Carbon Credit Brasil Serviços Financeiros Ltda
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CNPJ n° 52.044.255/0001-50

Monitoring and Verification

The preservation of the forest ecosystems of the Lagoa Grande property plays a critical role in mitigating climate change and maintaining biodiversity, reinforcing the project's additionality. This analysis provides a detailed view of the conservation project's contribution to the environmental and economic sustainability of Manicoré and the Amazon biome as a whole, offering a clear evaluation of the additionality and impact. The focus areas have been subjected to ecological restoration techniques aimed at revitalizing native biodiversity and stabilizing the ecosystem.

Figure 01: Degraded Area (Project Initiation)

Figure 02: Area in Recovery (During the Project)

Figure 03: Current Area (Most Recent Project Image)

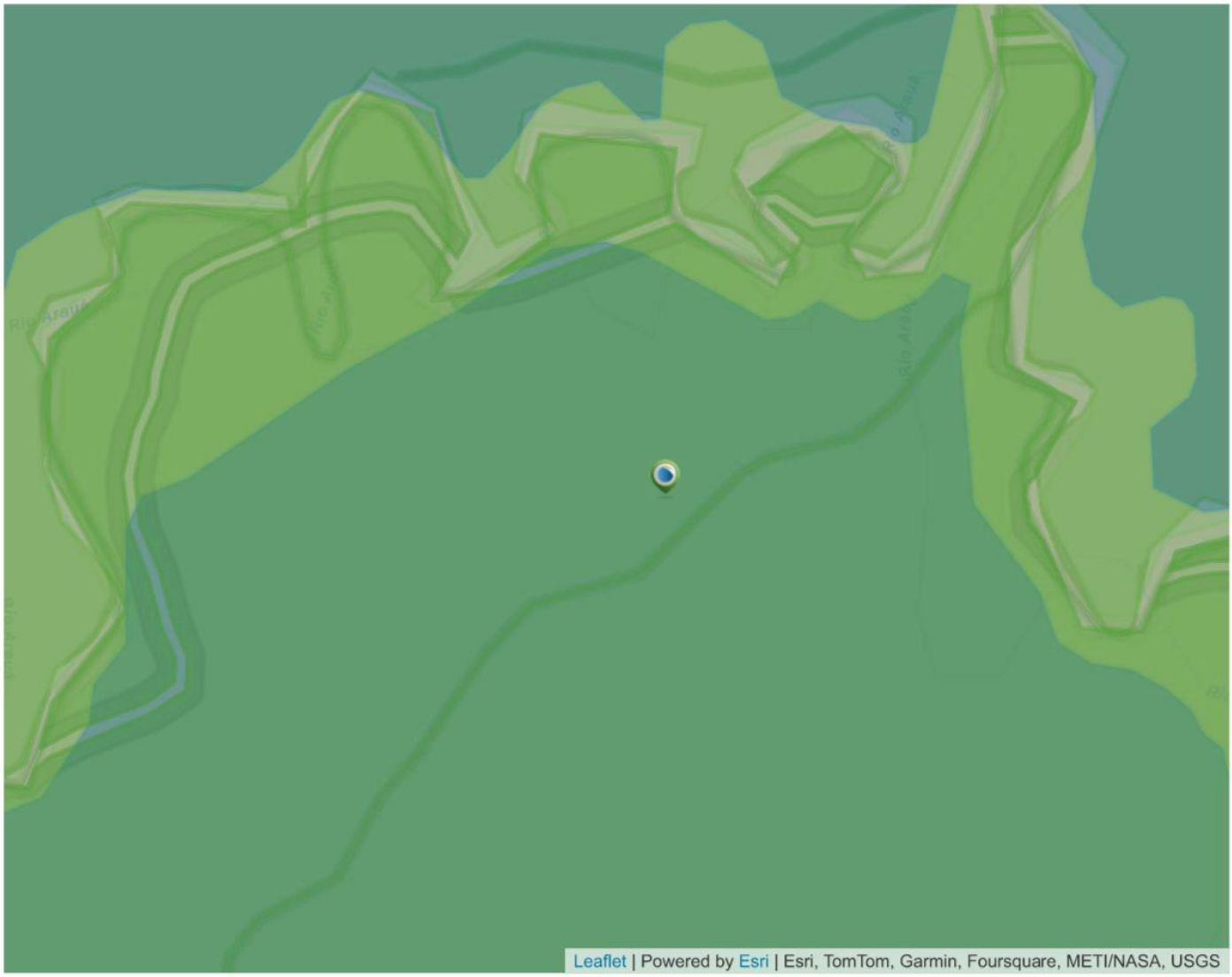
Analysis of Progression Images

The attached images illustrate the chronological sequence of biome recovery. A gradual improvement in vegetation cover is observed, 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

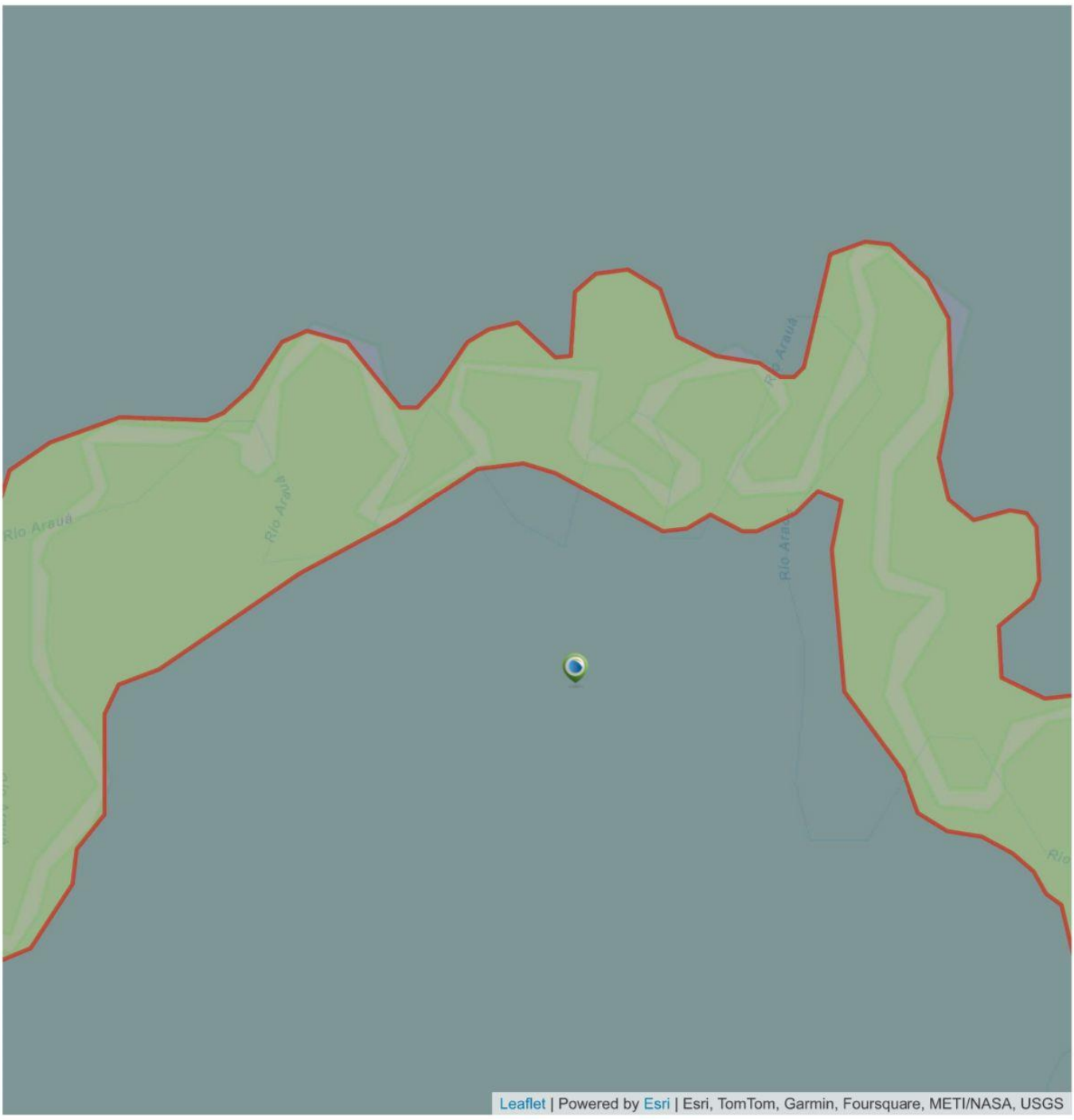
Since the implementation of the "Green Method," a reduction in surface runoff has been noted, indicating an improvement in soil quality and water retention. The recovery of the biome has also contributed to erosion mitigation and increased

biodiversity. The landscape, which previously showed clear signs of degradation, now presents an ecosystem in the process of healing and balance

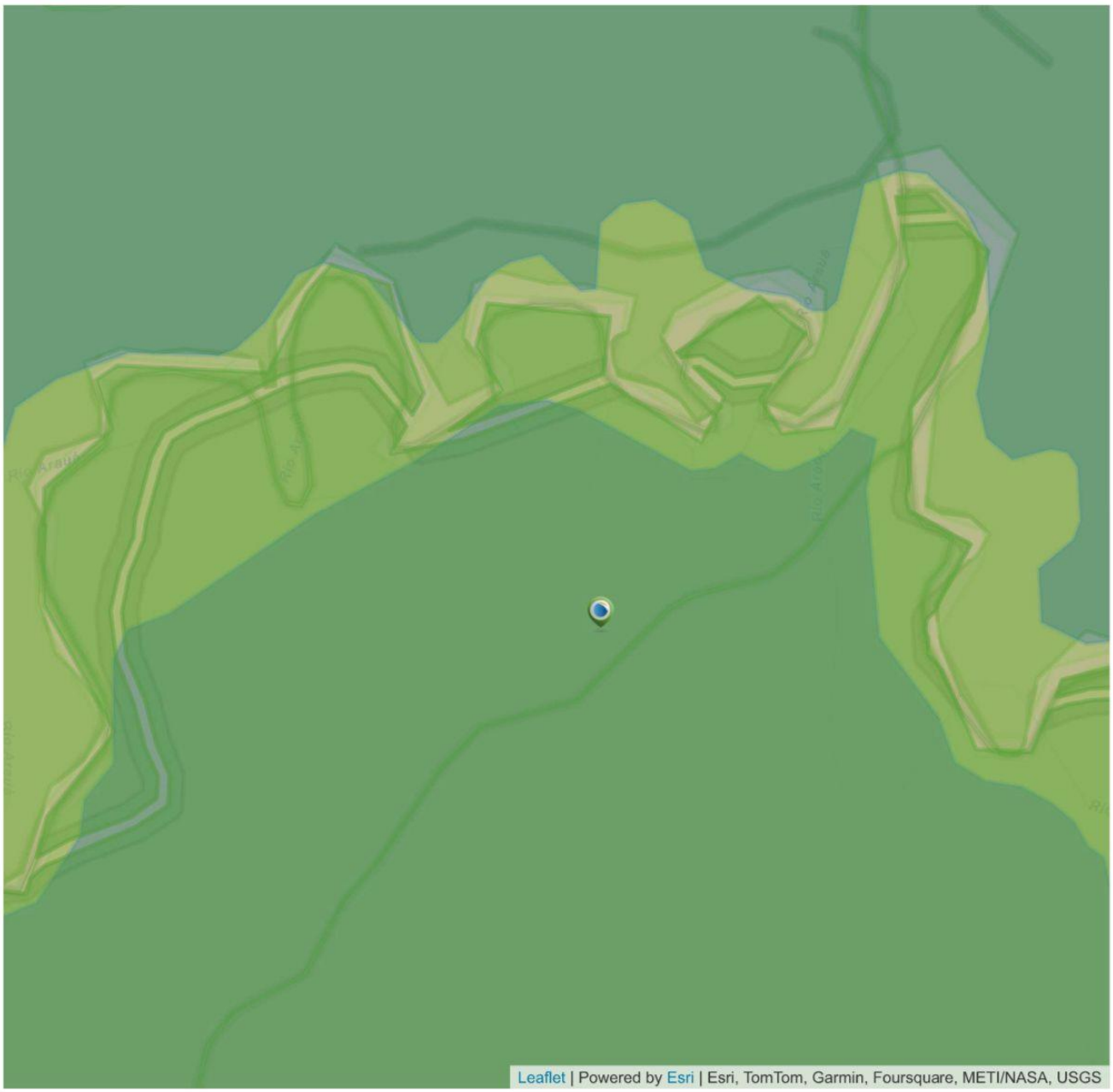


Camada:	Embrapa - Solos do Brasil (SiBCS)
Simbolos:	LAd33
Área (km²):	37.275,779
Legenda:	LAd33 - Latossolos Amarelos Distroficos + Neossolos Quartzarenicos Orticos + Espodossolos Humiluvicos Hidromorficos
Ordem 2:	NEOSSOLOS
Subordem 2:	QUARTZARENICOS
Ordem 3:	ESPODOSSOLOS
Subordem 3:	HUMILUVICOS
GDEGRUPO2: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

Registered Dynamic and Interactive Topographic Maps



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



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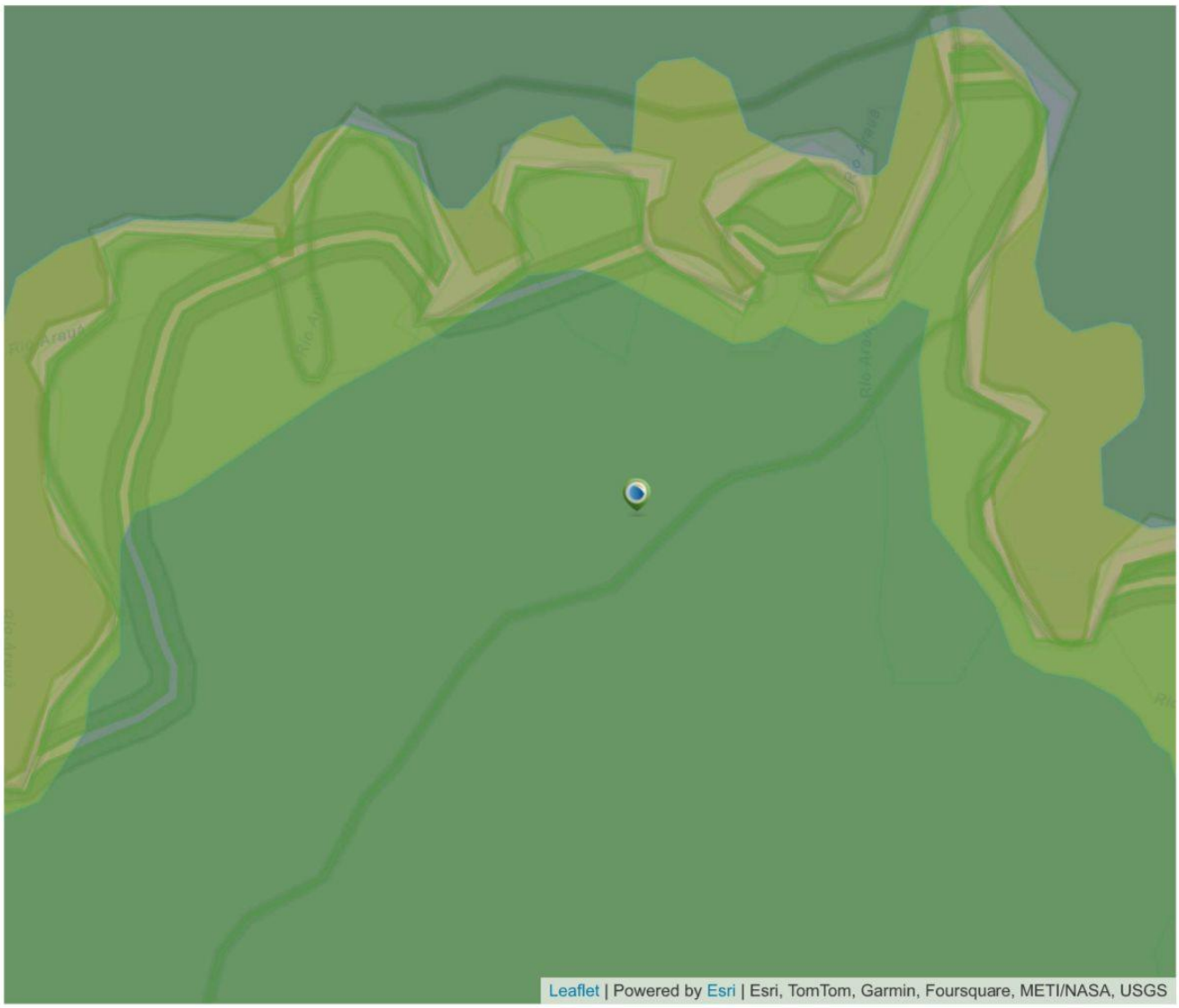
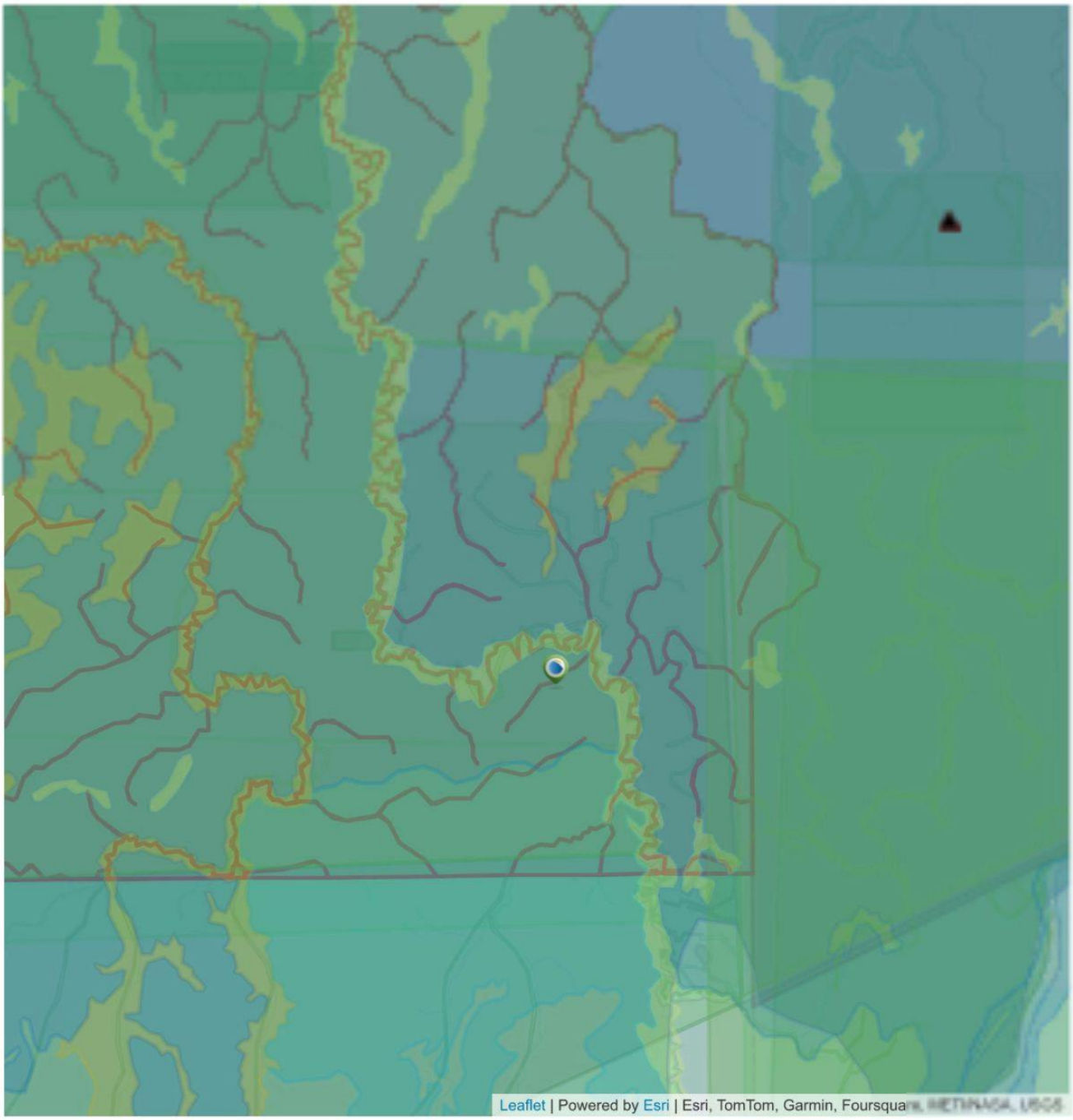
WRB1:	Xanthic FERRALSOLS
Soil_Group:	FERRALSOLS
Legenda:	Xanthic FERRALSOLS
Rotulo:	FR

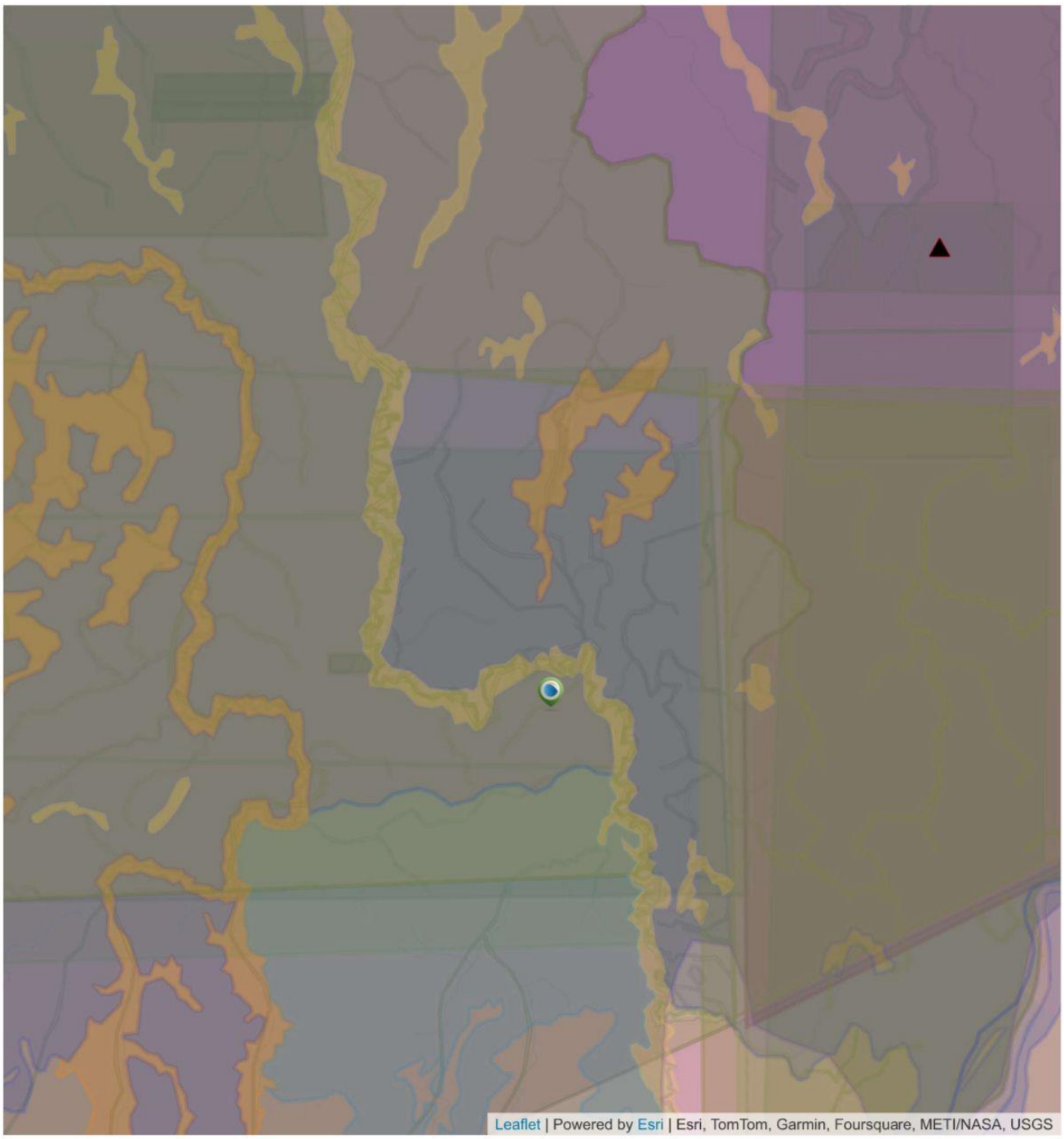


Camada:	CAR - Área Imóvel - Pendente
Cód. Estado:	AM
Cód. Imóvel:	AM-1303304-8BB9A244F3C64D1793414B9065A7F896
	Clique aqui para consultar o CAR
Nome Município:	Novo Aripuanã
Nº Área:	501355.9
Nº Módulo:	5013.5598
Situação:	PE
Tipo Imóvel:	IRU

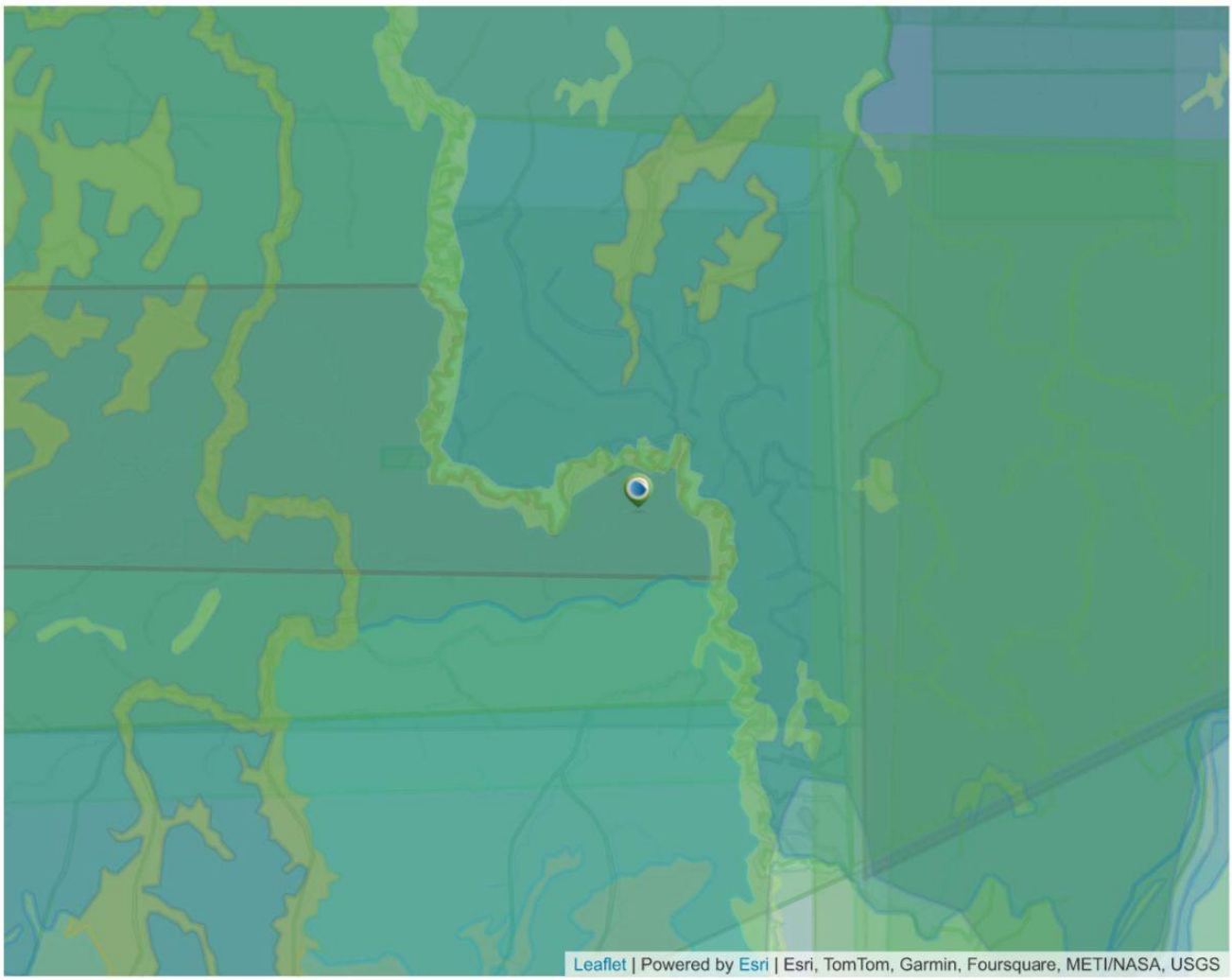
Camada:	CAR - Vegetação Nativa
IDF:	9402620
Nome Tema	Remanescente de Vegetação Nativa
Nº Área:	545132.1



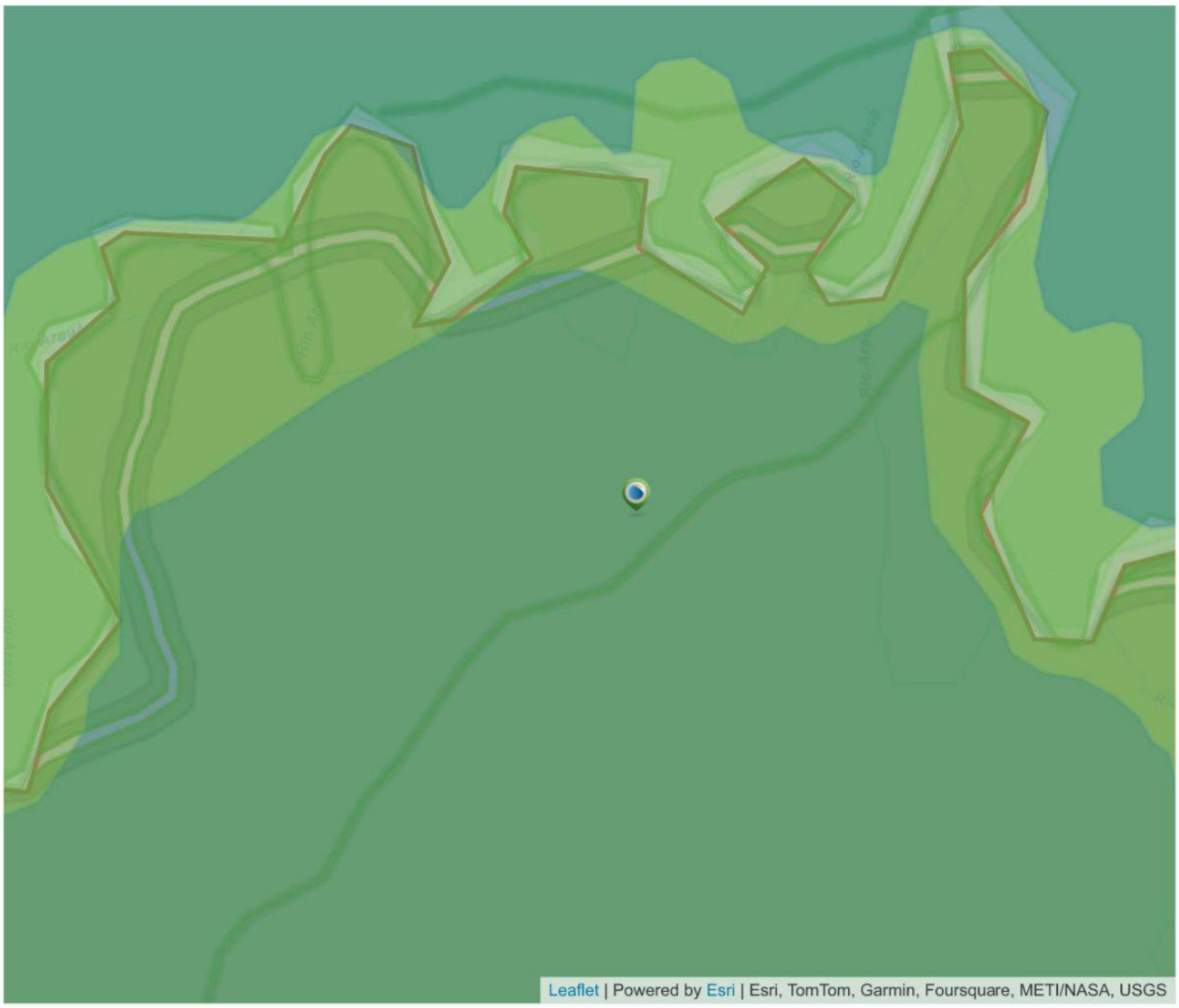
Camada:	CAR - Reserva Legal
IDF:	8468040
Nome Tema:	Reserva Legal Proposta
Nº Área:	401964.5



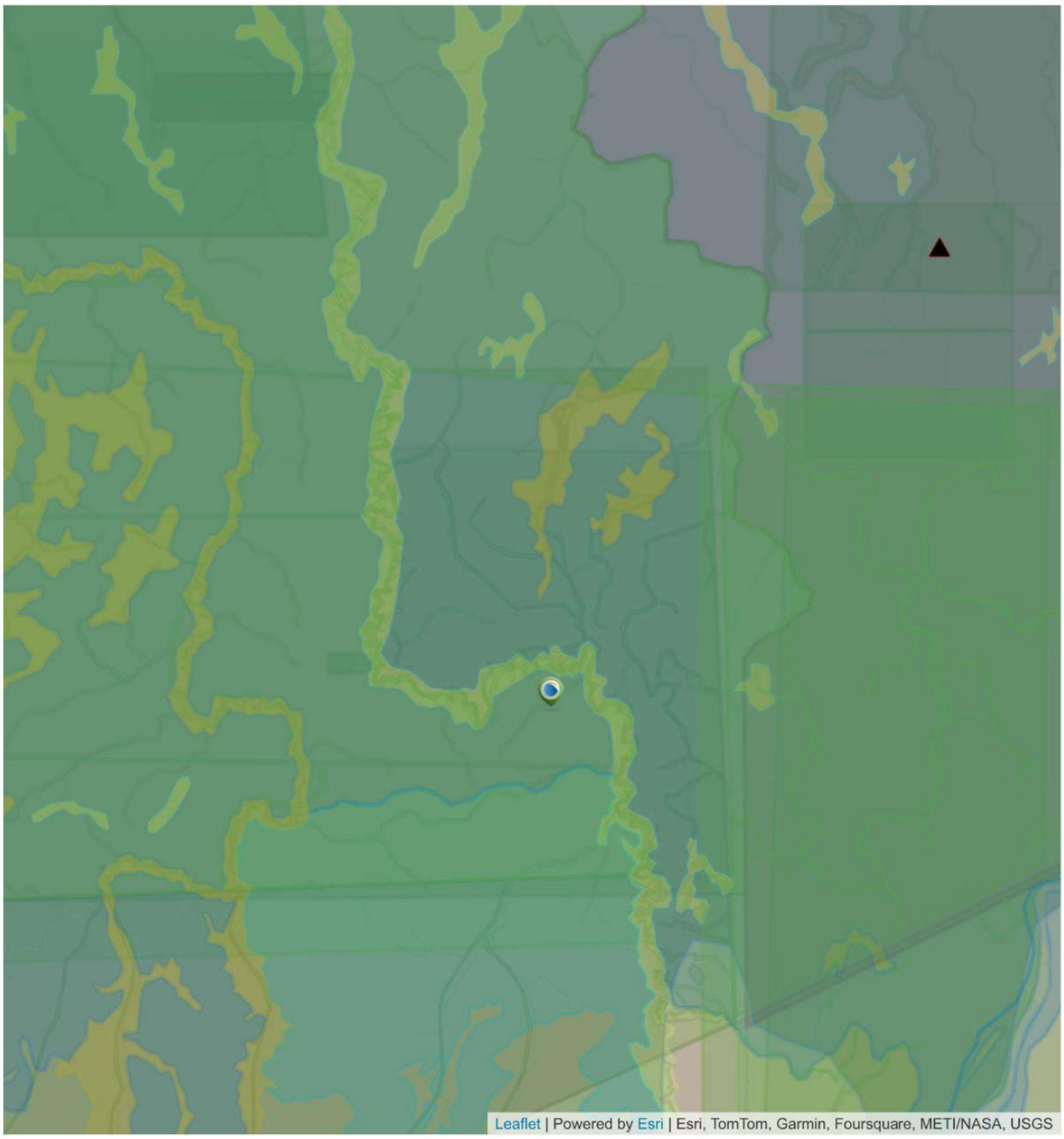
Camada:	Amazônia Legal
Código:	Amazônia_Legal
Área (km²):	5.015.067,859



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

ANALYSIS METHODOLOGY

The analysis of satellite images, such as those provided by Hecta & PlanetScope/SkySat, for stratifying land use on 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 Ombrophilous Forest, 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 Ombrophilous Forest: 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 maintaining biodiversity 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 waterlogged conditions. These ecosystems 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 both 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 rich aquatic biodiversity but are also fundamental for economic activities, such as fishing, and ecosystem services, such as climate regulation and the water cycle.

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

- Conservation Planning: Prioritizing areas for protection and recovery 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, allowing for 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 wealth present but also emphasize the need for integrated management approaches that reconcile biodiversity conservation with the 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 – Area of the Land Classified by Strata

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

Methods of Aerial and Soil Carbon Analysis

Aerial Carbon Measurement

Using advanced technology from Hecta.ai, aerial carbon estimation was enhanced by processing data with extreme precision. High-resolution satellite images from Planet's Dove and SuperDove series, which capture details with a resolution of up to 3 meters per pixel, were fundamental in this analysis. The combination of these images with the Normalized Difference Vegetation Index (NDVI) provided a solid basis for quantifying above-ground vegetation biomass, crucial for estimating the volume of atmospheric carbon retained in the forests of the studied region.

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 near-surface vegetation, resulting in more precise and reliable data. The advanced analysis offers a comprehensive view of carbon dynamics, essential for conservation and environmental management strategies.

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 soil carbon storage estimates but also demonstrated the effectiveness of synergy between orbital technologies and terrestrial analyses in producing robust data.

Analysis Results

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

Improved Studies and Results Thanks to Planet Constellation and Hecta Processing Technology

The satellites of the Planet company play a crucial role in data collection used by the Hecta Group, providing vital information for monitoring fires and accounting for carbon. Planet, an innovative company with over 10 years in the market, has a constellation of satellites that make it possible to capture and process near-daily images, helping to identify and measure environmental impacts with precision.

About Planet Company

- **Market Experience:** Founded in 2010, Planet has expanded its operations to become a leader in providing Earth observation data.

- **Number of Satellites:** Currently has about 200 satellites in orbit, including those from the Dove, SuperDove, and RapidEye series, forming the largest Earth observation constellation in the world.

Satellite Technologies:

- **Dove Series:** Composed of small satellites, each capable of capturing high-resolution images, with up to 3 meters per pixel, covering multiple spectral bands.

- **SuperDove Series:** Enhances this resolution and calibration further, capturing images in 8 spectral bands, ideal for monitoring fires and vegetation health.

Benefits for Fire Monitoring and Carbon Accounting

- **Fire Monitoring:** Near-daily images from Planet satellites allow the Hecta Group to quickly identify areas affected by wildfires and assess damage. The precision of the images, combined with spectral analysis, helps map affected areas with high accuracy.

- **Carbon Accounting:** Using high-resolution images, Hecta Group technology can monitor carbon stocks, track biomass levels, and assess the impact of fires on

forests' ability to store carbon. This allows for more accurate carbon credit accounting and guides strategies to offset emissions.

Processing and Analysis by Hecta Group

Combining the excellence of images provided by Planet's satellite constellation with their processing technologies, the Hecta Group can deliver detailed analyses, effectively calculating carbon losses and supporting conservation efforts with reliable data.

Importance of ISO/IEC 27001 for Hecta Group

Adopting the ISO/IEC 27001 standard for data provided by Planet within the Hecta Group enhances our credibility and trust among clients and partners. Implementing an Information Security Management System (ISMS) according to ISO 27001 not only effectively protects our data and information assets but also demonstrates a robust commitment to information security. This certification is an important competitive differentiator, especially when considering the integrity and confidentiality of the high-quality satellite images we manage and use in our operations, ensuring that all practices are aligned with international security standards.

Significant Contribution of Dense Forests to Carbon Sequestration

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

Through high spatial resolution images captured by the Planet constellation, combined with powerful analysis provided by the Hecta platform, researchers can now conduct detailed studies on carbon sequestration across 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 Planet Constellation and Hecta Technology

The need to expand our understanding of soil carbon dynamics, highlighted by the scarcity of focused studies in this area, stands out as an imperative research domain. Significant advances in measurement methodology, driven by unprecedented access to Planet's satellite data and advanced analysis enabled by

Hecta technology, are crucial for evaluating the carbon sequestration potential of terrestrial ecosystems more precisely and effectively.