did not previously exist.

Baseline and Project Analysis

Baseline Scenario:

The baseline scenario for the Lagoa Grande property can be described as the continuation of current land use and management practices without the conservation project, leading to ongoing deforestation and biodiversity loss.

This scenario would be characterized by a trend of increasing deforestation given legal authorizations for human intervention in the region and forest degradation, with negative impacts on the region's carbon sequestration capacity.

Project Scenario:

With the project, it is expected that sustainable management and conservation practices will be implemented, leading to biodiversity preservation and increased carbon sequestration.

Satellite image analysis and field data results demonstrate the carbon sequestration potential of the property, and thus, projected emissions in the baseline scenario would be reduced with project implementation.

Conclusion:

Analyses suggest that the project in Lagoa Grande offers additional benefits in terms of conservation and carbon sequestration that would not occur in the baseline scenario.

The estimated annual carbon sequestration, when compared to the baseline scenario, demonstrates that the project will result in a significant reduction in carbon emissions.

Preserving the forest ecosystems of the Lagoa Grande property plays a critical role in mitigating climate change and maintaining biodiversity, reinforcing the additionality of the project.

This analysis provides a detailed insight into the conservation project's contribution to the environmental and economic sustainability of Manicoré and the Amazon biome as a whole. By providing a clear assessment of additionality and impact, areas under focus have undergone ecological restoration techniques aimed at revitalizing native biodiversity and stabilizing the ecosystem.

Figure 01 = degraded area (project start)

Figure 02 = area under recovery (during the project)

Figure 03 = current area (most recent image of the project)

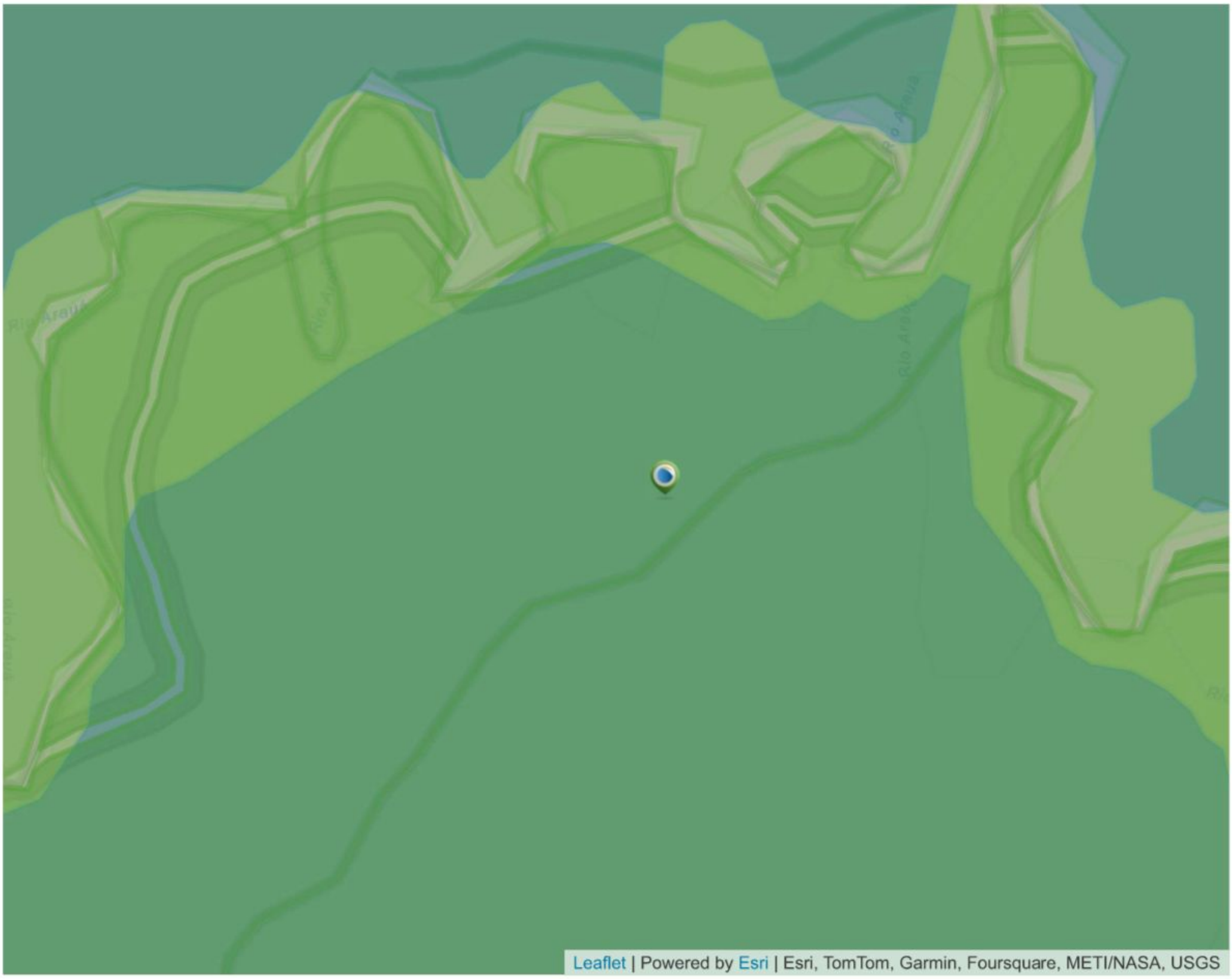
Analysis of Progression Images

The attached images illustrate the chronological sequence of biome recovery. It can be observed in the images a gradual improvement in vegetation coverage, with previously deforested areas now showing significantly higher foliage density. The restoration of natural drainage patterns and the recovery of water bodies are visible, demonstrating the effectiveness of the Green Method Project in restoring vital ecological functions.

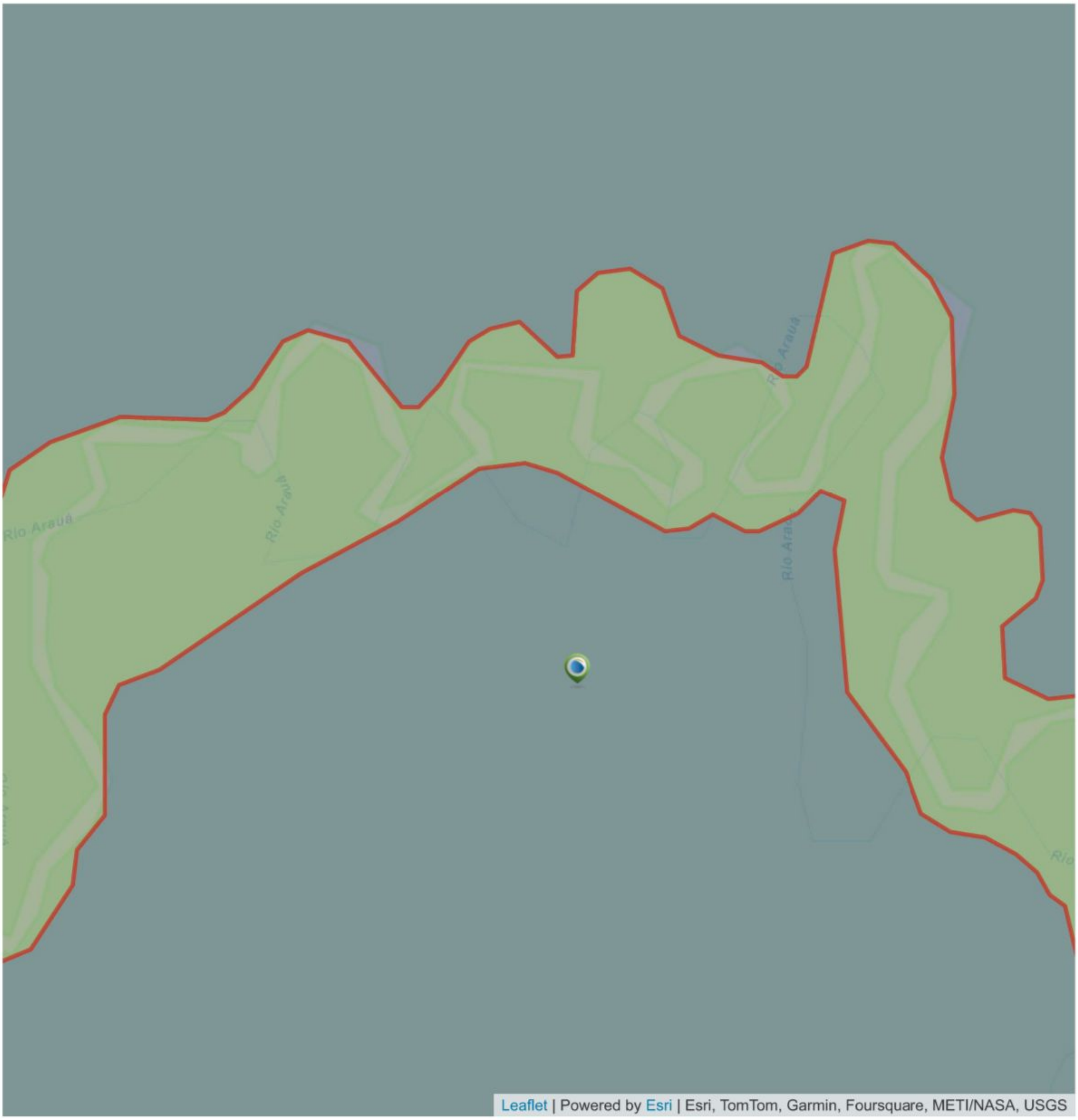
Results and Discussion

Since the implementation of the "Green Method," a reduction in surface runoff has been noted, implying an improvement in soil quality and water retention. Biome recovery has also contributed to erosion mitigation and increased biodiversity. The landscape, which previously showed clear signs of degradation, now presents an ecosystem in the process of healing and balance.

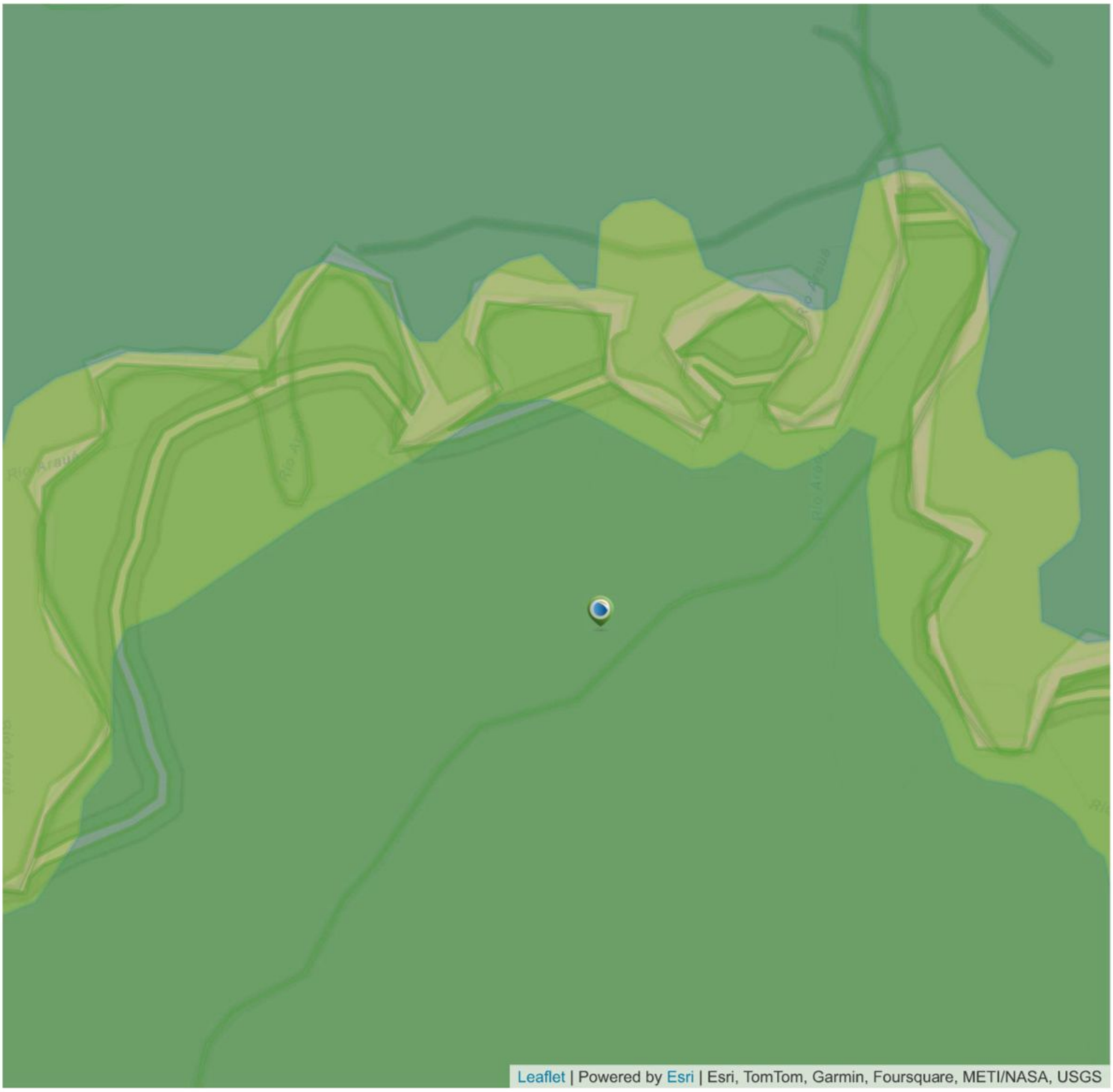
Registered Dynamic and Interactive Topographic Maps



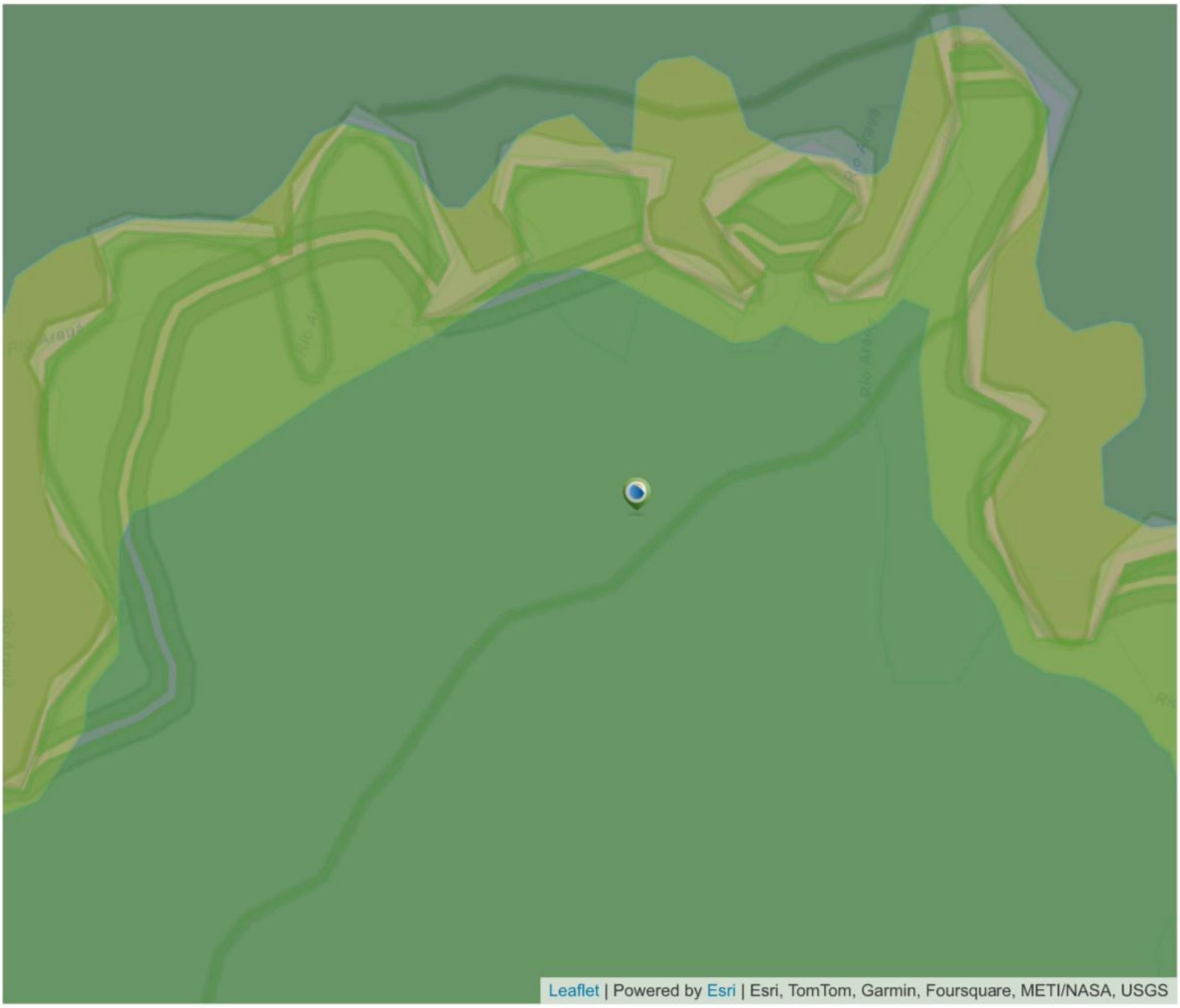
Camada:	Embrapa - Solos do Brasil (SiBCS)
Simbolos:	LAd33
Área (km²):	37.275,779
Legenda:	LAd33 - Latossolos Amarelos Distroficos + Neossolos Quartzarenicos Orticos + Espodossolos Humiluvicos Hidromorficos
Ordem 2:	NEOSSOLOS
Subordem 2:	QUARTZARENICOS
Ordem 3:	ESPODOSSOLOS
Subordem 3:	HUMILUVICOS
GDEGRUPO2:	Orticos
GDEGRUPO3:	Hidromorficos
CLASSE_DOM:	LAd



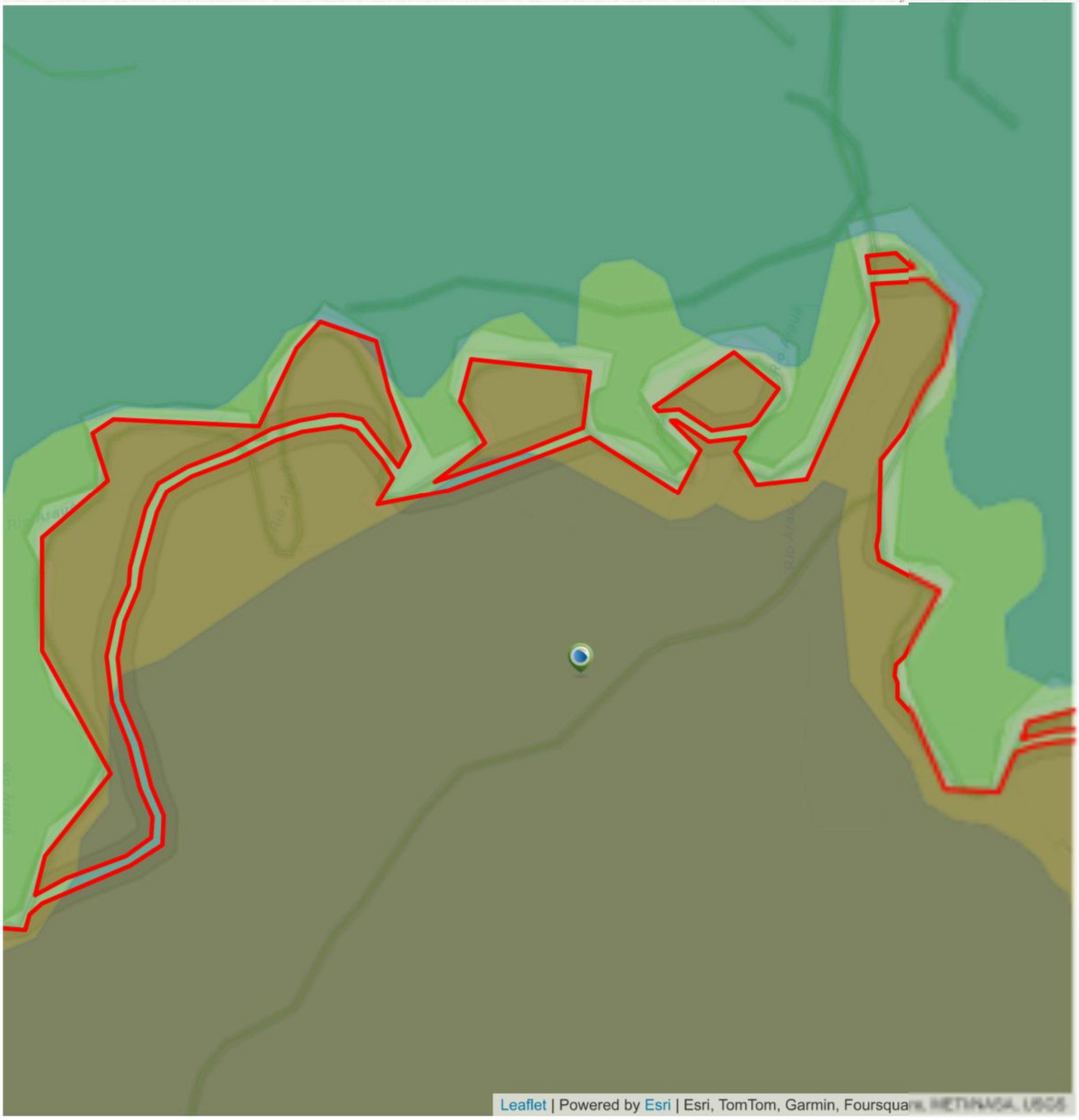
Camada:	Embrapa - Erodibilidade dos solos (hídrica)
Cód. Num.:	3
Classe:	Media
Área (km²):	15.537,388



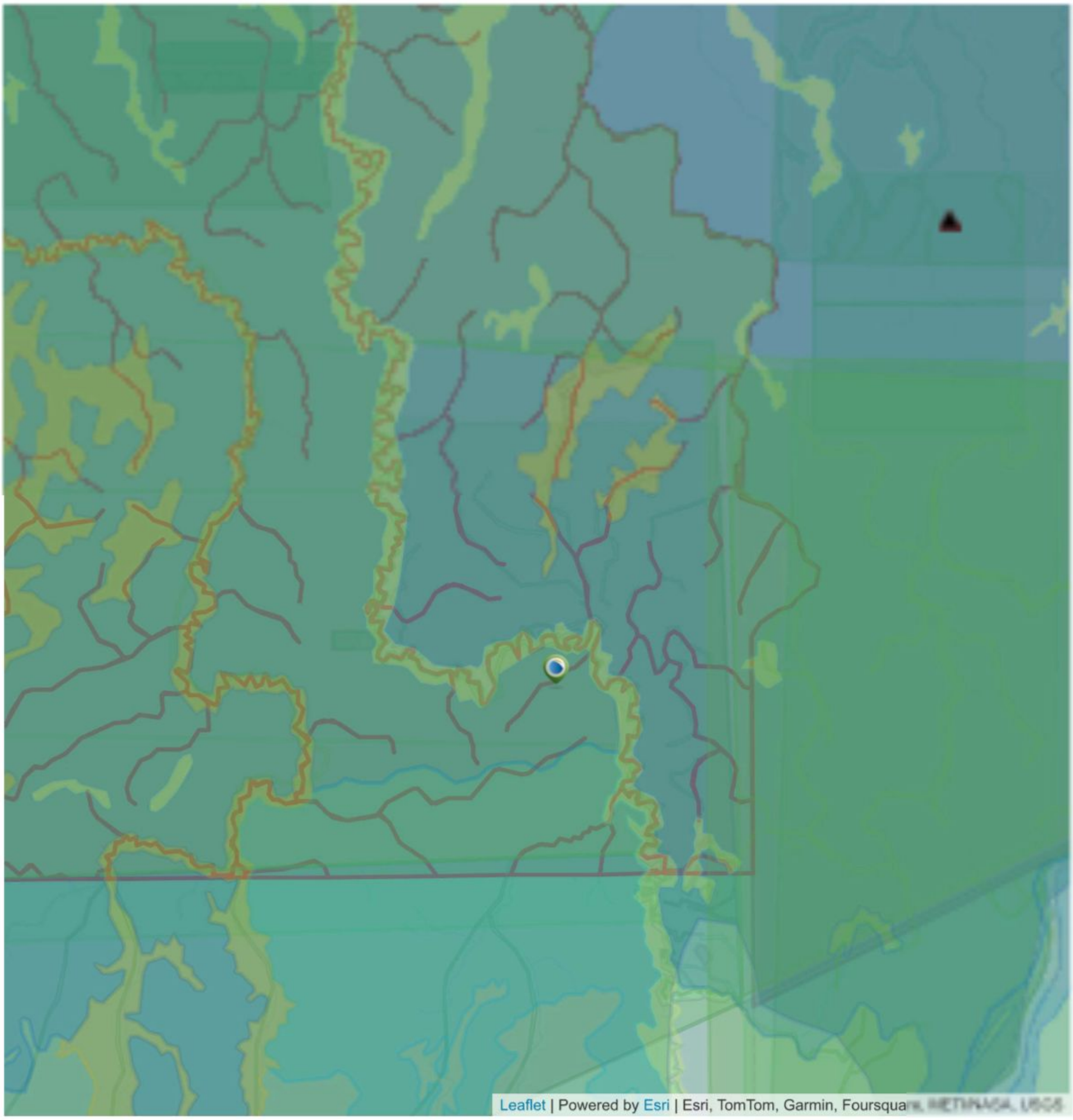
Camada:	Embrapa - Brazil soil map (WRB/FAO)
Symbol_WRB:	FRxa
WRB1:	Xanthic FERRALSOLS
Soil_Group:	FERRALSOLS
Legenda:	Xanthic FERRALSOLS
Rotulo:	FR



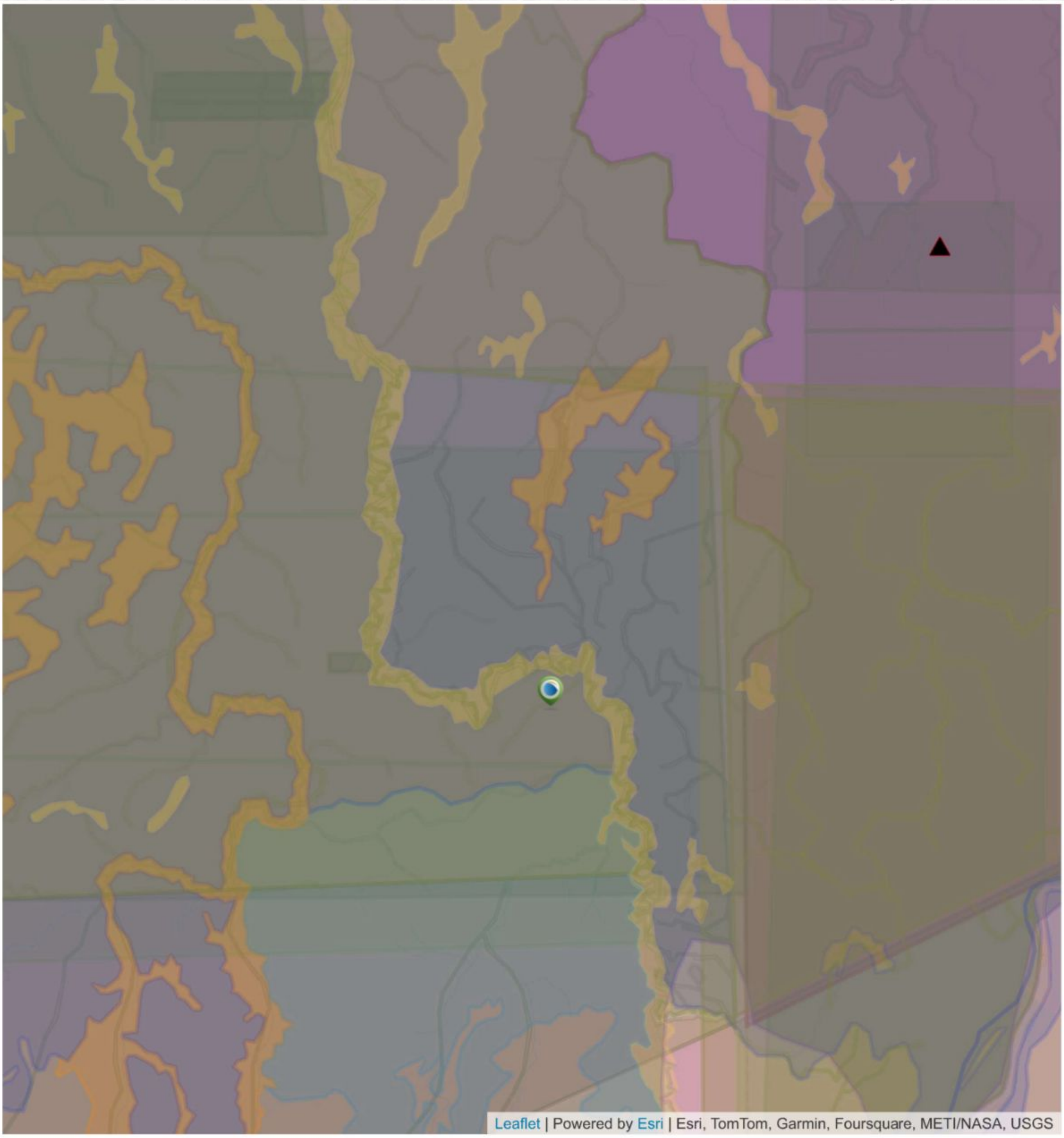
Camada:	CAR - Área Imóvel - Pendente
Cód. Estado:	AM
Cód. Imóvel:	AM-1303304-8BB9A244F3C64D1793414B9065A7F896 Clique aqui para consultar o CAR
Nome Município:	Novo Aripuanã
Nº Área:	501355.9
Nº Módulo:	5013.5598
Situação:	PE
Tipo Imóvel:	IRU



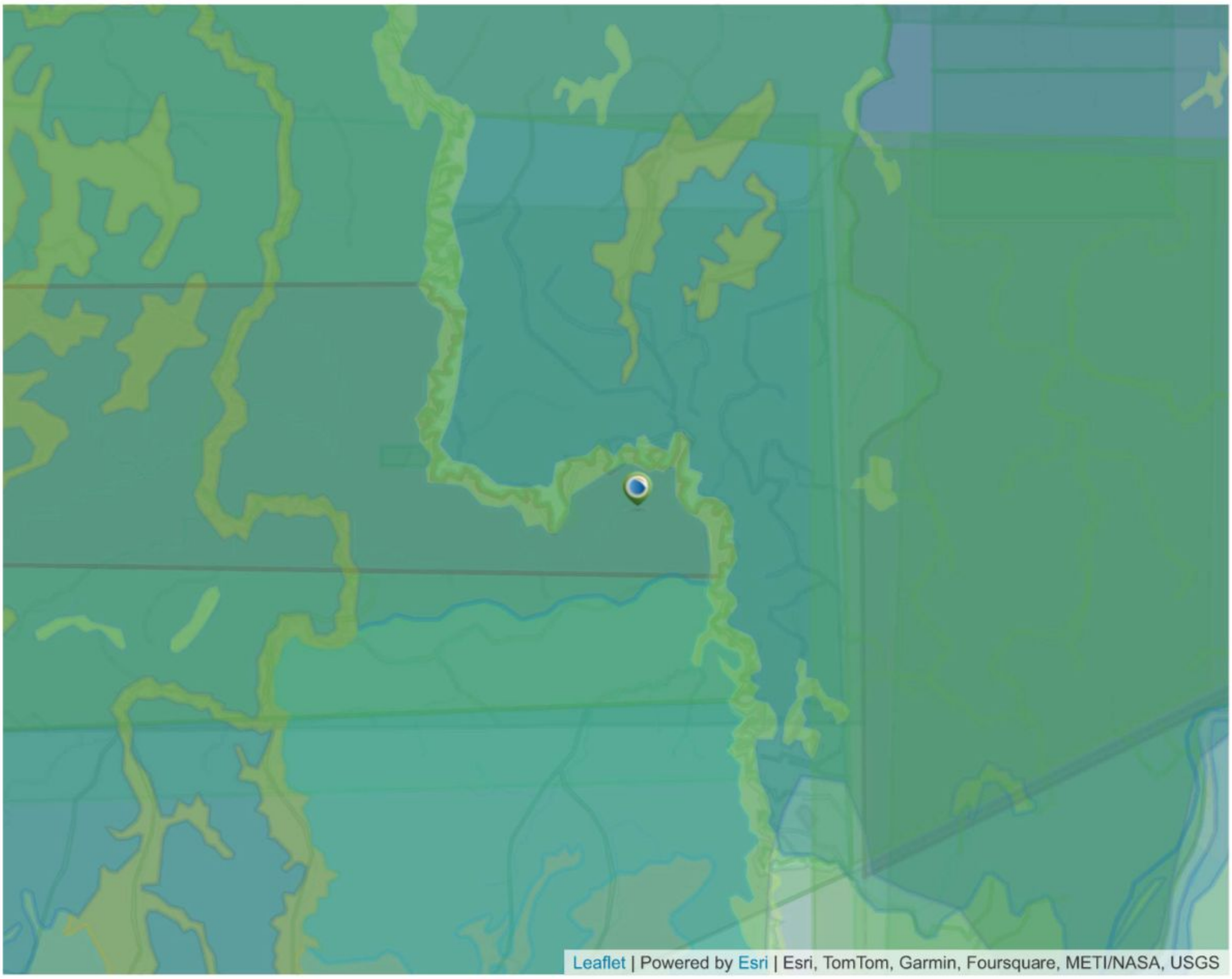
Camada:	CAR - Vegetação Nativa
IDF:	9402620
Nome Tema	Remanescente de Vegetação Nativa
Nº Área:	545132.1



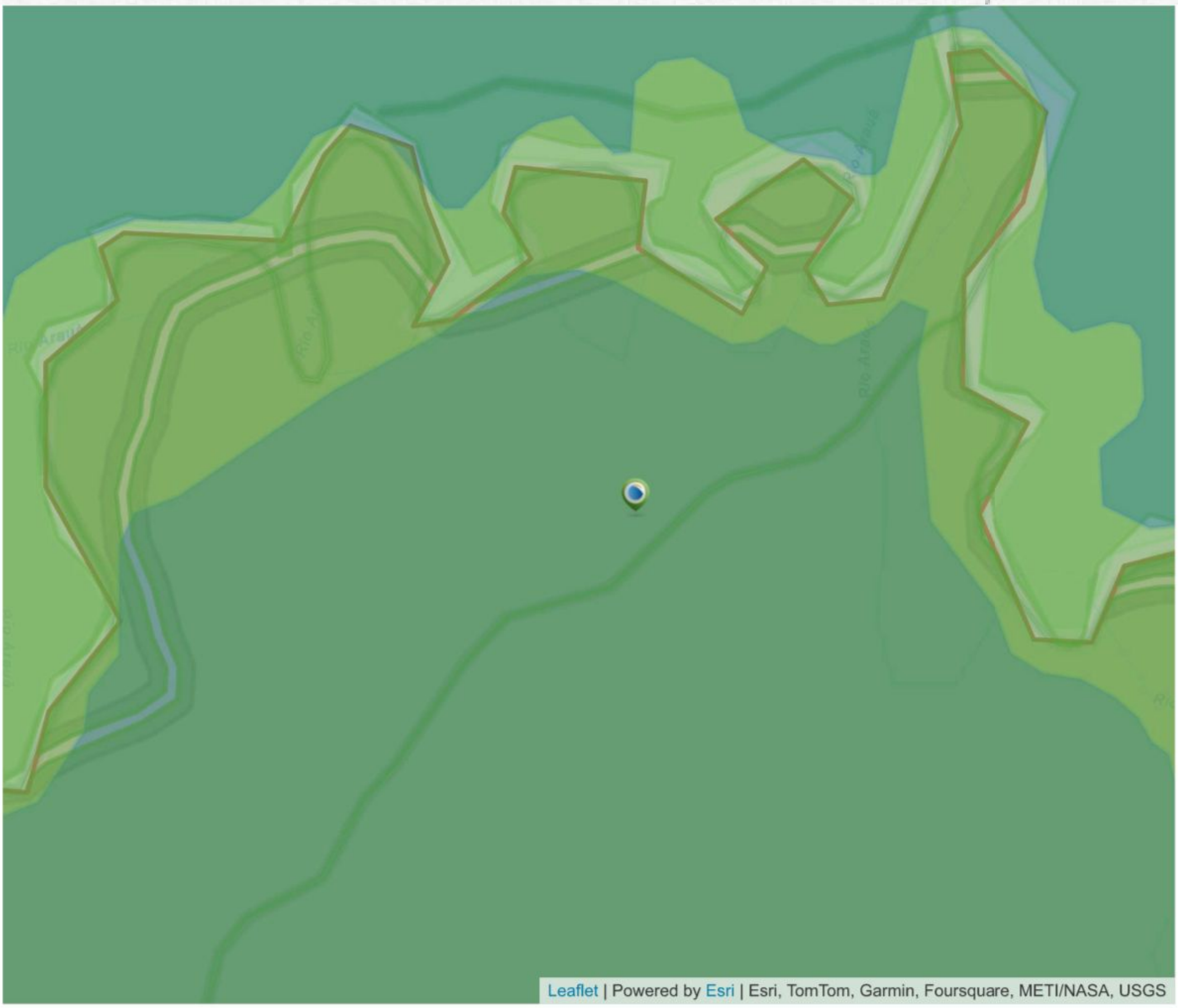
Camada:	CAR - Reserva Legal
IDF:	8468040
Nome Tema:	Reserva Legal Proposta
Nº Área:	401964.5



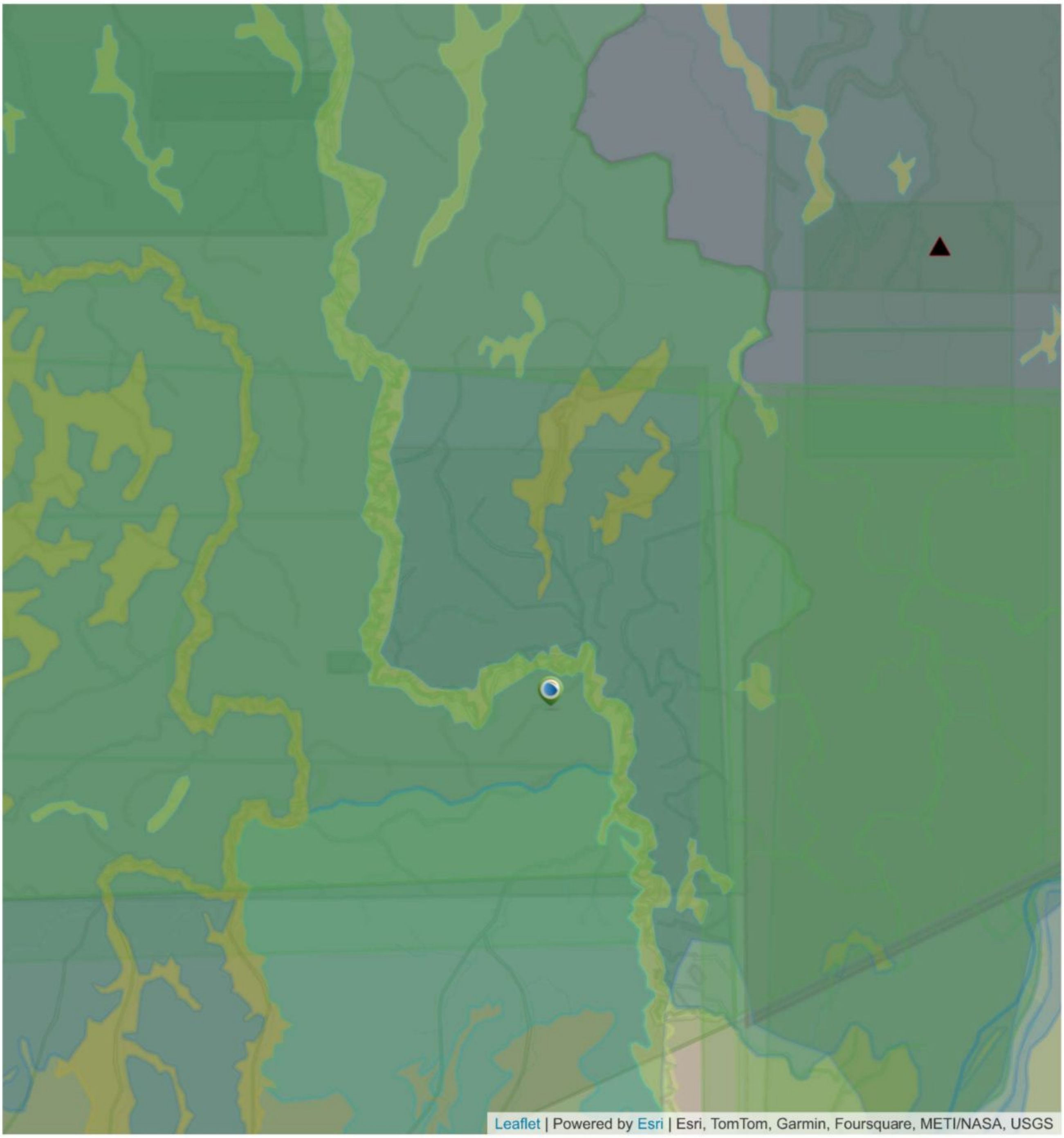
Camada:	Amazônia Legal
Código:	Amazônia_Legal
Área (km²):	5.015.067,859



Camada:	SIGEF
Matrícula:	**151**
CNS / Serventia:	-
Código do Município:	1302702
Código do Imóvel (SCNR/INCRA):	**9501907148795**
Data Registro:	-
Art.:	AM20220344796-AM
Imóvel:	FAZENDA SUCUNDURI PARTE I
Área:	39.096,282 ha
Situação :	Certificada - Sem Confirmação de Registro em Cartório
Cidade / UF:	Manicoré - AM



Camada:	CAR - Área Imóvel - Ativo
Cód. Estado:	AM
Cód. Imóvel:	AM-1303304-2FF39DE4AB1F4EF99C58CD847560A6F4 Clique aqui para consultar o CAR
Nome Município:	Novo Aripuanã
Nº Área:	549826.3
Nº Módulo:	5498.2638
Situação:	AT
Tipo Imóvel:	IRU



Camada:	Biomas (IBGE)
Código:	AMZ
Nome:	Amazônia

Estimates of Carbon Sequestration Stock for a Property Located in Manicoré - Amazonas

"MANICORÉ

The municipality of Manicoré, located in the heart of the Brazilian Amazon, is a fascinating example of the intersection between the local communities' way of life and the region's unique biodiversity. Its economy, heavily based on agriculture, with a focus on banana cultivation, watermelon, and flour production, reflects not only the natural richness but also the adaptability and ancestral wisdom of its inhabitants in managing available resources.

Manicoré's strategic location, between the capitals Manaus and Porto Velho, and its estimated population of 54,708 inhabitants in 2017, point to a municipality that, despite its challenges, has a vibrant community that keeps local traditions and cultures alive. The extractive sector, especially rubber and Brazil nut extraction, also plays a crucial role in the local economy, emphasizing the importance of the forest not only for subsistence but as a source of income for many families.

From a climatic perspective, Manicoré is situated in a region with a rainy tropical climate (Am), characterized by a brief dry season, average annual temperatures between 25 and 27°C, and high relative humidity, ranging between 85 and 90%. These climatic conditions, along with an annual rainfall between 2,250 and 2,750 mm, create a favorable environment for the lush Dense Tropical Forest that covers the region, offering rich biodiversity and abundant natural resources.

The complexity of life in Manicoré, intertwined with the Amazon's biodiversity, presents challenges and opportunities. On one hand, the dependence on traditional and extractive activities highlights the need for sustainable management practices and policies that ensure environmental preservation and economic sustainability for these communities. On the other hand, the natural and cultural richness of the municipality provides a vast field for the development of ecotourism initiatives and environmental education, promoting greater awareness of the importance of Amazon conservation for Brazil and the world.

Integrating traditional knowledge with modern sustainability practices can be an effective strategy to address these challenges. Standards such as ISO 14067:2018, which focuses on quantifying and communicating the carbon footprint of products, can offer valuable guidelines to promote more sustainable agricultural and extractive practices in Manicoré. When applied in a manner adapted to local realities, these standards can assist in reducing greenhouse gas emissions and efficiently managing natural resources, aligning economic development with the needs of environmental conservation.

The implementation of sustainable practices, along with support for public policies that strengthen the local economy and protect the environment, is essential to ensure that Manicoré continues to be an example of harmonious coexistence between humans and nature. This balance is crucial not only for the preservation of the Amazon's unique biodiversity but also for ensuring a prosperous and sustainable future for future generations inhabiting this extraordinary region."

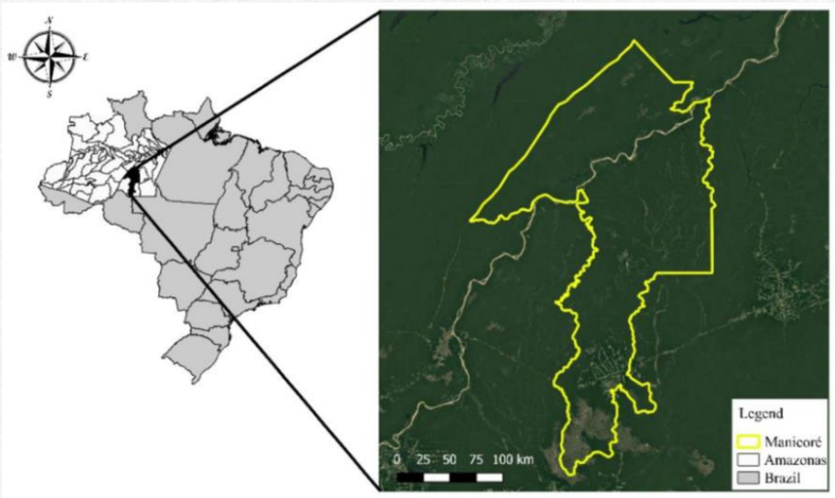


Figure 01. Location of Manicoré (Coelho et al., 2020)

THE PROPERTY

The Lagoa Grande property, with its 38,900.26 hectares located in the Amazon biome, is a representative microcosm of the complexity and environmental richness that characterizes the region. The coexistence of two distinct typologies, the Dense Rainforest and the Hydromorphic Fields, along with the abundance of water resources, reflects the diversity and uniqueness of Amazonian ecosystems. This diversity not only contributes to global biological richness but also offers an in-depth study of ecological interactions and natural balance within the biome.

The Dense Rainforest is one of the pillars for maintaining planetary biodiversity, acting as a home to an incalculable number of plant and animal species, many of which are endemic and some yet to be discovered. This forest is essential for regulating freshwater cycles on the planet, influencing regional and global climate patterns, and is a key player in the fight against climate change due to its carbon storage capacity.

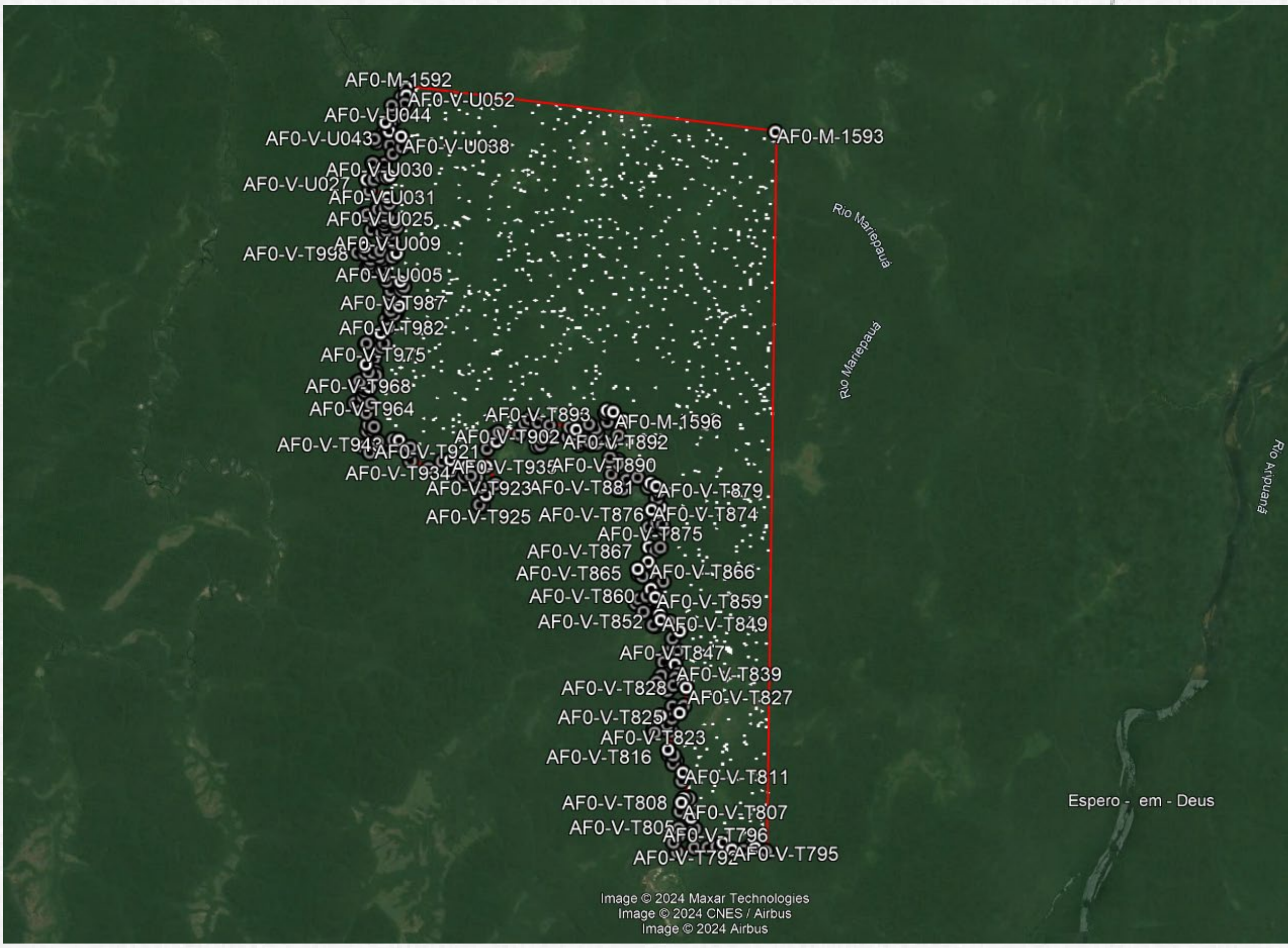
The Hydromorphic Fields, on the other hand, present an equally vital ecosystem, characterized by water-saturated soils that sustain vegetation adapted to waterlogging conditions. These areas play a crucial role in maintaining water quality, recharging aquifers, and preserving aquatic habitats essential for biodiversity.

However, the integrity of these ecosystems is under constant threat due to anthropogenic pressures, including deforestation for agriculture and livestock, logging, mining, and uncontrolled urbanization. Habitat loss, forest fragmentation, and pollution of water resources not only decrease biodiversity but also compromise the vital ecosystem services that these areas provide.

In the face of these challenges, sustainable management of the Lagoa Grande property becomes paramount. Conservation strategies that integrate sustainable use of natural resources with biodiversity protection can ensure the preservation of these unique ecosystems. This includes implementing sustainable forest management practices, restoring degraded areas, creating ecological corridors to connect fragmented habitats, and promoting ecotourism as an economic alternative that values environmental conservation.

Furthermore, it is essential to involve local communities in these conservation efforts, recognizing and strengthening their traditional knowledge and sustainable land use practices. Environmental education and scientific research also play crucial roles in understanding the ecosystems present on the Lagoa Grande property and in formulating effective strategies for their conservation.

Preservation of the Lagoa Grande property and its rich ecological typologies is imperative not only for the maintenance of Amazonian biodiversity but also for global environmental sustainability. Through collaborative efforts and integrated environmental management policies, it is possible to protect this natural heritage for future generations, ensuring that the Amazon continues to play its vital role in the planet's ecological systems."



"ENVIRONMENTAL ANALYSIS

Flora

The Lagoa Grande property, immersed in the forest typology of the Dense Rainforest, offers a window into understanding the complex ecological interactions that define the biomes of the Amazon and the Atlantic Forest. This forest, with its dense vegetation permeating all strata, from the canopy down to the lianas, is a vivid example of tropical rainforest formations, characterized by high average temperatures of 25°C and abundant precipitation, with an insignificant dry period of up to 60 days. The presence of Dystrophic Red Latosols and, in exceptional cases, Eutrophic Red Latosols, reflects the rich biodiversity and edaphic complexity that sustains this vegetation formation.

The subdivision of vegetation into five faciations, according to Embrapa (2023), highlights the sensitivity of this forest to ecotypic variations influenced by altimetric differences. Such classification underscores the importance of topography and soil conditions in determining the specific composition of vegetation and species distribution, demonstrating the intrinsic connection between abiotic factors and biodiversity.

Furthermore, the presence of Campinarana fragments in the region highlights the diversity of ecosystems within the Amazon biome. This "false field," with its woody vegetation adapted to swampy conditions, reveals the unique adaptations of plants to environmental variations and contributes to the ecological complexity of the landscape.

Understanding these ecosystems and their associated biodiversity is crucial for the development of effective conservation strategies. The Dense Rainforest and Campinarana fragments are vital for maintaining hydrological cycles, conserving biodiversity, and mitigating climate change, serving as important carbon sinks. However, they face significant threats due to deforestation, logging, and changes in land use.

Thus, conserving these ecosystems requires a multifaceted approach that incorporates sustainable management of natural resources, restoration of degraded areas, and implementation of ecological corridors that promote connectivity between fragmented habitats. Scientific research plays a fundamental role in obtaining deeper knowledge about these ecosystems, allowing the formulation of evidence-based policies and management practices that respect the ecological complexities of these vegetation formations.

Promoting environmental awareness and involving local communities in the conservation of these ecosystems is equally important, recognizing the intrinsic value of these areas not only for local biodiversity but also for the well-being of human populations that depend on the ecosystem services they provide. The effective conservation of these ecosystems not only protects biodiversity but also contributes to global sustainability and community resilience in the face of environmental changes.

Figure 02. Dense Rainforest in the Amazon

Source: INCT Biomat

Fauna

The Amazon, estimated to harbor approximately thirty million animal species, is one of the richest and most diverse biomes on the planet, playing a fundamental role in maintaining global ecological balance. This region, often referred to as the "lungs of the world" due to its vast forest cover, is not only crucial for global climate regulation but also serves as a vital refuge for unparalleled biodiversity.

The fact that many species in the Amazon remain unidentified or poorly studied highlights the urgent need for ongoing scientific research. This knowledge gap not only underscores the intrinsic complexity of Amazonian fauna but also emphasizes the importance of preserving this unique ecosystem against growing threats of deforestation, illegal resource exploitation, and climate change.

Primates, such as howler monkeys, spider monkeys, and woolly monkeys, are just one example of the extraordinary diversity of life inhabiting the Amazon, navigating and living in the intricate tangles of tree canopies. These animals not only contribute to the ecological complexity of the forest but also play crucial roles in seed dispersal and maintenance of forest structure and composition.

In addition to primates, the presence of a vast range of mammals, including terrestrial predators like jaguars and aquatic mammals like manatees and dolphins, illustrates the richness of Amazonian fauna. These animals are essential components of both terrestrial and aquatic ecosystems, contributing to the health and balance of the habitats they inhabit.

Conservation of Amazonian biodiversity is a multidimensional challenge that requires an integrated approach involving scientific research, public policies, community engagement, and international cooperation. Protecting this biome is not only a matter of environmental preservation but also a matter of global sustainability, given its importance in climate regulation, water conservation, and support for indigenous and local communities.

Promoting the conservation and sustainable use of the Amazon involves valuing traditional knowledge, strengthening protected areas, encouraging scientific research, and implementing sustainable development practices that minimize human impact. Global awareness of the importance of the Amazon and continuous support for conservation efforts are crucial to ensuring the survival of this vital biome for the health of our planet

Figure 03. Fauna of the Dense Rainforest of the Amazon

Source: ISPN

METHODOLOGY OF ANALYSIS

The analysis of satellite images, such as those provided by Hecta & PlanetScope/SkySat, to stratify land use in a property as diverse as the one mentioned, is a powerful tool for mapping and understanding the composition and distribution of ecosystems. In this specific case, the division into Dense Rainforest, Hydromorphic Fields, and Water Resources reveals a rich and complex intersection of natural habitats, each with its unique characteristics, ecological importance, and conservation challenges.

Dense Rainforest: This classification reflects areas of high tree density, which are crucial for global biodiversity, carbon storage, and the provision of ecosystem services such as water regulation and climate control. The preservation of these forests is vital, considering their importance for biodiversity maintenance and as a barrier against climate change.

Hydromorphic Fields: These areas are characterized by water-saturated soils, supporting a unique type of vegetation adapted to waterlogging conditions. They are ecosystems that perform essential functions, such as water filtration and providing habitat for species adapted to these conditions. Sustainable management of these fields is crucial for maintaining water quality and aquatic and terrestrial biodiversity.

Water Resources: The identification of areas rich in water resources underscores the importance of these ecosystems for sustaining life, both for local flora and fauna and for human communities. They not only support a rich aquatic biodiversity but are also crucial for economic activities such as fishing and ecosystem services such as climate and water cycle regulation.

Stratification of land use through satellite images provides a starting point for conservation actions and sustainable use of natural resources, allowing for:

Conservation Planning: Prioritizing areas for protection and restoration based on their ecological importance and vulnerability to threats.

Natural Resource Management: Guiding natural resource management practices to ensure sustainability and minimize human impact.

Environmental Monitoring: Facilitating continuous monitoring of changes in land use and vegetation cover, enabling early detection of degradation or ecological recovery.

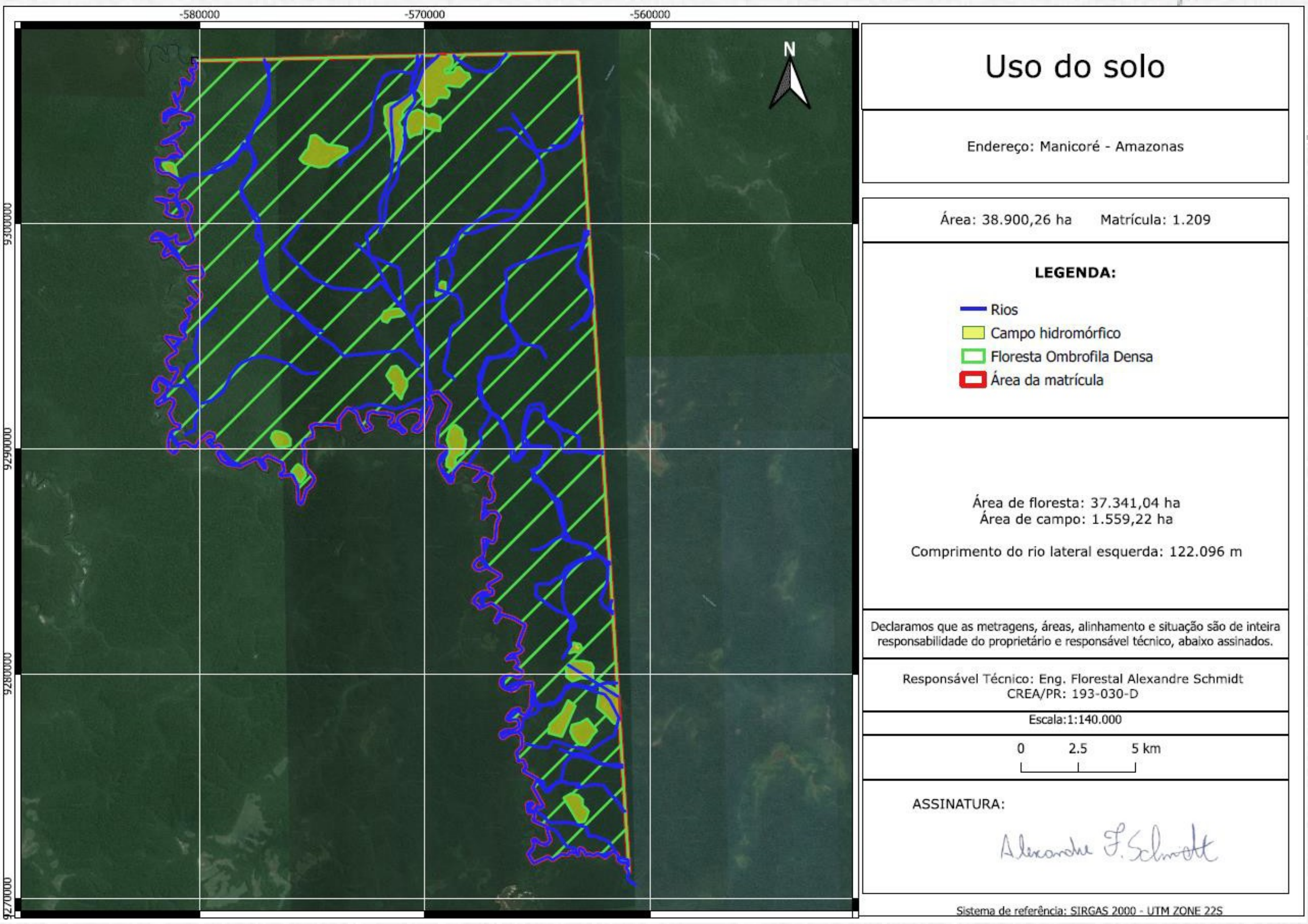
Sustainable Development: Supporting the planning of economic activities that are compatible with biodiversity conservation and ecosystem sustainability.

This detailed mapping and classification of habitats on the property not only highlight the natural richness present but also emphasize the need for integrated management approaches that reconcile biodiversity conservation with sustainable use of natural resources. Adopting practices that respect the carrying capacity of local ecosystems is essential to ensure that these areas continue to provide their invaluable ecosystem services for future generations.

Table 01 - Land area classified by strata.

Stratum	Área (ha)
Dense Rainforest	37.341,04
Hydromorphic Fields	1.559,02
Total Area	38.900,26

Figure 04 - Map of the stratified area



"ANALYSIS METHODOLOGY

The investigation of vegetation and soil biomass in different vegetation formations is crucial for understanding the role of forests in mitigating climate change, especially through carbon sequestration. The specialized literature reveals a trend in research mainly focused on above-ground plant biomass, given its accessibility and ease of measurement. This part of biomass is essential, as trees and other vegetation store large amounts of carbon, which, when quantified, can provide a clear view of an ecosystem's carbon storage potential.

Importance of Above-Ground Plant Biomass

Above-ground biomass includes all parts of plants and trees that are above the soil surface, such as trunks, branches, leaves, and fruits. This component is vital for the carbon cycle, as it absorbs CO_2 from the atmosphere during the process of photosynthesis. Measuring above-ground biomass allows us to estimate the amount of carbon being sequestered by forests, which is crucial for climate change mitigation strategies.

Challenges in Measuring Soil and Root Biomass

Although above-ground biomass is more visible and easier to measure, components below the soil, including roots and the soil itself, are equally important for carbon storage. Plant roots, especially deep roots, can store significant amounts of carbon. Additionally, soil is one of the largest reservoirs of organic carbon, playing a critical role in the global carbon cycle. Measuring soil and root biomass presents significant challenges due to their inaccessibility and the complexity of interactions below the surface. Traditional methods, such as trench excavation and soil sample collection, are labor-intensive and can be invasive, disrupting the studied ecosystem. Furthermore, the spatial heterogeneity of soil and roots requires extensive sampling efforts to obtain accurate estimates.

Significance of Soil Carbon Accumulation

Soil is a critical component in forest ecosystems, not only as a support for plants and trees but also as an important carbon reservoir. Soil organic matter, derived from the decomposition of plants, animals, and microorganisms, is rich in carbon. Under ideal conditions, this carbon can be stored in the soil for long periods, contributing to climate change mitigation. Understanding soil carbon dynamics is essential for predicting how changes in land use, agricultural and forestry practices, and climate change may affect carbon sequestration. Additionally, identifying practices that increase soil carbon accumulation can offer valuable strategies for reducing CO_2 levels in the atmosphere.

SECONDARY DATA ON CARBON SEQUESTRATION IN THE BIOME

Understanding the carbon sequestration capacity of different vegetation types is fundamental for the development of effective climate change mitigation strategies. Above-ground plant biomass, such as trees and shrubs, is often the main focus of studies due to its ease of measurement and significant contribution to carbon storage. However, the importance of other compartments, including roots and soil, cannot be underestimated, as together they form a critical and long-lasting carbon reservoir.

Methods for Airborne and Soil Carbon Analysis

Airborne Carbon Measurement

Using advanced technology from Hecta.ai, airborne carbon estimation has been enhanced by processing data with extreme precision. High-resolution satellite images from the Planet's Dove and SuperDove series satellites, capturing details with resolutions of up to 3 meters per pixel, were crucial in this analysis. Combining these images with the Normalized Difference Vegetation Index (NDVI) provided a solid basis for quantifying above-ground plant biomass, crucial for estimating the volume of atmospheric carbon retained in the region's forests.

Near-Surface Carbon Measurement

Similarly, near-surface carbon was analyzed using a refined methodology that integrates the Enhanced Vegetation Index (EVI) through Hecta.ai technology. This improved approach allowed for a detailed assessment of carbon retained in vegetation near the surface, resulting in more precise and reliable data. The advanced analysis offers a comprehensive view of carbon dynamics, essential for conservation strategies and environmental management.

Average Soil Carbon Stock

The average soil carbon stock was calculated using a combination of satellite technologies and field analyses through the Hectare app (if necessary). This integrated approach not only improved the accuracy of estimates of carbon stored in soils but also demonstrated the effectiveness of synergy between orbital technologies and ground analyses in producing robust data.

Analysis Results

The results indicate a significant stock of carbon, both airborne and in the soil. These quantities are fundamental for understanding the carbon sequestration potential of the area. The specific values reflect not only above and below-ground biomass but also the dynamic interaction between different vegetation layers and the soil, fundamental for climate change mitigation and environmental conservation strategies. The methodologies used ensure precise and reliable data, essential for continuous monitoring and effective management of natural resources.

Enhanced Studies and Results Thanks to the Planet Constellation and Hecta Processing Technology.

The significant contribution of dense forests, especially the Amazon Rainforest, to carbon sequestration, both in above-ground biomass and soil, is a well-established fact in scientific literature. Additionally, ecosystems such as mangroves and peatlands stand out for their exceptional carbon storage capabilities, often surpassing tropical forests in stored carbon per hectare. The innovative use of the Planet satellite constellation, together with advanced data processing technology from Hecta, has been instrumental in unlocking deeper insights into these carbon dynamics.

Through high-resolution spatial images captured by the Planet constellation, combined with powerful analysis provided by the Hecta platform, researchers can now conduct detailed studies on carbon sequestration in various vegetation types. This technological synergy allows for precise identification of variations in vegetation cover and seasonal changes, essential for understanding carbon sequestration processes over time.

Conclusion and Implications Reinforced by the Planet Constellation and Hecta Technology.

The need to expand our understanding of soil carbon dynamics, underscored by the scarcity of studies focused on this area, stands out as an imperative research domain. Significant advances in measurement methodology, driven by unprecedented access to satellite data from Planet and advanced analysis made possible by Hecta technology, are crucial for assessing the carbon sequestration potential of terrestrial ecosystems more accurately and effectively.

These advances not only optimize strategies to mitigate climate change but also provide valuable data to guide soil management practices toward environmental sustainability and food security. Integrating this knowledge into conservation and land use policies has the potential to maximize carbon sequestration while preserving biodiversity and ecosystem services.

The adoption of these innovative technologies in environmental studies, as demonstrated in Table 02, which details the amount of carbon captured per hectare in different ecosystems, clearly illustrates the competitive advantage that the Planet constellation and Hecta processing technology bring to contemporary environmental research. The way forward requires continuous investment in these technologies to fully unlock the potential of our natural ecosystems in the fight against climate change."

Table 02. Carbon Stock Table in Phytophysiognomies in the Amazon Biome.

Phytophysionomy	**Source**	**Above-Ground Carbon Stock (T/ha)**	**Soil Carbon Stock (T/ha)**
nse Ombrophilous Forest	Higuchi et al, 2004	120	
	Marques et al, 2013		96.9
	Zelarayan et al. 2015	145	
	Santos et al. 2018	297,17	
	Silva, 2007	97,75	
	Piva et al, 2021	163	
Hydromorphic Field	França, 2015		243,16
	França et al., 2013		200
	Meirelles et al., 2006		241

(T/ha = Ton per hectar)

In this context, arithmetic means were calculated for each type of vegetation formation based on available bibliographic data, using the average formula.:

$$\bar{x} = \frac{\sum x_i}{n}$$

Table 03. Average of bibliographic data on carbon stock

Phytogeomorphology	Carbon Stock Aboveground (T/ha)	Soil Carbon Stock (T/ha)
Tropical Rainforest	164,58	96.9
Hydromorphic Field	-	228,05

(T/ha = Ton per hectar)

The strategy of using arithmetic means to estimate carbon stock in different phytogeomorphologies proves to be a powerful tool in environmental management. When considering the carbon storage potential, it's important to account for natural variability and methodological aspects associated with carbon measurement.

In summary, employing arithmetic means to calculate carbon stock in various phytogeomorphologies is a valuable tool in environmental management. It provides a foundation for assessing the financial viability of conservation and carbon sequestration projects, as well as for strategically planning the sustainable use of natural resources.

Table 04. Results from studies quantifying carbon stocks in phytogeomorphologies found in the Amazon biome.

Phytogeomorphology	Aboveground Carbon Stock (T/total area)	Soil Carbon Stock (T/total area)	Total Carbon Stock (T/total area)
Tropical Rainforest	6.145.737,73	3.618.346,78	
Hydromorphic Field		355.580,12	
Total	6.145.737,73	3.973.926,90	**10.119.664,63**

(ton/total area = tons per total area of phytogeomorphology)

Enhanced Results with Planet Constellation and Hecta Processing Technology - Informative Table for Open Ombrophilous Forest (Aluvial and Lowland subtypes) and Semideciduous Seasonal Forest, with specific data for the Amazon biome:

Fitofisionomia	Fonte	Estoque de Carbono Aéreo (T/ha)	Estoque de Carbono do Solo (T/ha)
Floresta Ombrófila Densa	3ª Comunicação Nacional do Brasil à Convenção-Quadro das Nações Unidas sobre Mudança do Clima, 2016	155,27 a 197,71	100,37 a 116,37
Campo Hidromórfico	3ª Comunicação Nacional do Brasil à Convenção-Quadro das Nações Unidas sobre Mudança do Clima, 2016	Não especificado	Não especificado
Floresta Ombrófila Aberta (Aluvial)	3ª Comunicação Nacional do Brasil à Convenção-Quadro das Nações Unidas sobre Mudança do Clima, 2016	390,00	Estimativa proporcional
Floresta Ombrófila Aberta (Terras Baixas)	3ª Comunicação Nacional do Brasil à Convenção-Quadro das Nações Unidas sobre Mudança do Clima, 2016	349,11	Estimativa proporcional
Floresta Estacional Semidecidual	3ª Comunicação Nacional do Brasil à Convenção-Quadro das Nações Unidas sobre Mudança do Clima, 2016	283,40 a 330,36	Estimativa proporcional

Notes:

• Soil Carbon Stock: Estimates for soil carbon stock were based on standard IPCC proportions for forests, applied to aboveground biomass values.

The approach used to calculate arithmetic means to represent carbon sequestration values in various phytogeomorphologies was detailed in the document "3rd National Communication of Brazil to the United Nations Framework Convention on Climate Change - Volume III". This method has proven effective, allowing for an adequate synthesis of available data and providing a preliminary assessment of carbon storage potential in specific areas. This methodology is essential to enable researchers and environmental managers to understand the carbon storage potential in different strata and phytogeomorphologies. Such understanding is crucial for decision-making in conservation projects and the implementation of carbon credits, significantly contributing to climate change mitigation strategies.

How the Strategy is Enhanced by the Planet Constellation and Hecta Technology:

1. Advanced Data Compilation: Data collection and analysis are intensified by the use of high-resolution images from the Planet constellation, enabling precise identification of different phytogeomorphologies. The Hecta platform processes these data with advanced algorithms to extract detailed information about the carbon stored in each vegetation type, overcoming the limitations of isolated scientific studies.

"2. Optimized Arithmetic Mean Calculation: With the inclusion of remote sensing data and analyses processed by Hecta, the arithmetic mean calculation of carbon values for each phytophysionomy gains a richer and more diversified database. This results in more precise and reliable representative values that effectively reflect the carbon sequestration potential of the area.

3. Accurate Carbon Stock Estimation: By multiplying the calculated means by the extent of each identified vegetation type in satellite images, the precision in estimating the total stored carbon stock is significantly enhanced. Hecta technology offers a detailed analysis of the extent of each phytophysionomy, ensuring that the estimation of carbon sequestration potential is as accurate as possible.

4. Detailed Financial Feasibility Analysis: With enhanced estimates of carbon stock, the financial feasibility analysis of carbon sequestration projects becomes more robust. The use of precise data on the amount of sequestered carbon allows for proper valuation of carbon credits in the market, optimizing the financial return of conservation projects and reinforcing the commitment to environmental sustainability.

The joint application of the Planet constellation and Hecta technology revolutionizes traditional methodology, providing an integrated approach that enhances the capacity for analysis and planning in carbon sequestration projects. This technological advancement not only facilitates the implementation of evidence-based conservation initiatives but also promotes transparency and effectiveness in the carbon credit market, significantly contributing to global efforts to mitigate climate change.

Importance and Applications:

Environmental Conservation: Carbon stock assessment helps identify priority areas for conservation, contributing to climate change mitigation and biodiversity preservation.

Sustainable Development: Information on carbon sequestration can guide land use policies and management practices that promote environmental and economic sustainability.

Carbon Market: Precise quantification of stored carbon is essential for participation in the carbon market, allowing landowners and conservation projects to generate revenue from the sale of carbon credits.

Annual Carbon Sequestration Estimate at Lagoa Grande Property

Introduction

The growing concern about global climate change has elevated the importance of studying carbon sequestration by forest ecosystems. This chapter seeks to estimate the annual carbon sequestration at the Lagoa Grande property, located in the Amazon biome. The analysis is based on methodologies described by renowned researchers and organizations, such as Higuchi et al. (2004), Marques et al. (2013), Silva (2007), and the technological collaboration of Hecta.AI, which provides accurate data on the extent and density of forest cover.

Methodology

Using the cited references and the satellite image analysis technology of the Planet constellation, along with advanced processing by Hecta, it was possible to delineate the forest composition of the Lagoa Grande property. The identified phytophysionomies were predominantly Dense Ombrophilous Forest and Hydromorphic Fields, with a total area of 38,900.26 hectares.

Based on the literature review and the application of arithmetic means of carbon stocks found in the literature, the formula was applied:

{Annual Carbon Sequestration} = {Area} \{Aboveground Carbon Stock} + {Soil Carbon Stock}

The values used for the means were taken from previous studies indicating aboveground and soil carbon stock for the relevant phytophysionomies.

Results

For the Dense Ombrophilous Forest, an average aboveground carbon stock of 164.58 T/ha and a soil carbon of 96.9 T/ha were found. For the Hydromorphic Fields, the average aboveground carbon was not specified, but for soil carbon, a value of 228.05 T/ha was found. Applying these values to the total area of each phytophysionomy, the total carbon stock was calculated.

Given the static nature of these values, it was assumed that vegetative growth and consequent carbon sequestration capacity would be proportional to the carbon stocks already present, adjusted for estimated vegetative growth and decomposition rates for the region.

Discussion

The estimation of annual carbon sequestration in Lagoa Grande highlights the crucial role of forests in mitigating climate change. The results demonstrate not only the significant carbon sequestration capacity of these phytophysionomies but also the importance of preserving and sustainably managing these ecosystems.

Integrated Social Carbon

is a holistic approach that seeks to integrate climate change mitigation with social inclusion and environmental education. The concept proposes the redistribution of a portion of the financial resources generated by large carbon projects to fund smaller social and educational initiatives. This redistribution not only enhances environmental impact by increasing areas of sustainable management but also promotes social equity and access to environmental education for people of all ethnicities, creeds, and social statuses.

Concept Components

Resource Redistribution: A defined percentage of profits obtained from large carbon sequestration or credit projects is reallocated to smaller projects focusing on social development and environmental education.

Expansion of Environmental Impact: The reallocated resources are used to expand areas of sustainable management, thereby increasing biodiversity and carbon sequestration capacity in additional regions.

Environmental Education Exchange: Establish educational programs involving the local community and other stakeholders in learning about sustainable practices and the results of carbon projects. These programs would be accessible to all, ensuring inclusion and diversity.

Audit and Transparency: Implement a regular auditing system, conducted by a mix of local and external professionals, to ensure the correct application of resources and the effectiveness of projects. This also serves to educate participants about the importance of governance and fiscal responsibility.

Expected Benefits

Social Inclusion: Promotes equality by offering opportunities for involvement and benefits from carbon projects to historically marginalized or underserved communities.

Education and Empowerment: Increases environmental awareness and empowers individuals with knowledge about sustainable practices and resource management.

Expansion of Environmental Impact: Increases overall effectiveness of conservation efforts by integrating more lands into sustainable management.

Financial Sustainability: Creates a self-sustaining model where larger projects help finance smaller initiatives, perpetuating a cycle of environmental and social benefits.

Implementation

To implement the Integrated Social Carbon concept, it would be necessary to:

Form Partnerships: Collaborate with governments, NGOs, private companies, and local communities.

Legislation and Policy: Develop and/or

adapt laws favoring this resource redistribution.

Monitoring and Evaluation: Establish clear metrics for performance and impact, both environmental and social.

Socioeconomic Benefits

The carbon credits generated by these projects are negotiated by Carbon Credit Brazil at prices that directly benefit local communities. This new source of revenue can be directed towards improvements in individual and collective living conditions, providing people with more resources to be used in the Amazon region. This results in improvements in social services, such as access to clean water, education, health services, and infrastructure. With this approach, both the individual and the Amazonian community contribute to environmental preservation while experiencing significant improvements in their quality of life.

Carbon Credit Brazil's initiative exemplifies an interesting model of sustainable development, where carbon credits play a key role. By trading these credits, the organization not only contributes to reducing global greenhouse gas emissions but also channels financial resources directly to local communities in the Amazon region. This model allows these communities to benefit economically while promoting environmental conservation. The redistribution of carbon credit revenues for improvements in essential social services such as clean water, education, health, and infrastructure can have a transformative impact.

Specifically, some of the implemented projects include:

"Roots of Tomorrow Xavante Project": Benefits the Xavante community, focusing on the production of native tree seedlings for environmental recovery and conservation. This project directly involves 500 indigenous Xavante people in the region they inhabit, transmitting traditional knowledge about forest management and sustainability.

"Seeds of Hope Project": Aimed at the Yanomami community in Roraima, it aims to preserve an area of 500 hectares through sustainable environmental management practices, protecting the local habitat and strengthening Yanomami autonomy over their territories.

"Living Forest Project": Focuses on riparian communities in the Amazon, with actions aimed at planting native trees and environmental, social, and economic revitalization of riparian regions. The beneficiary communities are still being defined, highlighting the importance of adapting interventions to local needs.

"Green Fruit Project": Supports 300 families of fishermen and family farmers in Centro Alegre Viseu, Pará, with the production of 30,000 fruit seedlings annually, promoting local economy and environmental conservation.

These projects not only contribute to environmental preservation but also promote significant improvements in the quality of life of the involved communities. By investing in local infrastructure and education, a foundation for continuous sustainable development is created, which can perpetuate environmental and social benefits, reinforcing a positive cycle where the environment is preserved and the community thrives.

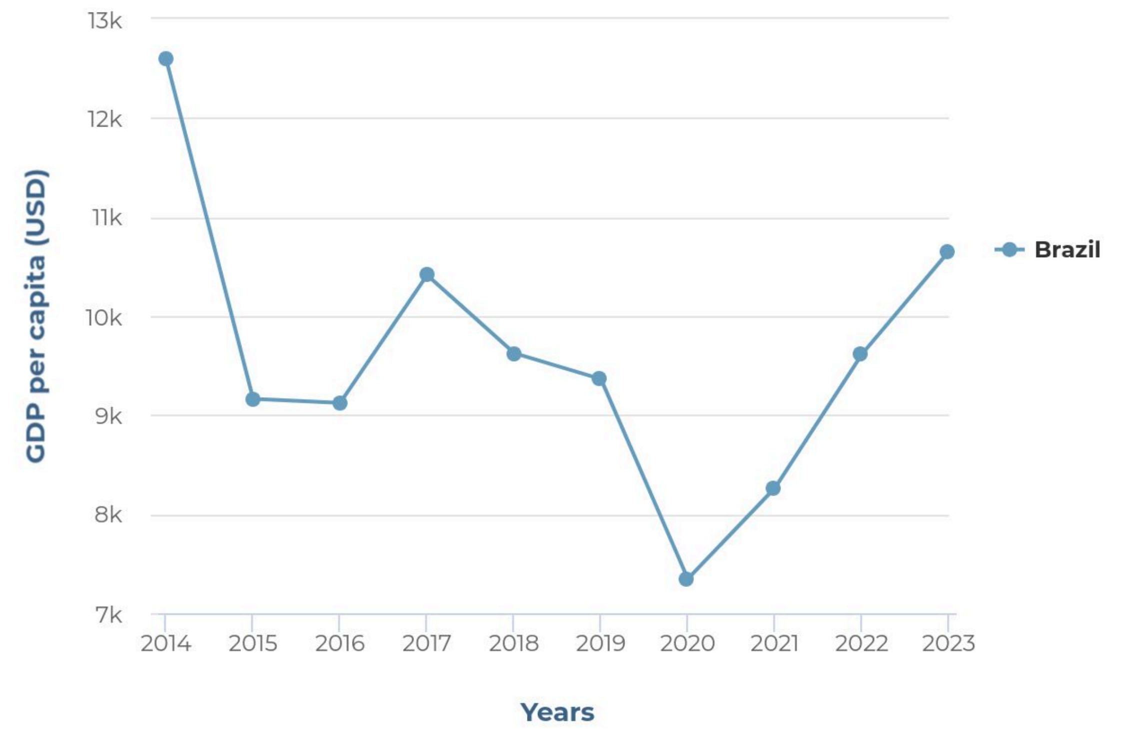
Deterrent to Deforestation

One of the most notable implications of this initiative is the reduction of pressure on natural areas. When communities perceive the economic benefits of environmental conservation, the need for deforestation decreases. This leads to more effective preservation of natural areas and protection of ecosystems.

The Importance of Sustainability

Hecta Group's commitment to environmental sustainability and socio-economic development highlights an innovative approach that can be replicated worldwide. As climate change continues to affect communities around the globe, initiatives like this offer hope and practical solutions for a more sustainable future and socioeconomic balance for the most in need. In the case of this project in the Amazon region, In 2022, the average per capita income in the North region of Brazil, which includes the Amazon, was approximately R$ 1,143 monthly. This value reflects an average for the region but varies significantly among states. For example, Amazonas had a per capita income of R$ 965, while Amapá recorded R$ 1,177 and Pará R$ 1,061 (Agência de Notícias - IBGE). in US dollars, is approximately $228.60 per month, based on the exchange rate of R$ 1 = $0.20, well below the national average per capita household income in Brazil was R$ 1,625 monthly (Agência de Notícias - IBGE). in US dollars, is approximately $325.00 per month, using the same exchange rate of R$ 1 = $0.20. and with in 2023, Brazil ranked 105th in the world in nominal average per capita income, according to data from the International Monetary Fund (IMF) and other sources. Brazil's per capita income was estimated at about 9,455 US dollars for that year. This positioning places Brazil in a middle range in the global context, below countries like Portugal and above countries like Greece (IMF) (Wikipedia) (Statistics Times), implementing this model can provide a significant economic and social boost to the region. The new Multidimensional Poverty Index, MPI, concludes that it is possible to reduce poverty on a scale and reveals new "poverty profiles" that can offer an advance in development efforts to address it."

FocusEconomics - Brazil GDP Per Capita



Note: This graph shows the GDP per capita (USD) of Brazil from 2014 to 2023.

Source: MSCI Inc.

Brazil GDP per Capita Data

	2018	2019	2020	2021	2022
PIB per capita(USD)	9.627	9.363	7.347	8.266	9.615

The study by Ipea, titled "A Country against the Tide: Poverty in Brazil over the Last Ten Years," examines the evolution of poverty in Brazil between 2012 and 2021. Using data from the Continuous PNAD, the study observes the percentage of poor people in the population through five different poverty lines, including national and international references.

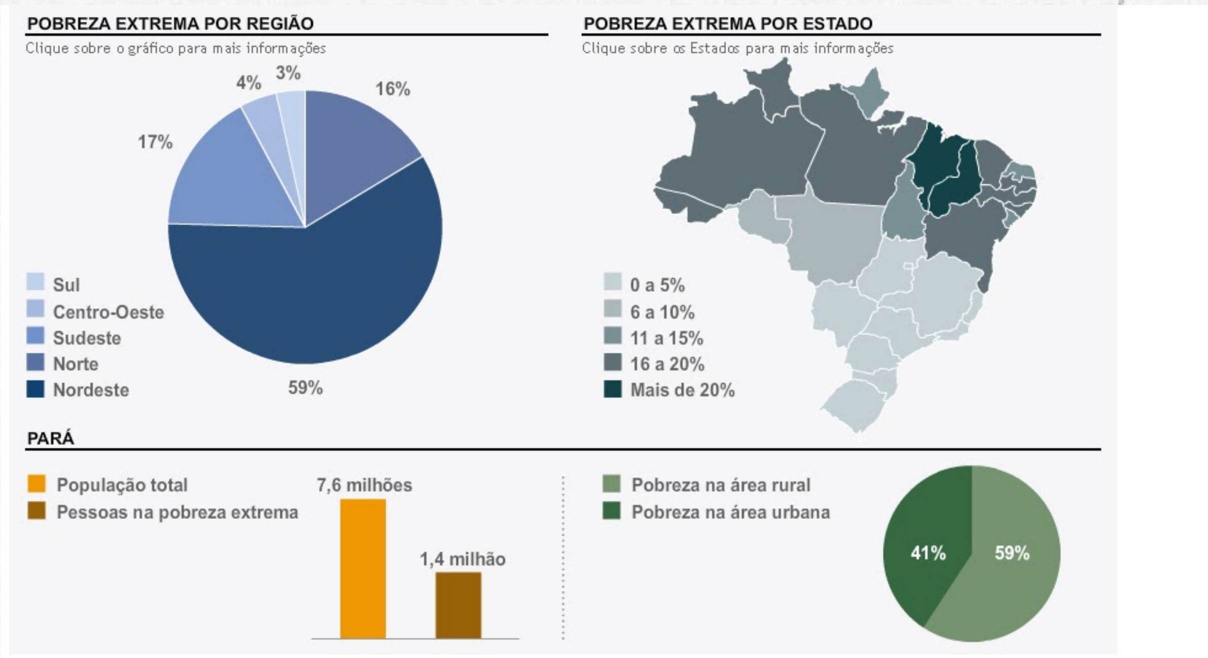
Among the main conclusions, there is a significant increase in poverty between 2012 and 2021, exacerbated by the recession of 2014-2016 and the economic effects of the COVID-19 pandemic. Social transfers, such as Bolsa Família/Auxílio Brasil and Emergency Aid, played an important role in mitigating poverty, especially in 2020. However, the reduction of these aids in 2021 led to an increase in poverty.

The study shows a variation in the poverty rate over the years, with a highlight on the positive impact of social transfers that significantly reduced poverty in 2020. Unfortunately, in 2021, poverty reached the highest level in the historical series of Continuous PNAD, largely due to the reduction in the value of social transfers and the slower recovery of the labor market.

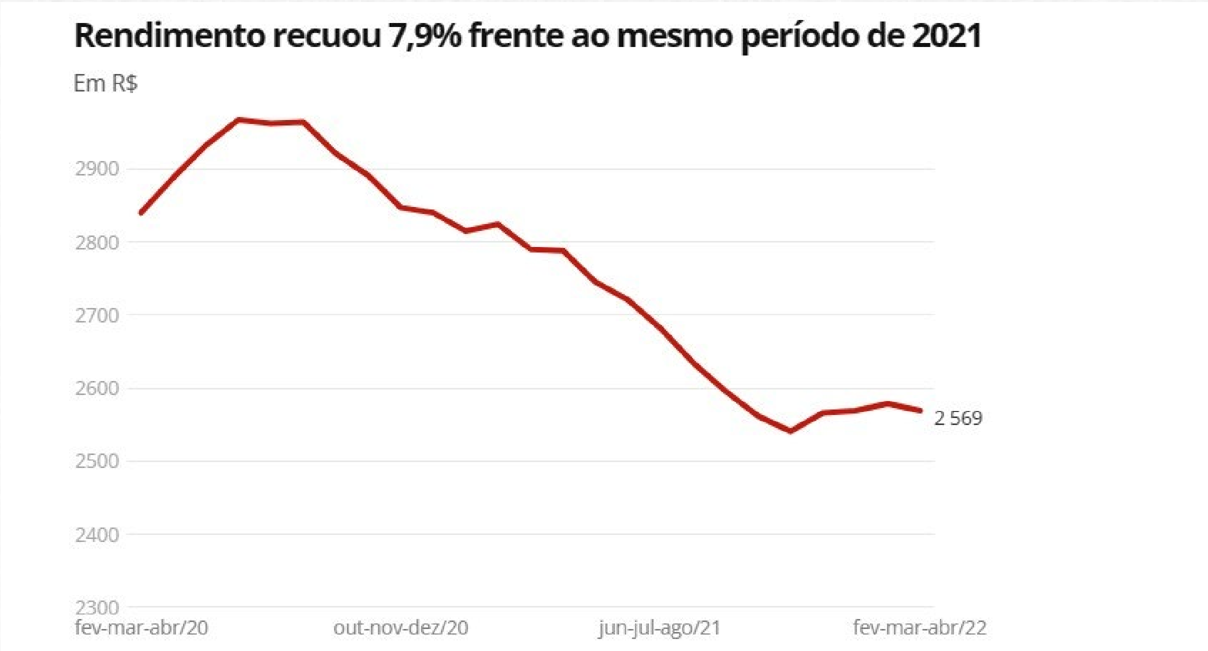
The study also analyzes the "growth effect," related to variations in average income, and the "redistribution effect," caused by changes in income inequality, showing that poverty was more sensitive to changes in income distribution than to variations in average income.

In terms of recommendations, the authors emphasize the need to improve income transfer programs to better target the poorest and avoid setbacks in the fight against poverty.

The analysis conducted by the United Nations Development Programme (UNDP) and the Oxford Poverty and Human Development Initiative at the University of Oxford reveals that even before the COVID-19 pandemic and the current cost of living crisis, data showed that 1.2 billion people in 111 developing countries faced severe multidimensional poverty. This number is almost double the estimate based on the traditional definition of poverty, which considers living on less than $1.90 per day or $693.50 per year. Among the new poor in the world, 82% live in countries classified as middle-income, including Brazil.



In Brazil, according to the Brazilian Institute of Geography and Statistics (IBGE) in 2022, real usual income recorded a decrease of 3.6% compared to the previous quarter of 2021 and a reduction of 10.7% compared to the same quarter of 2020, reaching R$ 2,447 - the lowest value ever recorded in the IBGE historical series. The annual average stood at R$ 2,587, representing a 7% decrease compared to 2020 (or a reduction of R$ 195), which is approximately 486.48 dollars annually.



According to a striking survey by LCA Consultores, based on the indicators from the Quarterly National Household Sample Survey (PNAD) by IBGE, Brazil ended the year 2021 with an alarming figure: a total of 33.8 million workers, equivalent to 36% of the total employed population, living on a monthly income of up to 1 minimum wage. This number represents the largest contingent ever recorded in the historical series that began in 2012.

In just one year, there was a staggering jump of 12.2%, meaning 4.4 million people were pushed into a situation of extreme economic vulnerability. As a result, more than one-third of the Brazilian population is living below the severe multidimensional poverty line.

For families in the lowest class, the total average income, combined with asset variation, is a painful reality of R$ 1,245.30. Considering the IBGE average, which indicates that Brazilian families consist of, on average, three people, we can conclude that for members of 23.9% of Brazilian families, the average monthly income is a mere R$ 178.44 per month. To exacerbate this grim reality, families living in rural areas receive just over half, only 52.3%, of the amounts earned by families in urban areas. This means that the average monthly income per family member in rural areas is a paltry R$ 85.11, which in dollars represents a mere $16.85 per month or $0.54 cents per day. This amount is about 3.5 times lower than the $1.90 estimated by the UN to consider a person living in poverty. These data are a clear representation of the devastating scenario that millions of Brazilians face in their daily struggle for survival.

Alignment with Various United Nations Sustainable Development Goals (SDGs)

The activities described in the document "Social Carbon: Opportunities for Local Communities in the Carbon Market" align with various United Nations Sustainable Development Goals (SDGs). Here's how each activity contributes to specific goals:

SDG 1: Eradication of Poverty

Activity: Carbon credit trading offers a new source of income for local communities.

Explanation: By generating additional income through carbon credits, these communities have more resources to invest in their own needs and development. This helps reduce poverty by providing economically viable alternatives to deforestation and other unsustainable practices.

SDG 8: Decent Work and Economic Growth

Activity: Training landowners to access the carbon market.

Explanation: Empowering people to participate in the carbon market not only creates economic opportunities but also strengthens the local economy. Increasing local capacity for carbon project management involves training, which can create skilled and sustainable jobs.

SDG 13: Climate Action

Activity: Conservation projects that reduce carbon emissions.

Explanation: Such projects help capture or reduce atmospheric carbon and are crucial in the fight against climate change. By maintaining or increasing forest biomass, these projects directly contribute to climate change mitigation.

SDG 15: Life on Land

Activity: Implementation of reforestation and conservation projects.

Explanation: These projects help preserve biodiversity and maintain healthy ecosystems, which are essential for environmental sustainability. Conserving natural habitats is vital for many plant and animal species, helping to maintain local biodiversity.

SDG 10: Reduced Inequalities

Activity: Fair negotiation of carbon credits.

Explanation: By ensuring that carbon credits are traded fairly, local communities receive adequate compensation for their role in conservation. This helps reduce economic inequalities by giving these communities the means to improve their living conditions.

SDG 4: Quality Education

Activity: Reinvestment in local education.

Explanation: Funds obtained through carbon credits can be used to improve education in local communities. This may include building schools, training teachers, and providing educational materials, contributing to quality education.

SDG 6: Clean Water and Sanitation

Activity: Improvement of water infrastructure.

Explanation: Investments in water and sanitation infrastructure improve public health and quality of life. Access to clean water is essential for preventing diseases and promoting health.

SDG 3: Good Health and Well-being

Activity: Improving access to healthcare services.

Explanation: Resources generated by carbon projects can be allocated to improve healthcare facilities, providing basic medical services and public health campaigns, which are essential for community well-being.

SDG 7: Affordable and Clean Energy

Activity: Projects that include sustainable energy.

Explanation: Some carbon projects may involve creating infrastructure for the use of clean and renewable energy, reducing dependence on polluting energy sources and promoting energy sustainability.

Conclusion

The study "Social Carbon: Opportunities for Local Communities in the Carbon Market" provides a detailed analysis and insights into how the Hecta Group initiative has positively impacted local communities by integrating environmental conservation with socioeconomic development. Using the Hecta.ai platform, the initiative enables small landowners to develop and verify conservation projects, generating carbon credits that are traded to finance improvements in local communities.

This approach offers a range of direct socioeconomic benefits, such as improving living conditions through access to basic services like clean water, education, and healthcare. Additionally, it promotes economic empowerment of the involved communities, providing new sources of income and encouraging sustainability and environmental preservation.

The model also demonstrates how local initiatives can align with the United Nations Sustainable Development Goals (SDGs), addressing crucial targets such as poverty eradication, climate change mitigation, quality education, and ensuring decent work and economic growth.

The specific projects mentioned, such as "Raízes do Amanhã Xavante" and "Sementes de Esperança," illustrate the commitment to environmental conservation while supporting the culture and social development of indigenous and local communities.

By integrating economic interests with environmental conservation, "Social Carbon" not only reduces pressure on deforestation but also offers a replicable model that can be adapted in other regions and countries, showcasing the global potential of such initiatives.

This holistic approach can serve as inspiration for public policies and business practices worldwide, demonstrating the transformative impact that community engagement and responsible environmental management can have on global sustainable development.

Building on the results and impacts demonstrated by the "Social Carbon" project, here are some specific recommendations for future policies and actions that can amplify the benefits and replicate the success of this model in other regions:

1. Expansion of Access to Carbon Credit Platforms:

- Recommendation: Local and national governments should invest in technology and infrastructure to expand access to platforms like Hecta.ai for more rural and indigenous communities. This may include technology subsidies, carbon project management training, and ongoing technical support.

2. Fiscal Incentives and Subsidies for Conservation Projects:

- Recommendation: Implement fiscal incentives for companies and NGOs investing in carbon credit projects that benefit local communities. This could include tax reductions or fiscal credits based on the volume of carbon effectively sequestered or contribution to local economic development.

3. Supportive Legislation for Carbon Market:

- Recommendation: Develop and implement specific legislation that regulates the carbon credit market, ensuring transparency, fairness in credit trading, and equitable distribution of economic benefits to local communities.

4. Education and Training Programs:

- Recommendation: Create educational and training programs focused on environmental management, forest conservation, and carbon credit negotiation skills for leaders and members of communities. This can help communities maximize project benefits and sustainably manage their natural resources.

5. Development of Public-Private Partnerships:

- Recommendation: Encourage the development of public-private partnerships to finance and support conservation projects that include carbon credit components. This can help leverage resources from different sectors for a more significant impact.

6. Continuous Monitoring and Evaluation:

- Recommendation: Establish robust monitoring and evaluation systems to track the environmental and socioeconomic

impact of carbon credit projects. This should include real-time data collection and feedback from involved communities for continuous adjustments and improvements.

7. Promotion of Local and International Markets:

- Recommendation: Promote carbon credit projects in both local and international markets, raising awareness about the benefits of these projects and attracting more investors and credit buyers.

These recommendations aim to strengthen the impact of social carbon projects and ensure that the benefits of environmental conservation and economic development are maximized and sustainable in the long run.

Conclusion

his study highlights the carbon sequestration potential of the Lagoa Grande property, reinforcing the need for integrated conservation and sustainable management strategies. The data also provide a solid basis for valuing ecosystem services, encouraging practices that promote environmental conservation and sustainable development.

Considerations

Using arithmetic means to estimate carbon sequestration potential is an effective initial approach, although there is room for improvement, especially in quantifying carbon in soil and roots. The introduction of the Planet satellite constellation and Hecta's advanced technology offers opportunities to refine these estimates, promoting greater precision and reliability in Methodological Deepening. The high resolution of Planet's images, coupled with Hecta's data analysis, allows for a detailed assessment of carbon distribution, overcoming challenges in measuring soil and root carbon.

Adopting the strategy of arithmetic means, complemented by Planet and Hecta technologies, marks an advancement in environmental management. This approach not only provides more accurate estimates of carbon sequestration potential but also drives the financial viability of conservation projects and sustainable resource use. The application of these advanced technologies raises the bar for precision in environmental conservation strategies and climate change mitigation.

Adding to the advancement provided by the combination of arithmetic means with Planet and Hecta technologies, an innovative aspect of this project is the transparency and security in the provision of results. All analyses performed, which underpin references to the estimated carbon stock, will be made available in a single attachment format on the project's blockchain. This process not only ensures the integrity and immutability of the collected data and analyses but also promotes greater transparency and trust among all stakeholders involved.

The use of blockchain as a platform to document and share results is a revolutionary step in the field of environmental management and conservation. This allows researchers, environmental managers, carbon credit investors, and the general public to have verifiable and unalterable access to detailed information on the carbon sequestration potential of different vegetation types. This innovation not only raises the standard of accuracy and reliability of carbon sequestration-related data but also reinforces the project's commitment to transparency and ethics in conducting environmental conservation and climate change mitigation initiatives.

Nº da análise: 101-24

Quantificação dos estoques de carbono sob bioma Amazônico

Floresta Ombrólica Densa				Campo Hidromórfico
Estoque de Carbono aéreo(T/área total)		Estoque de Carbono do solo (T/área total)		
6145737,7 T/área total	+	3618346,78 T/área total	+	355580,12 t/área total

Total solo = 3973926,9

Tonelada/Área total = Tonelada pela área total da fisionomia

Com base de 7.5 distribuição diamétrica e altimétrica

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