

RIO MADEIRA GROUPED REDD+ PROJECT



**FUTURE CARBON
GROUP**



RIOMADEIRA

REDD+ CARBON PROJECT™

Project title	Rio Madeira Grouped REDD+ Project
Project ID	2878
Crediting period	23-October-2019 to 22-October-2049
Monitoring period	01-January-2023 to 31-December-2023
(CCB) GHG accounting period	23-October-2019 – 22-October-2049; 30-years total period
Original date of issue	10-December-2024
Most recent date of issue	26-May-2025
Version	05
VCS Standard version	4.4
CCB Standards version	3.1
Project location	Rondonia and Amazonas States, Brazil
Project proponent(s)	Future Carbon International LLC Fábio Galindo Silvestre 150 SE 2nd Ave, Suite 906 Miami – Florida, U.S. - Postal Code 33131 forest@futurecarbon.com.br +55 11 3045-3474
Validation/verification body	Ecolance Private Limited Rekha Menon rekhamenon@eco-lance.com Office no. 1310-1311, SOLUS Building, Hiranandani Business Park, Hiranandani Estate, Thane (West) - Maharashtra, India info@eco-lance.com +91 9971372759

History of CCB Status	Validated on December 5, 2024. 1 st Monitoring period under CCB standard is under verification.
Gold Level criteria	Rio Madeira Grouped REDD+ Project is not applying for Gold Level in this verification period.
Prepared by	Future Carbon Group

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1 SUMMARY OF PROJECT BENEFITS

1.1 Unique Project Benefits

Outcome or Impact	Achievements during the Monitoring Period	Section Reference	Achievements during the Project Lifetime
Installation of internet antennas and construction of computer rooms: Greater access to education through digital resources, fostering equitable learning opportunities for all students via Internet Service Installation and access to computers.	The project provided the installation of a Starlink internet antenna at the Flor do Cupuaçu school, located in the Santa Rita resettlement, Porto Velho - RO.	4.3.1 4.1.1	The project provided the installation of a Starlink internet antenna at the Flor do Cupuaçu school, located in the Santa Rita resettlement, Porto Velho - RO.
Incentives for Sports: Support for physical health and well-being among children, youth, and adults through sports activities.	No achievements during this monitoring period	-	No achievements during this monitoring period.
Castration of domestic and feral dogs and cats: Population control of dogs and cats present on project farms to reduce the impact of predation and disturbance on local biodiversity	No achievements during this monitoring period	-	No achievements during this monitoring period.

1.2 Standardized Benefit Metrics

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
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GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	Not applicable	-	Not applicable
	Net estimated emission reductions in the project area, measured against the without-project scenario	886,441 tCO ₂	2	2,870,906 tCO ₂
Forest ¹ cover	For REDD ² projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	1,571.5 ha ³	5	6,374.13 ha
	For ARR ⁴ projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	Not applicable	-	Not applicable
Improved land management	Number of hectares of existing production forest land in which IFM ⁵ practices have occurred as a result of the project's activities, measured against the without-project scenario	Not applicable	-	Not applicable
	Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario	Not applicable	-	Not applicable
Training	Total number of community members who have improved skills and/or	22 ⁶	4.3.1	22

¹ Land with woody vegetation that meets an internationally accepted definition (e.g., UNFCCC, FAO, or IPCC) of what constitutes a forest, which includes threshold parameters, such as minimum forest area, tree height and level of crown cover, and may include mature, secondary, degraded and wetland forests (VCS Program Definitions)

² Reduced emissions from deforestation and forest degradation (REDD) - Activities that reduce GHG emissions by slowing or stopping conversion of forests to non-forest land and/or reduce the degradation of forest land where forest biomass is lost (VCS Program Definitions)

³ Note that until 2022, the ex-ante values is under "Time Function" approach, while from 2023 is "Historical Average". For more details, see the 3rd MR ER spreadsheet, table "MR section 1.2" which contains the applicable values and the traceable memory of the data.

⁴ Afforestation, reforestation and revegetation (ARR) - Activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing and/or restoring vegetative cover through the planting, sowing and/or human-assisted natural regeneration of woody vegetation (VCS Program Definitions)

⁵ Improved forest management (IFM) - Activities that change forest management practices and increase carbon stock on forest lands managed for wood products such as saw timber, pulpwood and fuelwood (VCS Program Definitions)

⁶ Male nut collectors (15), female nut collectors (3), male farm employees (2), women who live on the farms (2), women from external institutions (1), men from external institutions (3). The total number of participants in the training sessions promoted by the project was 26, but individuals from external institutions are not included in the table.

	knowledge resulting from training provided as part of project activities			
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities	5 ⁷	4.3.1	5
Employment	Total number of people employed in of project activities, ⁸ expressed as number of full-time employees ⁹	0	4	0
	Number of women employed in project activities, expressed as number of full-time employees	0	4	-
Livelihoods	Total number of people with improved livelihoods ¹⁰ or income generated as a result of project activities	0	4	10 ¹¹
	Number of women with improved livelihoods or income generated as a result of project activities	0	4	Not available yet
Health	Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario	Not applicable	-	Not applicable
	Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario	Not applicable	-	Not applicable

⁷ Women who live on the farms, employees or nut collectors (5)

⁸ Employed in project activities means people directly working on project activities in return for compensation (financial or otherwise), including employees, contracted workers, sub-contracted workers and community members that are paid to carry out project-related work.

⁹ Full time equivalency is calculated as the total number of hours worked (by full-time, part-time, temporary and/or seasonal staff) divided by the average number of hours worked in full-time jobs within the country, region or economic territory (adapted from UN System of National Accounts (1993) paragraphs 17.14[15.102];[17.28])

¹⁰ Livelihoods are the capabilities, assets (including material and social resources) and activities required for a means of living (Krantz, Lasse, 2001. The Sustainable Livelihood Approach to Poverty Reduction. SIDA). Livelihood benefits may include benefits reported in the Employment metrics of this table.

¹¹ Number of nut collectors impacted by the "Community Extractivist Partnership Agreement". The document was signed in 2022, when the project was being implemented under the VCS and Social Carbon standards. Although the document does not directly address a right under Brazilian legislation (e.g., ownership or land usage), it serves as a mechanism to strengthen and recognize the presence of extractivists in the territory, as well as to guarantee access to the natural resources they collect as extractivists.

Education	Total number of people for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	167 ¹²	4.3.1	167
	Number of women and girls for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	78 ¹³	4.3.1	78
Water	Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Not applicable	-	Not applicable
	Number of women who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Not applicable	-	Not applicable
Well-being	Total number of community members whose well-being ¹⁴ was improved as a result of project activities	145 ¹⁵	4.3.1	155 ¹⁶
	Number of women whose well-being was improved as a result of project activities	73 ¹⁷	4.3.1	73
Biodiversity conservation	Change in the number of hectares significantly better managed by the	Not applicable	-	Not applicable

¹² Number of community members who took part in the two training courses offered (22); Number of students and teachers impacted by the Starlink Antenna (145)

¹³ Number of female community members who took part in the two training courses offered (5); Number of women impacted by the Starlink Antenna: teachers and school employees (12), students (61).

¹⁴ Well-being is people's experience of the quality of their lives. Well-being benefits may include benefits reported in other metrics of this table (e.g. Training, Employment, Health, Education, Water, etc.), but could also include other benefits such as empowerment of community groups, strengthened legal rights to resources, conservation of access to areas of cultural significance, etc.

¹⁵ Number of students and teachers impacted by the Starlink Antenna (145)

¹⁶ Number of students and teachers impacted by the Starlink Antenna and number of nut collectors impacted by the "Community Extractivist Partnership Agreement".

¹⁷ Number of women impacted by the Starlink Antenna: teachers and school employees(12), students (61).

project for biodiversity conservation, ¹⁸ measured against the without-project scenario			
Number of globally Critically Endangered or Endangered species ¹⁹ benefiting from reduced threats as a result of project activities, ²⁰ measured against the without-project scenario	1 species ²¹	5.1.3	1 species

2 PROJECT DETAILS

2.1 Summary Description of the Implementation Status of the Project

2.1.1 Summary Description of the Project (VCS, 2.1, 3.6; CCB, G1.2)

The VCS PD was validated by the Validation and Verification Body (VVB) RINA Services S.p.A. and this present monitoring report is under verification by Ecolance Private Limited.

The project activity includes banning of illegal logging, fire prevention activities, socioeconomic activities and supervision of deforestation by a management team and through satellite images.

Instance 1: ROVEMA

To improve the surveillance and protect the project area, instance 1 has joined the Rural Patrol Program, which is a governmental program in order to carry out rural policing in November 2023. Such initiative aims to preserve public order in the rural area, and consequently, generate a sense of security. The attribution of rural patrolling involves prevention activities, which are carried out by properties which have joined the program.²²

During this monitoring period there were no sustainable forest management activities²³. Evidence was shared with VVB team.

In addition, the Rovema group donated one Starlink to Flor do Cupuaçu School in October 2023, contributing to the students' educational development and the quality of the institution's teaching

¹⁸ Biodiversity conservation in this context means areas where specific management measures are being implemented as a part of project activities with an objective of enhancing biodiversity conservation.

¹⁹ Per IUCN's Red List of Threatened Species

²⁰ In the absence of direct population or occupancy measures, measurement of reduced threats may be used as evidence of benefit

²¹ *Ateles chamek*, identified through fauna inventory. For more details, see section 5.1.1.

²² Available at: < <https://rondonia.ro.gov.br/programa-de-seguranca-rural-fortalece-inteligencia-especializada-desenvolvida-em-municipios-do-estado/> >

²³ For more information, please see table 25b in the ER spreadsheet

and in April 2023 cooperated with the school buying tires for the school bus. Still in the scope of benefiting communities, reinforcing what was already said in the previous monitoring reports, the landowners have a close relationship with the local communities, and as well as supplying the equipment that makes the internet available to this school, the group sponsored the community's June festival, which is a traditional celebration in Brazil.

Instance 2: Leite

To improve the surveillance and protect the project area, instance 2 purchased a vehicle to monitor the project area in August 2023, in order to further strengthen the means of security. Furthermore, satellite monitoring continues to take place in instance 2.

Also, despite being started in 2022, in August 2023 Santa Carmem Farm it was certificated as part of Rural Patrol officially. The property is one of the first farms in the State of Rondônia to join the program.

Instance 3: Tupá

Socio-economic activities continued to play a leading role in instance 3. Following the formalization of the extractive partnership between the landowner and the Brazil nuts and açai collectors during the last monitoring period, in October and December 2023 there were two training sessions with the nut extractivists, involving good practices for collecting and processing nuts, given by Embrapa²⁴, which is nationally recognized in the area of technology involving sustainable agriculture.

Besides training harvesters to optimize the collection of non-timber products, these trainings were important for teaching and demonstrating the sustainable side of this action, which also serves as a way of monitoring the project area.

In addition, during September 2023 a photographic survey of birds was carried out at Fazenda Nova Fronteira, where it was possible to identify 108 species and photograph 34 of them, in addition to capturing a single record of the Tiriba-Rupestre species in Amazonas.

Surveillance activities are also in place at Instance 3, where the patrolling team visit the project areas in order to identify their integrity, informing the landowner in case any relevant data should be reported.

During this monitoring period there were no sustainable forest management activities. Evidence was shared with VVB team.

Also, during the monitoring period, a socio-environmental diagnosis was carried out in the municipalities where the project is located in September-2023, as well as a fauna diagnosis, carried out in August-2023.

²⁴ Available at: <https://embrapa.br/home>.

Although part of the abovementioned activities is in place prior to the monitored period, they represent continuous and important initiatives to monitor the area and, consequently, avoid deforestation within the property.

All these actions combined are important for the maintenance of the standing forest. Initiatives also generate jobs and incomes for the local economy through conservation. With the incomes of the carbon credits, it is possible to foster more initiatives that can impact positively surrounding communities.

The table below shows a summary of the technologies and measures implemented during this monitoring period and in the previous years. More details about their impact are available in Section 2.2.1.

Table 1. Summary description of the technologies/measures and its implementation status

Instance	Activities implemented during the current monitoring period (2023)	Activities implemented in previous years (2019-2022)
1-ROVEMA	- April-2023: cooperation with 'Flor do Cupuaçu' school by buying tires for the school bus²⁵. - October-2023: donation of one Internet antenna to 'Flor do Cupuaçu' school, contributing to the connectivity of the school and students' educational development. - November-2023: Instance 1 farms joined the Rural Patrol Program, a governmental program to carry out rural policing. 2023: No SFMP activities were carried out²⁶.	- October 2019: Contract with a private company of surveillance – still in place 2019-2022: SFMP activities were carried out.
2-Leite	- August-2023: Purchase of a vehicle to monitor the project area. - August 2023: Santa Carmem Farm joined Rural Patrol program.	- January 2020: Contract with satellite monitoring to monitor deforestation – still in place - May 2021: Contract with third-part surveillance company - discontinued 2022: Santa Carmem farm joined Rural Patrol program – still in place
3-Tupá	October and December-2023: Two training sessions with the Brazil nut collectors about good practices for collecting and processing nuts, provided by Embrapa.	January 2020: Contract with "mateiro", responsible for surveillance in the farm boundaries – still in place

²⁵ Although this is not a project activity, the initiative demonstrates the landowners' commitment with community.

²⁶ Although SFMP is a not a project activity, it is worth mentioning since involves project area.

	- September 2023: birdwatching assessment and photographic report. - October 2023: Nova Fronteira farm joined Rural Patrol program. 2023: No SFMP activities were carried out.	- January 2022: Agreement between the landowner and Brazil nut extractivists – still in place 2022: Installation of a geodesic landmark on the property boundaries²⁷ – still in place 2022: firebreak maintenance – still in place 2019-2022: SFMP activities were carried out
All Instances	- July - August 2023: A socio-environmental diagnosis was performed by a third-party company hired by the project. The goal was to interview local residents and government institutions in order to characterize the socioeconomic and environmental context surrounding the project area. - July - August 2023: A biodiversity diagnose (fauna assessment) was carried out in all instances by a third-party company hired by the project. The results are detailed in section 5.1.	2019: Establishing communication channels with stakeholders – still in place 2022: consultation of stakeholders – still in place 2022: installation of project identification placards – still in place

Non permanence risk is monitored according to AFOLU Non-Permanence Risk Tool 4.2, with a score of 12%. This is managed together with the owners in order to reduce risk. In addition, leakage follows the same approach, where deforestation is monitored in the LB and actions in the LMAs (under planning) are designed to reduce deforestation in these areas.

The monitoring data was kept according to the monitoring plan described in the approved VCS PD. This Monitoring Report refers to the third monitoring period of this project and includes data from 01-January-2023 to 31-December-2023.

When assessing deforestation rates within the Project Area, the actual deforestation during the monitoring period was of 49.46 ha. Meanwhile, the predicted area in the baseline scenario that would be deforested during this monitoring period from 01-01-2023 to 31-12-2023 would be 1,620.96 ha. In general, the ex-ante and ex-post analysis of deforestation in the project boundaries is available in the table below:

²⁷ The landmark was installed in 2022 to make clear property boundaries for whom is on the field. Although it was not reinstalled after 2022, the landmark is a long-term physical structure which was shared during 2nd Monitoring Report

B o x - u n d a t e (h a)	Ex-post (ha)
P r o j e c t A r e a	1 49.46
R e f e r e n c e R e g i o n	1 11,021.22
L e a k a g e B e	6 513.67

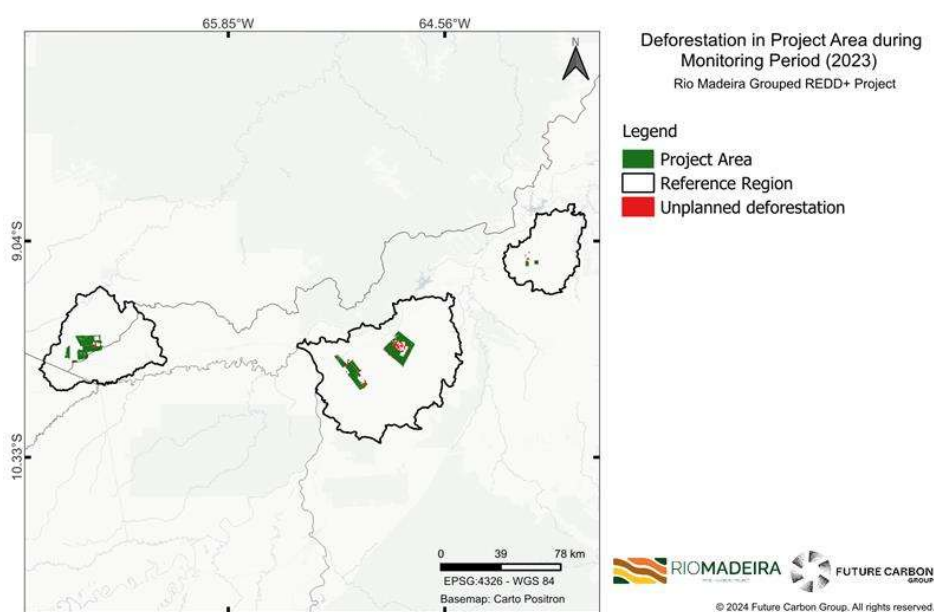
I	
t	

The total reductions or removals of GHG emissions²⁸ in this monitoring period is 886,441 tCO₂e.

The net carbon stock change within project area during the present monitored period represents 31,752.65 tCO₂e. When compared to VCUs already issued (1,752,414 VCUs), the ratio represents less than 5%, thus not characterizing a loss event according to VCS Program Definitions 4.5²⁹ of more than five percent of previously verified emission reductions and removals.

The map with the annual areas of deforestation within the project area during the current monitoring period is showed below. Reference region accumulated deforestation map is also available below. The analyses carried out are based on data available on Mapbiomas³⁰.

Figure 1. Deforestation in Project Area during 2023³¹



²⁸ For more information, please see ER sheet.

²⁹ Available at: < <https://verra.org/documents/vcs-program-definitions-v4-5-final/> >

³⁰ Mapbiomas Brasil. Available at: <https://plataforma.brasil.mapbiomas.org/cobertura>.

³¹ Mapbiomas Brasil. Available at: <https://plataforma.brasil.mapbiomas.org/cobertura>.

Figure 2. Accumulated deforestation in Reference Region (Serra Verde Farm – Instance 1)³²

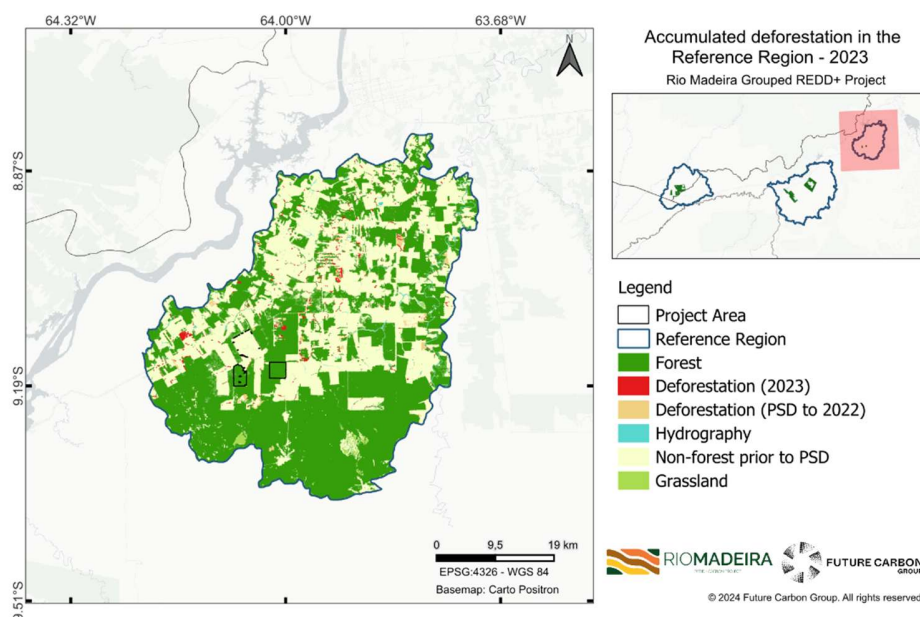
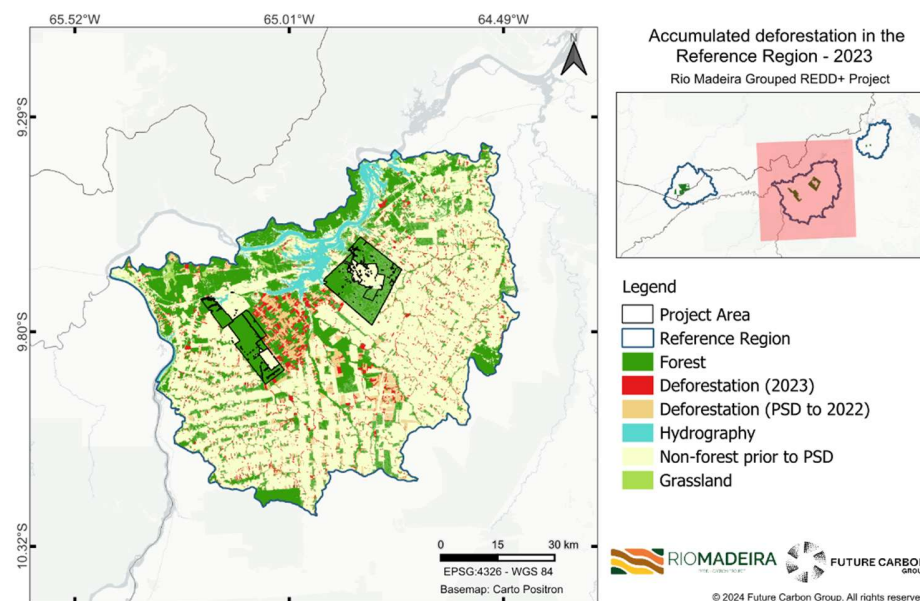


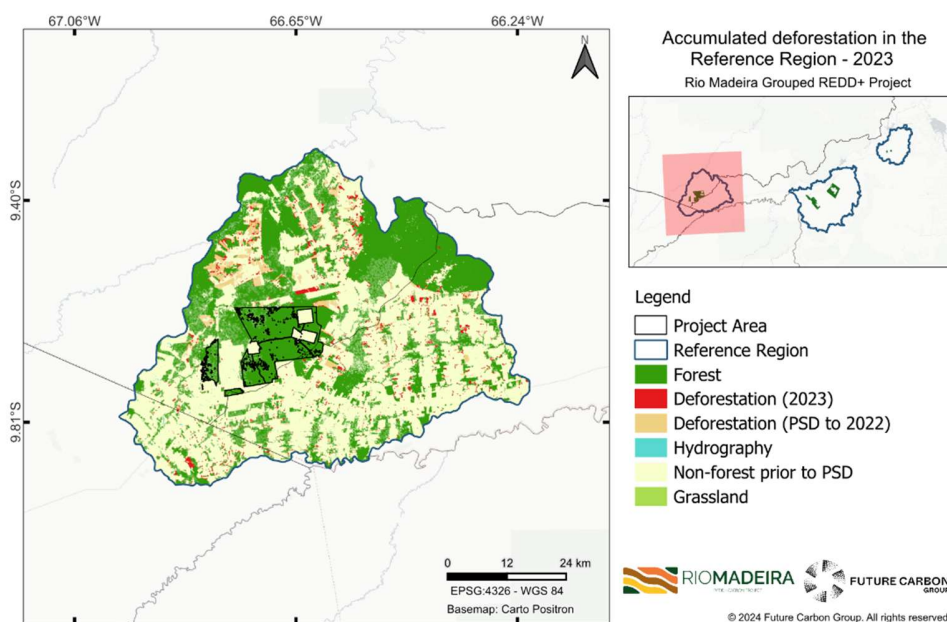
Figure 3. Accumulated deforestation in Reference Region (Rio Madeira and Santa Carmen Farm – Instances 1 and 2)³³



³² Mapbiomas Brasil. Available at: <https://plataforma.brasil.mapbiomas.org/cobertura>.

³³ Mapbiomas Brasil. Available at: <https://plataforma.brasil.mapbiomas.org/cobertura>.

Figure 4. Accumulated deforestation in Reference Region (Nova Fronteira Farm – Instance 3)³⁴



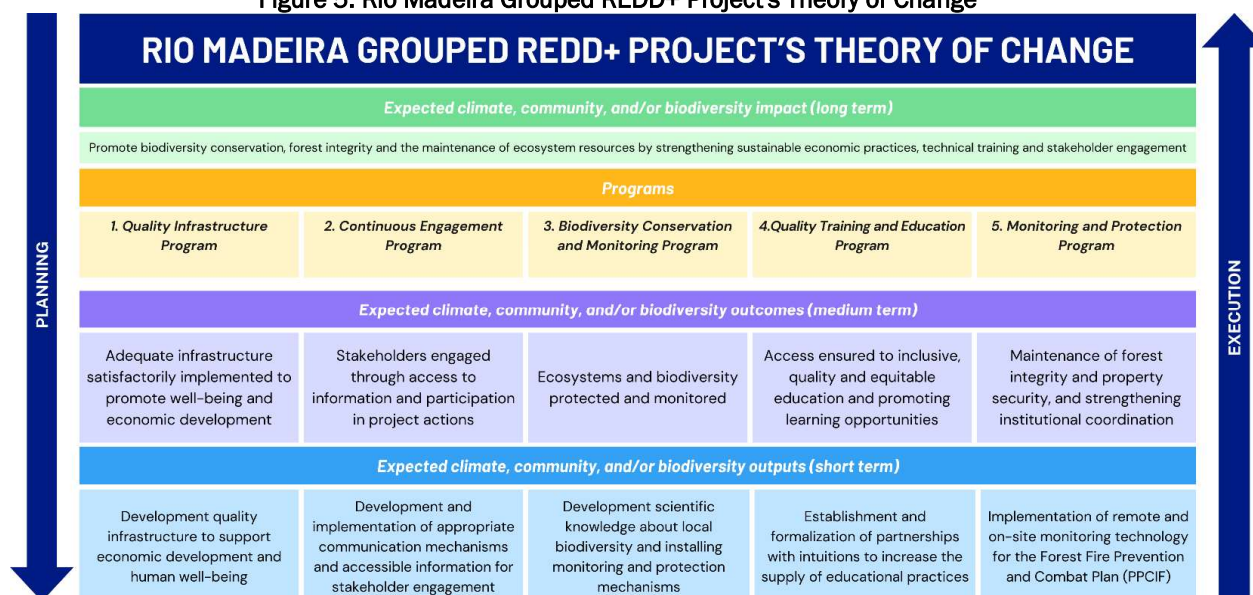
As a CCB (Community, Climate and Biodiversity) project, the construction of the Theory of Change was based on the conducted socio-environmental diagnoses and stakeholder consultation, considering establish a clear cause-effect relationship between the unsatisfied basic needs of communities and each critical factor such as unsustainable land use and limited knowledge of ecosystem services.

Therefore, the **Theory of Change for the RIO MADEIRA GROUPED REDD+ PROJECT** consists of using the benefits of carbon credits to develop activities that promote biodiversity conservation, forest integrity and the maintenance of ecosystem resources by strengthening sustainable economic practices, technical training, and stakeholder engagement.

To achieve these objectives and to generate positive impacts on climate, community, and biodiversity in the short, medium, and long term, five key programs have been designed and are currently being implemented: **(1)** Quality Infrastructure, **(2)** Continuous Engagement, **(3)** Biodiversity Conservation and Monitoring, **(4)** Quality Training and Education, and **(5)** Monitoring and Protection. These programs are illustrated in the framework below:

³⁴ Mapbiomas Brasil. Available at: <https://plataforma.brasil.mapbiomas.org/cobertura>.

Figure 5. Rio Madeira Grouped REDD+ Project's Theory of Change



In order to achieve the main project objective, the project proponent has divided into specific objectives Climate, Community and Biodiversity below.

- Climate Objective: Protect 52,274.05 of Amazon rainforest from illegal deforestation and forest fires
- Community Objective: Promote technical training aimed at diversifying sources of income, adopting best practices in agriculture and increasing the employability of young people and women. Implement and repair infrastructure to guarantee safe spaces that promote the well-being and social integrity of communities.
- Biodiversity Objective: Protect the habitat of hundreds of species of fauna, including 9 threatened species according to the IUCN Red List and 3 threatened species according to CITES Appendices, such as the *Mico rondonia*, *Ateles chamek* and *Panthera onca*. In the Brazil's National Red List, *Panthera onca* is classified as vulnerable as well³⁵.

2.1.2 Audit History (VCS, 4.1)

Audit Type	Period	Program	VVB Name	Number of years
Validation	23-October-2019 to 22-October-2049	VCS	RINA S.p.A.	30 years

³⁵ Brazil National Red List.

[P_mma_148_2022_altera_anexos_P_mma_443_444_445_2014_atualiza_especies_ameacadas_extincao.pdf](#)

Verification	23-October-2019 to 31-December-2021	VCS and SOCIALCARB ON®	RINA S.p.A.	2 years and 70 days
Verification	01-January-2022 to 31-December-2022	VCS and SOCIALCARB ON®	Ecolance Private Limited	1 year
Verification	01-January-2023 to 31-December-2023	VCS and CCB	Ecolance Private Limited	1 year
Total	23-October-2019 to 18-October-2049	VCS	-	30 years

2.1.3 Sectoral Scope and Project Type (VCS, 3.2)

Sectoral Scope	14: Agriculture, forestry, and other land use
AFOLU Project Category	Reducing Emissions from Deforestation and Degradation (REDD)
Project Activity Type	Avoided Unplanned Deforestation (AUD)

2.1.4 Project Proponent (VCS, 3.7; CCB, G1.1)

Organization name	Future Carbon International LLC
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Email	riomadeira@futurecarbon.com.br

2.1.5 Other Entities Involved in the Project

Organization name	Grupo ROVEMA
Role in the project	Owner of Instance 01 properties
Contact person	Lediania Ghedin
Title	Chief Executive Officer
Address	Av. Calama, 1383 – São João Bosco – Porto Velho RO Postal Code – 76803-705

Telephone	(69) 3216-9600
Email	lediana@ceo.grupoROVEMA.com.br

Organization name	Grupo Leite
Role in the project	Owner of Instance 02 property
Contact person	José Marcos Leite Junior
Title	Chief Executive Officer
Address	BR-364 km 904 Porto Velho - RO Postal Code – 78900-000
Telephone	(68) 99903-7883
Email	joseleitejunior@gmail.com

Organization name	Grupo Tupá
Role in the project	Owner of Instance 03 property
Contact person	Tulio Villela Lemos Batista da Costa
Title	Chief Executive Officer
Address	BR 364 km 135 Lábrea - AM Postal Code – 69830-000
Telephone	(68)-3224-3192
Email	ciatupa@uol.com.br

2.1.6 Project Start Date (VCS, 3.8)

Project start date	23-October-2019
Justification	According to the concept established by the VCS Standard v4, “the project start date of an AFOLU project is the date on which activities that lead to the generation of GHG emission reductions or removals are implemented (e.g., preparing land for seeding, planting, changing agricultural or forestry

practices, rewetting, restoring hydrological functions, or implementing management or protection plans”).

The project start date was on 23-October-2019 and was defined considering the date on instance 01 properties owner started to intensify the monitoring of the property boundaries. To do so, it was hired a monitoring company who conducts patrols at property boundaries. Such monitoring activities help the landowners to plan and optimize their field surveillance using vehicles and other equipment. For more information regarding plans to project activity implementation, please see section 2.2 implementation status.

Therefore, the project start date is 23-October-2019, and it was defined taking into consideration the date on which the Grupo ROVEMA started a patrolling routine in the property named Rio Madeira. Such service includes security agents in order to avoid land encroachers and wood grabbers, as an action to help forest conservation due to the numerous invasions that are common in other farms in the region. Evidence was presented for the audit period, where Grupo ROVEMA signed a contract with a monitoring team (“S.S.M – Serviços de Segurança Eireli”) to increase surveillance activities and thus guarantee the conservation of the forest areas.

The other two Project Activity Instances are nearby and suffer from the same invasion risks. Thus, the Grupo Leite (instance 2), on 08-January-2020, hired an assessor (“Verine Projetos e Assessoria Ltda – ME”) which is specialized in forest coverage satellite images monitoring service. Thus, with such intel service, it was possible to prevent encroachers.

Grupo Tupá (instance 3) signed a contract with a security service provider (“Elzo Santos de Oliveira”), on 02-January-2020. Such professional is an expert on identifying tracks and settlements in the forest and established a routine of patrolling Grupo Tupá borders in order to prevent invasions and consequent forest coverage loss.

Thus, briefly, below is the project start date of the 3 instances:

Table 2. Project Start Date

Instance	Project Start Date
Grupo ROVEMA	23-October-2019
Grupo Leite	08-January-2020
Grupo Tupá	02-January-2020

These actions were the first step to the conservation of the project area due to the increase of invasions within the properties.

The documents supporting the project start date will be made available to the VVB team during the validation process.

2.1.7 Benefits Assessment and Project Crediting Period (VCS, 3.9; CCB, G1.9)

Crediting Period

According to the concept established by the VCS Program Definitions v4, “The time period for which GHG emission reductions or removals generated

	by the project are eligible for issuance as VCUs, not including any potential crediting period renewals. Also referred to as the “Project Crediting Period”. The project crediting period starts in project start date, on 23-October-2019 when the GHG reductions or removals began to take place and it ends on 22-October-2049, when the project ends.
Start Date of First or Fixed Crediting Period	23-October-2019 to 22-October-2049
Total Number of Years of Crediting Period	30 years
CCB Benefits Assessment Period	01-January-2023 to 22-October-2049

2.1.8 Project Location (VCS, 3.11; CCB, G1.3)

The Rio Madeira Grouped REDD+ Project is situated in the municipalities of Porto Velho in State of Rondônia and Lábrea, in State of Amazonas, both in the north of Brazil, a region known as Southern Amazon. Belonging to the South-Amazonian Mesoregion and Microregion of Madeira, Porto Velho and Lábrea’s population, according to the Brazilian Institute of Geography and Statistics (IBGE) in 2021, had about 596,000 inhabitants. Their territorial areas sum up to around 102,352 km², which makes them among the largest municipalities in Brazil in the territorial area.³⁶

The area of the first project activity instance comprehensively belongs to Grupo ROVEMA, the second project activity instance belongs to Grupo Leite and the third belongs to Grupo Tupá³⁷ (Figure below). In accordance with VCS requirements, stipulated in Approved VCS Methodology VM0015, version 1.1, they are areas which include only “forest”³⁸ for a minimum of ten years prior to the project start date’. To define the project area, areas within the three properties that were defined as forest for ten years prior to the project start date were identified and utilized to compose the project area.

Table 3. Centroid location coordinates by property

Ownership	Properties	Centroids location coordinates
Grupo Rovema	Fazenda Rio Madeira	9° 40'41.22"S ; 64° 49'40.57"W
	Fazenda Serra Verde	9° 07'33.76"S ; 64° 03'21.22"W

³⁶ Brazilian Institute of Geography and Statistics (IBGE) < <https://www.ibge.gov.br/cidades-e-estados/ro/porto-velho.html>>

³⁷ More information about the split properties, see section “1.7 - Ownership”

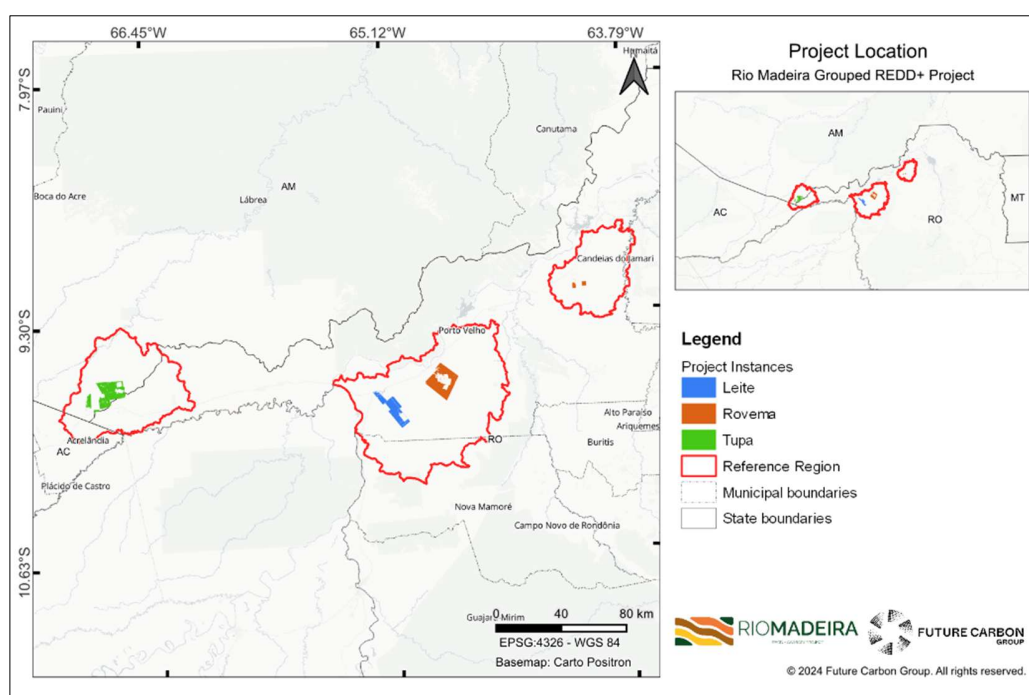
³⁸ The applied definition of forest is from the FAO: “Land with tree crown cover (or equivalent stocking level) of more than 10 percent and area of more than 0.5 hectares (ha). The trees should be able to reach a minimum height of 5 meters (m) at maturity *in situ*.” Available at: <http://www.fao.org/docrep/006/ad665e/ad665e06.htm>

Grupo Leite	Fazenda Santa Carmem	9°46'01.89"S ; 65°07'25.50"W
	Fazenda Santa Carmem I	9°52'20.83"S ; 65°04'24.96"W
	Fazenda Santa Carmem II	9°46'39.08"S ; 65°09'42.32"W
Grupo Tupá	Fazenda Beleza	9°41'38.45"S ; 66°43'15.96"W
	Fazenda Fronteira	9°43'04.65"S ; 66°41'39.67"W
	Fazenda Iracema I	9°39'33.69"S ; 66°38'49.99"W
	Fazenda Iracema II	9°37'16.84"S ; 66°39'45.12"W
	Fazenda Seringal Novo A	9°37'25.59"S ; 66°43'54.66"W

☒ KML file has been provided

The location of instances is available below:

Figure 6. Initial instances that compose the project



The table below shows the distribution of project area in each instance:

Table 4. Project Area distribution

Instance	Group Name	Project Instance Area (ha)	Total Project area (ha)	Project Area representation (%)
1	Rovema	20,232.24		38.7

2	Leite	13,204.20	52,274.053	25.2
3	Tupá	18,837.60		36

2.1.9 Title and Reference of Methodology (VCS, 3.1)

Type (methodology, tool, module)	Reference ID (if applicable)	Title	Version
Methodology	VM0015	VM0015 – Methodology for Avoided Unplanned Deforestation (AUD)	1.1 ³⁹
Tool	VT0001	Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities	3.0 ⁴⁰
Tool	-	AFOLU Non-Permanence Risk Tool	4.2 ⁴¹

2.1.10 Double Counting and Participation under Other GHG Programs (VCS, 3.23; CCB, G5.9)

2.1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program, or any other form of community, social, or biodiversity unit or credit?

☐ Yes ☒ No

2.1.10.2 Registration in Other GHG Programs

Was the project registered or seeking registration under any other GHG programs?

☐ Yes ☒ No

2.1.10.3 Projects Rejected by Other GHG Programs

Has the project been rejected by any other GHG programs?

☐ Yes ☒ No

³⁹ Published on 03-December-2012. Available at: <https://verra.org/methodology/vm0015-methodology-for-avoided-unplanned-deforestation-v1-1/>

⁴⁰ Published on 01-February-2012. Available at: <https://verra.org/methodology/vt0001-tool-for-the-demonstration-and-assessment-of-additionality-in-vcs-agriculture-forestry-and-other-land-use-afolu-project-activities-v3-0/>

⁴¹ Available at: <https://verra.org/wp-content/uploads/2023/10/AFOLU-Non-Permanence-Risk-Tool-v4.2-FINAL.pdf>

2.1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions (VCS, 3.24)

2.1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the VCS Program Definitions for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ **No**

2.1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the VCS Program Definitions for definition of GHG-related environmental credit system.

☐ Yes ☒ **No**

2.1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ **No**

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

☐ Yes ☐ **No**

Has the project proponent(s) or authorized representative posted a public statement on their website saying, "Carbon credits may be issued through Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities]."?

☐ Yes ☒ **No**

Although some instances have a Sustainable Forest Management Plan, there were no exploratory activities during the monitoring period (2023). Therefore, neither the project proponent nor the authorized representative posted a public statement on their website about the emission of carbon credits related to the project.

2.1.12 Sustainable Development Contributions (VCS, 3.17)

During this monitoring period, the Rio Madeira Grouped REDD+ Project implemented activities to reduce deforestation and promote sustainable development, including training 18 Brazil nut extractivists in sustainable extraction and installing internet at EMEIF Flor do Cupuaçu school to benefit 145 individuals. These activities contribute to SDG targets on education (SDG 4) and climate action (SDG 13) by enhancing skills, connectivity, and emissions reductions. This project's contributions are aligned with the nation's NDCs but are independently monitored and reported through VCS and CCB standards, supporting broader sustainable development priorities, notably in environmental preservation and community empowerment.

Table 5. Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	4.4	4.4.1 Proportion of collectors with skills in Brazil nut management, by type of skill ⁴²	Implemented activities to increase	Trained 18 ⁴³ adult and youth Brazil nut collectors on sustainable extraction and good management practices native Brazil nut groves during two technical workshops.	Increased the proportion of collectors with technical management practices related to sustainable production, reaching 31 individuals over the project lifetime.
2)	4.a	4.a.1 Proportion of schools with access to: (b) internet for pedagogical purposes	Implemented activities to increase	Installed one internet antenna at EMEIF Flor do Cupuaçu school, providing access to ICT resources for 145 beneficiaries, including students and teachers.	Improved access to internet by installing one internet antenna for pedagogical purposes in rural schools, benefiting students and teachers within the project's impact area.
3)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to decrease	Avoided 886,441 tonnes of CO2 emissions by conserving 52,032.33 hectares of Amazon rainforest during the monitoring period.	Cumulatively avoided 2,870,906 tonnes of CO2 emissions through forest conservation initiatives over the project duration, contributing to climate change mitigation.

⁴² SDG text adapted to the reality and context of the project's activities

⁴³ Even though in Table 1, related to topic 1.2 Standardized Benefit Metrics, the number of community members in the category "Trainings" was 22, here we are considering only the number of extractivists present in the training sessions.

4)	15.5	15.5.1 Red List Index	Implemented activities to decrease	Protected the habitat of 223 species of fauna, including 22 mammals, 182 birds, and 19 amphibians/reptiles, with 9 threatened species per the IUCN Red List Index (and 1 in the National List).	Decreased the proportion of threatened species of fauna per the IUCN Red List Index by protecting the habitat of 223 species over the project lifetime.
5)	15.2	15.2.1 Progress towards sustainable forest management	Implemented activities to increase	Forest Cover Satellite Monitoring	52,032.33 ha of Amazon rainforest protected from deforestation.

2.2 Project Implementation Status

2.2.1 Implementation Schedule (VCS, 3.2; CCB, G1.9)

The table below provides the key dates and relevant milestones in the development and implementation of the Rio Madeira Grouped REDD+ Project, according to the defined project objectives.

Although some activities were not developed as part of the Rio Madeira Grouped REDD+ Project, they illustrate landowners' commitment and relation with communities, as mentioned in the footnotes. They were included to demonstrate the landowners' initiative and commitment to promote climate, community, and biodiversity benefits beyond the project lifetime.

Table 6. Implementation Schedule

Date	Milestone(s) in the project's development and implementation	Status
01 Jan 2023	Start of 3 rd Monitoring Period under VCS and CCB Standards	Concluded
01 Apr 2023	VCS+CCB/PDD Development Start	Concluded
11 Apr 2023	Onsite Visit: Client due diligence and Stakeholders meetings for project presentation and mapping of communities' priorities	Concluded
13 Apr 2023	Community benefits: maintenance of the Flor do Cupuaçu School bus (Instance 1 initiative) ⁴⁴	Concluded
06 Jun 2023	Onsite Visit: Stakeholder Mapping and Local Stakeholder Consultation	Concluded
12 Jun 2023	Issuance 1 st Validation Report	Concluded
13 Jul 2023	2 nd MR Verification Audit (VCS+ SCS)	Concluded
24 Jul 2023	Project Activity: Biodiversity diagnosis	Concluded
28 Jul 2023	Project Activity: Socioenvironmental diagnosis	Concluded
22 Aug 2023	Project Activity: Purchase of a Toyota Hillux vehicle for surveillance patrols and other conservation activities in the property (Instance 2)	Concluded

⁴⁴ This activity was not linked to the Theory of Change (ToC) or the project fund. It was a spontaneous initiative by the landowners within the project areas, with no connection to the ToC. Nevertheless, it reinforces the positive relation between landowner and local community.

08 Sep 2023	Biodiversity Benefits: Photographic recording of birds in the Project Area by photographers Thiago Kalil, Ary Nazar and Ricardo Plácido (Instance 3) ⁴⁵	Concluded
03 Oct 2023	4 th Onsite Visit: Stakeholder Engagement and 3 rd Local Stakeholder Consultation	Concluded
03 Oct 2023	Project Activity: Installation of the internet network at Flor do Cupuaçu School	Concluded
20 Oct 2023	Project Activity: 1 st Training on good Brazil nut management practices for nut collectors, offered by EMBRAPA	Concluded
25 Oct 2023	Issuance Post-Review Validation Report	Concluded
01 Dec 2023	Project Activity: 2 nd Training on good Brazil nut management practices for nut collectors, offered by EMBRAPA	Concluded
05 Dec 2023	Listing of the Draft CCB/PDD as 'Under Validation' to Verra Registry	Under validation
31 Dec 2023	End of 3 rd Monitoring Period under VCS and CCB Standards	Concluded
02 Apr 2024	3 rd Verification Audit (CCB+VCS)	Under Verification
04 Apr 2024	Start date of the Public Commenting Period of 3 rd Monitoring Period	Concluded

In addition, the activities implemented in this monitoring period are better described in Section 2.1.1 and the table below shows a summary of the activities performed so far:

⁴⁵ A spontaneous initiative carried out by Instance 3, which reinforces the landowner spontaneous commitment with conservation.

Table 7. Project Activities Implementation Status

Project Activity	Activity monitoring	Impact on the GHG emission reductions	Implementation Schedule	Activity performance
Implement and intensify patrimonial surveillance and local patrolling	As these are security services contracted by the landowners' team, the equipment is available during the project activities and in case of maintenance, the receipts are registered as evidence, along with contracts and payment invoices.	This activity guarantees the security of the property and the project area, ensuring that the forest is conserved and emissions reduced.	Since Project Start Date (Instances 1 and 3) Since 2021 (Instance 2)	During this monitoring period, it was performed 61 events, including on-site patrols. Regarding the team members involved in this activity, the composition is as follows: - Instance 1: 2 farm managers and a private company (S3A/Multiservise); - Instance 2: 1 farm manager - Instance 3: 1 farm manager and 1 "mateiro"
Rural patrol program	Since the Police Department cannot enter private property, this is a State Program where a landowner officially allows officers to make rural patrols anytime within the properties.	The presence of police officers within properties discourages encroachers. This is a complementary surveillance action, since landowners have their own surveillance teams ⁴⁶ .	Since 2022 (instance 2) – instance 1 and 3 since 2023	The four properties (100%) that compose the project area has joined the program.
Remote and satellite monitoring in the project area	As these are security services contracted by the owners, there is a guarantee that the work will be carried out as planned through a contract and payment invoices, as well as the resulting maps.	This activity makes it possible to monitor deforestation periodically, to avoid possible invasions and, consequently, deforestation of the project area.	Since Project Start Date (Instance 2)	In this monitoring period, 20 monitoring maps were done as remote project monitoring. From 2024 onwards, it is expected to increase the frequency of monitoring.

⁴⁶ It is worth emphasizing property surveillance teams do not use firearms.

Project Activity	Activity monitoring	Impact on the GHG emission reductions	Implementation Schedule	Activity performance									
Structure and implement the Forest Fire Prevention and Combat Plan (PPCIF).	To be implemented	To be implemented. When implemented, it plans to prepare the farms to effectively prevent and control fires within the project area and avoid GHG emissions.	From 2024 onwards	Not applicable									
Implement and strengthen a communication channel with farm neighbors.	To be implemented	To be implemented. Establishing a network of contacts and partnerships with neighboring farms is essential for the project. This collaboration enables rapid and coordinated responses to critical events such as forest fires, land invasions, and timber theft, strengthening mutual support and increasing the security and resilience of everyone involved.	From 2024 onwards	Not applicable									
Establish partnerships to provide technical training.	Through indicators described in the Community Monitoring Plan (See Section 4.3.1)	It is expected that through technical training, it increases income generation through the efficient use of resources and reduces deforestation pressure within the project area.	Since 2023	<table><tr><th>Year</th><th>Number of partnerships established</th><th>Number of trainings</th></tr><tr><td>2019 - 2022</td><td>0</td><td>0</td></tr><tr><td>2023</td><td>1</td><td>2</td></tr></table>	Year	Number of partnerships established	Number of trainings	2019 - 2022	0	0	2023	1	2
				Year	Number of partnerships established	Number of trainings							
				2019 - 2022	0	0							
				2023	1	2							
In 2023, a partnership was established with EMBRAPA Acre to carry out 2 training sessions for Brazil nut collectors.													
Implement social and recreational spaces and improve	Through indicators described in the Community Monitoring Plan (See Section 4.3.1)	This activity does not impact directly on the GHG emission reductions; however, improving public schools	Since 2023										

Project Activity	Activity monitoring	Impact on the GHG emission reductions	Implementation Schedule	Activity performance						
infrastructure of public schools.		enhances environmental education, fostering awareness and long-term behavioral changes that support GHG emissions reductions.								
				<table><tr><th>Year</th><th>No. of infrastructures</th></tr><tr><td>2019 - 2022</td><td>0</td></tr><tr><td>2023</td><td>1</td></tr></table>	Year	No. of infrastructures	2019 - 2022	0	2023	1
				Year	No. of infrastructures					
				2019 - 2022	0					
2023	1									
One infrastructure improvement was implemented at Flor do Cupuaçu School in 2023.										
Promote educational opportunities and activities for young people.	To be implemented	This activity does not impact directly on the GHG emission reductions, however, promoting educational opportunities and activities for young people may contribute to reducing GHG emissions in the long term by fostering environmental awareness, technical skills, and a sense of stewardship over natural resources. When youth are engaged and informed, they are more likely to adopt sustainable practices, support conservation initiatives, and pursue livelihoods that do not depend on deforestation or illegal activities, generating a positive impact on forest preservation and, consequently, on the reduction of greenhouse gas emissions.	From onwards 2024	Not applicable						
Offer training courses and workshops for women.	To be implemented	To be implemented. When implemented, it indirectly helps to reduce GHG emissions by promoting sustainable livelihoods.	From onwards 2024	Not applicable						

Project Activity	Activity monitoring	Impact on the GHG emission reductions	Implementation Schedule	Activity performance									
		empowering community decision-making, and decreasing pressure on forests.											
Set up communication channels and committees with the participation of local community representatives.	Through indicators described in the Community Monitoring Plan (see Section 4.3.1) and the PO.SAM.02 GRIEVANCE AND REQUEST MANagements (see Section 2.3.10).	This activity does not impact directly on the GHG emission reductions; however, it reinforces good communication, relationships and active participation of the local communities and its representatives.	Since Project Start Date, but the procedure and standardization of these communication flows were fully established in 2023.										
				<table><tr><th>Year</th><th>N° of Meetings held</th><th>Total N° of Participants⁴⁷</th></tr><tr><td>2022</td><td>2</td><td>52</td></tr><tr><td>2023</td><td>3</td><td>269</td></tr></table>	Year	N° of Meetings held	Total N° of Participants ⁴⁷	2022	2	52	2023	3	269
				Year	N° of Meetings held	Total N° of Participants ⁴⁷							
				2022	2	52							
2023	3	269											
Prior to 2022, communications with stakeholders were received/carried out by farm owners and managers. After the implementation of the communication procedure in 2023, there was a significant increase in the number of people engaged.													
Conduct fauna and flora diagnosis.	Through indicators described in the Biodiversity Monitoring Plan (See Section 5.3.1)	This activity does not impact directly on the GHG emission reductions; however, it helps identify ecologically sensitive areas or areas of high conservation value, avoiding environmental impacts, and in the long term, reduce pressure on ecosystems and associated emissions.	2023	The first fauna inventory in the project areas was carried out in 2023 by a third-party company hired by the project. The results are detailed in section 5.1. Besides that, photographic records of birds were taken at Instance 03, complementing the fauna data collected in the inventory.									
Continuous species monitoring, especially with some degree of vulnerability (IUCN).	To be implemented	To be implemented. When implemented, it indirectly impacts by supporting conservation strategies that maintain forest ecosystem stability and helping adaptive project decisions.	From onwards 2024	Not applicable									

⁴⁷ The total number of participants does not represent the number of unique individuals, as there are participants who were present at more than one meeting.

Project Activity	Activity monitoring	Impact on the GHG emission reductions	Implementation Schedule	Activity performance
Develop environmental education activities.	To be implemented	To be implemented. When implemented, it raises awareness, fosters sustainable practices, and strengthens community engagement in forest conservation.	From onwards 2024	Not applicable

Through the continuation of previously implemented activities and the introduction of new initiatives in 2023, a noticeable reduction in deforestation has been observed., where during the current monitoring period the deforestation within the Project Area was around 3.05% when compared to the projected deforestation (49.46 hectares were deforested, while 1,620.96 hectares were projected). In other words, it can be concluded that all the activities implemented mentioned in Table 7 above contributed to avoid deforestation, and therefore, built the 97% Effectiveness Index.

In addition, the carbon stock decreased due to unavoided unplanned deforestation within project area during the present monitored period (31,753 tCO₂e), when compared to VCUs already issued (1,752,414 VCUs), represents less than 5%, thus not characterizing a loss event according to VCS Program Definitions 4.5.⁴⁸

2.2.2 Baseline Reassessment (VCS, 3.2.6, 3.2.7)

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

2.2.3 Methodology Deviations (VCS, 3.20)

No methodology deviations were applied.

2.2.4 Minor Changes to Project Description (CCB Program Rules, 3.5.6)

During the monitoring period, there were no minor changes to the project design as compared to the validated project description.

2.2.5 Project Description Deviations (VCS, 3.21; CCB Program Rules, 3.5.7 – 3.5.10)

According to the VCS Standard v4.7⁴⁹, item 3.21.1 (Project Description Deviations), which defines “where the deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, and the project remains in conformance with the applied methodology, the deviation shall be described and justified in the monitoring report.”

According to the CCB Program Rules v3.1⁵⁰, items 3.5.7 and 3.5.10 (Project Description Deviations): “*Significant changes in the project activities or substantial changes in the impacts of the project that are not described in a validated project description would make verification impossible and need to be addressed via a project description deviation. Both types of*

⁴⁸ Available at: <https://verra.org/documents/vcs-program-definitions-v4-5-final/>

⁴⁹ Available at: <https://verra.org/documents/vcs-standard-v4-7/>. Although the project was validated under VCS version 4.4, it was adopted the most recent version of the VCS Standard version to assure update compliance.

⁵⁰ Available at: <https://verra.org/documents/ccb-program-rules-v3-1/>

modifications to the original project description should be documented in the verification report.”
and “The project description deviation shall be described and justified in the monitoring report.
This shall include a description of when the changes occurred and the reasons for the changes.
The deviation shall also be included in all subsequent monitoring reports.”

PROJECTION OF FUTURE DEFORESTATION

As the Methodology stipulates, this step is to locate in space and time the baseline deforestation in the Project Area, Reference Region and Leakage Belt. However, as described in section "2.2.5 Project Description Deviations (VCS, 3.21; CCB Program Rules, 3.5.7 – 3.5.10)", this project underwent a change in the baseline approach for the current monitoring period. Further details are provided below and in sections 2.2.5 and 3.2.1 of this document.

- **Change in the baseline approach**

As detailed in Joint VCS PD section “5.1 Baseline Emissions”, the assessment carried out to select the baseline approach during the project's initial phase (validation) revealed that the deforestation rates measured in different sub-periods of the historical reference period in the Reference Region showed a clear increasing trend. The analysis of the evidence presented regarding the main deforestation agents (cattle ranching), their drivers, and the underlying causes allowed the conclusion that deforestation was driven by the action of these agents and showed a tendency to intensify in the future. Therefore, the most appropriate baseline approach for the Rio Madeira Grouped REDD+ Project at that time was approach “b” (Time Function).

It is important to highlight that the Time Function approach, previously adopted, was the most suitable for the earlier monitoring periods (MR1 and MR2 - 2019 to 2022), as demonstrated by the analyses included in the Joint VCSPD and the Second Monitoring Report (MR2). However, as described in sections 2.2.5 and 3.2.1 of the present document, the Project Proponent conducts ex-ante and ex-post comparative analyses for each monitoring period to assess whether the baseline approach defined during the validation phase, based on the historical reference period, remains appropriate.

Accordingly, to ensure the use of the most suitable approach for the current monitoring period, a comparative analysis was carried out between the two approaches set forth in methodology VM0015 v1.1, section 4.1.1 ("Selection of the Baseline Approach")⁵¹ Time Function and Historical Average.

⁵¹ The Modelling Approach c) was not considered in the analysis as it had been discontinued as per VERRA communication on 14 February 2023 (2.5.4 Section 4.1.1: Selection of the baseline approach)(<https://verra.org/wp-content/uploads/2023/02/Summary-of-Proposed->

As presented in this Section and detailed in Section 3.2.1, the ex-post deforestation observed in the Reference Region during the current monitoring period (2023) displayed different behavior compared to previous periods (2019–2022). As a result, the baseline approach was reassessed considering its compatibility with the observed data. The analysis compared the 2023 ex-post data with the estimates generated by both the Time Function approach (used in the first two monitoring periods) and the Historical Average approach. Based on the results, it was determined that the Historical Average approach is the most appropriate to represent the deforestation dynamics in 2023.

Additionally, an updated analysis of the behavior of deforestation agents in the region was conducted and confirmed the suitability of the Historical Average approach, as detailed in section 3.2.1. Therefore, the baseline approach was changed (from Time Function to Historical Average) for the current monitoring period. This deviation will apply until the next baseline reassessment.

Below is a description of the methods and parameters used in the Historical Average Approach.

Regarding the “Quantitative projection of future deforestation”, it is important to note that, following the change in baseline approach (based on the criteria and justification provided in section 3.2.1), the methodological procedure to project deforestation within the Reference Region was, from the current monitoring period onward, assumed to follow the continuation of the average annual rate observed during the historical reference period (Historical Average approach), instead of being estimated by extrapolating the historical trend as a function of time using linear regression (Time Function approach). Thus, for the deforestation baseline, the average deforestation rate during the historical reference period was 0.03059, estimated using the Puyravaud (2003)⁵² equation. The application of the average deforestation rate is presented in detail in the MR Calculation sheets (tab ‘Equation 3 RR’).

As for the “Projection of the annual areas of baseline deforestation in the Reference Region”, this step was carried out based on the selected baseline approach, applying the Historical Average approach from 2023 onward, in accordance with methodology VM0015 v1.1.

It is worth noting that from 2019-2022 the baseline deforestation for the Reference Region, Project Area and Leakage Belt are from time function baseline approach and after that, that is, from 2023,

Errata-and-Clarifications-and-Minor-Revisions-to-AUDD-Methodologies.pdf). Moreover, the condition/criteria for modeling approach have been removed in the latest VM0015 methodology v1.2. Therefore, no demonstration was performed for modelling approach.

⁵² According to VM0015, page 44.

the data have been updated, and the full updated baseline approach PD calculation has been shared with the VVB team. The tables below show the applied changes:

Table 8. Annual areas of baseline deforestation in the Reference Region⁵³

Project year t	Stratum i in the reference region (ha)	Total (ha)	
	Forest	annual ABSLRR _t	cumulative ABSLRR
2019	4,154.25	4,154.25	4,154.25
2020	21,737.22	21,737.22	25,891.47
2021	21,736.76	21,736.76	47,628.23
2022	21,667.80	21,667.80	69,296.03
2023	14,015.05	14,015.05	83,311.08
2024	13,600.39	13,600.39	96,911.47
2025	13,177.44	13,177.44	110,088.91
2026	12,774.36	12,774.36	122,863.27
2027	12,377.21	12,377.21	135,240.47
2028	12,010.97	12,010.97	147,251.44
2029	11,637.46	11,637.46	158,888.90
2030	11,281.51	11,281.51	170,170.41
2031	10,930.74	10,930.74	181,101.15
2032	10,607.32	10,607.32	191,708.47
2033	10,277.48	10,277.48	201,985.95
2034	9,963.13	9,963.13	211,949.08
2035	9,653.30	9,653.30	221,602.38
2036	9,367.75	9,367.75	230,970.13
2037	9,076.46	9,076.46	240,046.59
2038	8,798.68	8,798.68	248,845.27
2039	8,525.19	8,525.19	257,370.46
2040	8,272.99	8,272.99	265,643.45
2041	8,015.63	8,015.63	273,659.08
2042	7,770.46	7,770.46	281,429.54
2043	7,528.88	7,528.88	288,958.41
2044	7,306.13	7,306.13	296,264.55
2045	7,079.00	7,079.00	303,343.54
2046	6,862.33	6,862.33	310,205.87
2047	6,649.01	6,649.01	316,854.89
2048	6,452.29	6,452.29	323,307.17
2049	5,082.54	5,082.54	328,389.72

⁵³ "Table 9a" from updated PD calculation sheet, shared with the VVB team.

Table 9. Annual areas of baseline deforestation in the Project Area⁵⁴

Project year t	Stratum i in the project area (ha)			Total (ha)	
	Grupo Rovema	Grupo Tupá	Grupo Leite	annual ABSLPA _t	cumulative ABSLPA
2019	167.16	0.00	0.00	167.16	167.16
2020	926.37	355.62	60.77	1,342.77	1,509.93
2021	1,159.14	422.24	92.01	1,673.39	3,183.31
2022	1,175.51	411.01	109.98	1,696.50	4,879.81
2023	1,214.34	354.43	52.19	1,620.96	6,500.77
2024	1,120.79	380.76	88.69	1,590.24	8,091.01
2025	1,052.59	414.63	96.23	1,563.45	9,654.46
2026	1,017.12	419.24	128.75	1,565.11	11,219.57
2027	925.10	426.92	150.25	1,502.27	12,721.84
2028	806.67	434.69	153.22	1,394.58	14,116.42
2029	745.89	430.84	156.01	1,332.73	15,449.16
2030	754.90	458.42	186.58	1,399.89	16,849.05
2031	678.02	435.62	240.09	1,353.73	18,202.78
2032	600.73	464.68	295.13	1,360.53	19,563.31
2033	585.18	439.00	338.58	1,362.76	20,926.08
2034	542.03	447.59	381.49	1,371.10	22,297.18
2035	461.08	458.16	407.98	1,327.22	23,624.40
2036	440.27	447.57	446.62	1,334.47	24,958.87
2037	430.67	428.52	479.83	1,339.02	26,297.89
2038	363.40	380.95	505.98	1,250.33	27,548.22
2039	328.13	375.02	530.29	1,233.43	28,781.65
2040	330.41	375.23	506.70	1,212.34	29,993.99
2041	325.68	367.36	522.71	1,215.75	31,209.75
2042	270.63	373.63	547.65	1,191.91	32,401.66
2043	245.10	370.58	539.41	1,155.09	33,556.75
2044	239.67	399.57	497.98	1,137.22	34,693.97
2045	230.89	373.25	450.95	1,055.09	35,749.06
2046	199.27	343.91	428.97	972.15	36,721.20
2047	194.95	338.85	397.45	931.25	37,652.45
2048	183.68	356.25	335.52	875.45	38,527.90
2049	140.25	268.22	264.09	672.57	39,200.47

Table 10. Annual areas of baseline deforestation in the Leakage Belt⁵⁵

Project year t	Stratum i in the leakage belt (ha)	Total (ha)
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⁵⁴ "Table 9b" from updated PD calculation sheet, shared with the VVB team.

⁵⁵ "Table 9c" from updated PD calculation sheet, shared with the VVB team.

	Forest	annual ABSLK _t	cumulative ABSLK
2019	144.36	144.36	144.36
2020	779.17	779.17	923.53
2021	883.43	883.43	1,806.96
2022	833.42	833.42	2,640.38
2023	695.11	695.11	3,335.48
2024	694.63	694.63	4,030.11
2025	702.17	702.17	4,732.28
2026	708.96	708.96	5,441.24
2027	753.34	753.34	6,194.58
2028	766.70	766.70	6,961.28
2029	749.64	749.64	7,710.93
2030	737.10	737.10	8,448.02
2031	725.16	725.16	9,173.19
2032	702.48	702.48	9,875.67
2033	663.79	663.79	10,539.45
2034	654.81	654.81	11,194.26
2035	632.63	632.63	11,826.89
2036	610.15	610.15	12,437.04
2037	584.82	584.82	13,021.86
2038	523.14	523.14	13,545.00
2039	507.03	507.03	14,052.03
2040	502.87	502.87	14,554.90
2041	497.57	497.57	15,052.47
2042	471.03	471.03	15,523.50
2043	448.97	448.97	15,972.46
2044	437.22	437.22	16,409.69
2045	437.62	437.62	16,847.31
2046	398.95	398.95	17,246.26
2047	420.43	420.43	17,666.69
2048	376.71	376.71	18,043.40
2049	315.83	315.83	18,359.23

Regarding the “Projection of the location of future deforestation”, which is based on the assumption that deforestation is not a random phenomenon but occurs in areas that combine biogeophysical and economic attributes attractive to deforestation agents, the factor maps, the selected model, and the weights of evidence remained the same as those presented in section "5.1 Baseline Emissions" of the Joint VCS PD document. This is because these elements are not affected by the choice of baseline approach, as they rely solely on the historical reference period.

However, the spatial location of future deforestation is influenced by the baseline approach. Accordingly, the maps projecting deforestation in the Reference Region, Leakage Belt, and Project Area – presented below – as well as all tables related to the 'calculation of baseline activity' for the current monitoring period (2023) and for projected years through 2049, have been updated.

Figure 7. Deforestation projection in Reference Region (Serra Verde Farm – Instance 1)

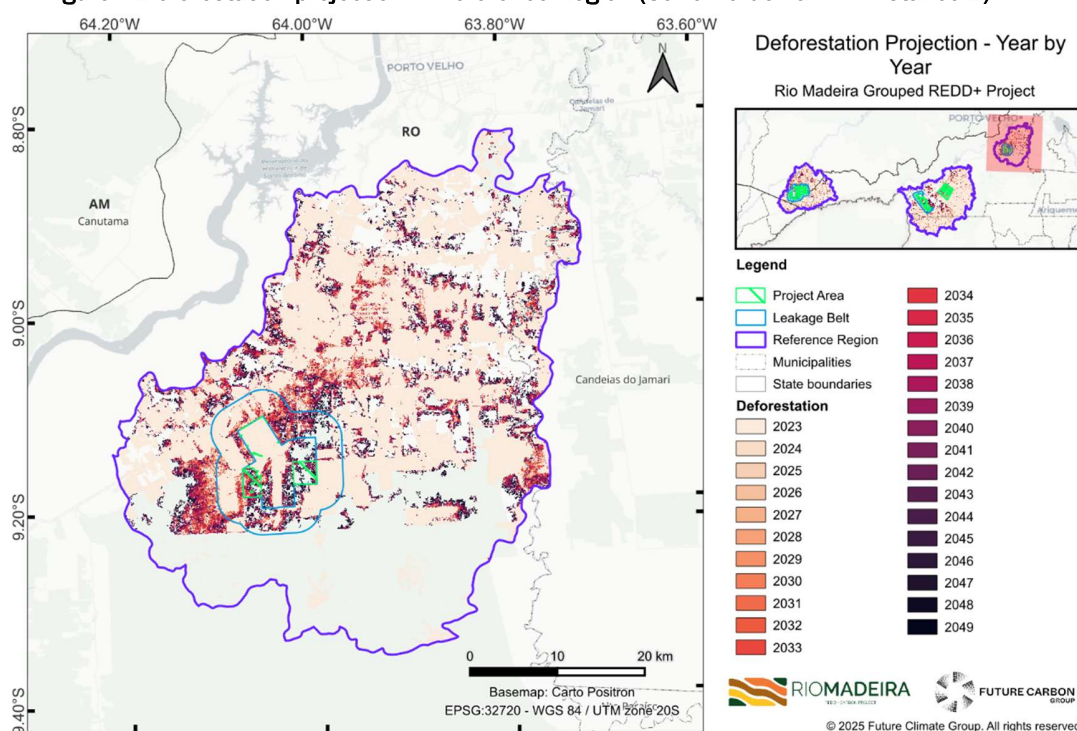


Figure 8. Deforestation projection in Reference Region (Rio Madeira and Santa Carmem Farm Instances 1 and 2)

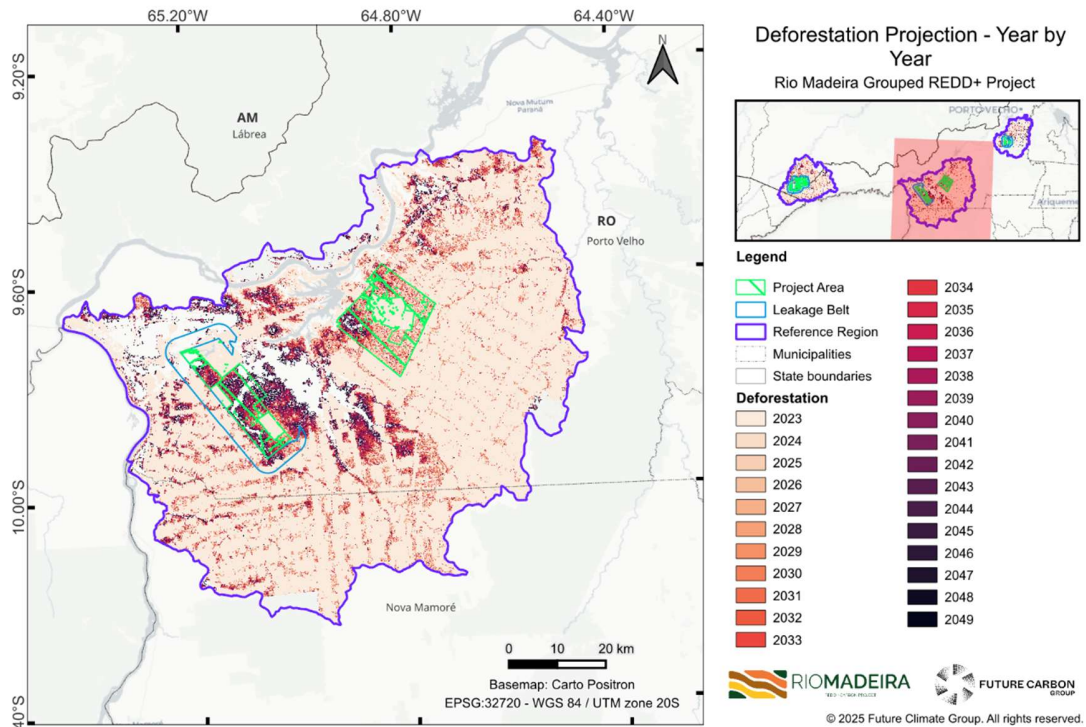
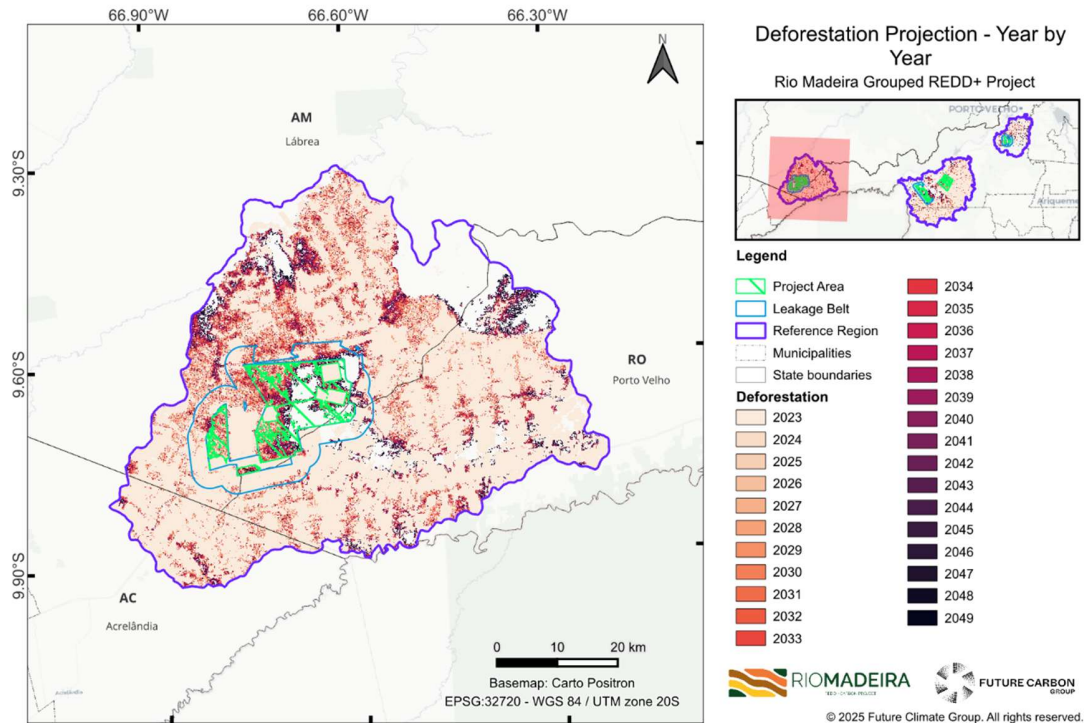


Figure 9. Deforestation projection in Reference Region (Nova Fronteira Farm – Instance 3)



The tabs from the updated ER sheet “Table 36” and “Estimated GHG ERs” are presented below, showing the updates in the ex-ante estimated net anthropogenic GHG emission reductions (ΔREDDt) and Verified Carbon Units (VCUt) and a summary of the estimated GHG emission reductions:

Table 11. Updated ex-ante estimated net anthropogenic GHG emission reductions (ΔREDD_t) and Verified Carbon Units (VCU_t)

Project year	Baseline carbon stock changes		Baseline GHG emissions from biomass burning		Ex ante project carbon stock changes		Ex ante project GHG emissions from biomass burning		Ex ante leakage carbon stock changes		Ex ante leakage GHG emissions		Ex ante net anthropogenic GHG emission reductions		Ex ante VCUs tradable		Ex ante buffer credits	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCBSLPA_t	ΔCBSLPA	EBBSLPA_t	EBBSLPA	ΔCPSPA_t	ΔCPSPA	EBBPSPA_t	EBBPSPA	ΔCLK_t	ΔCLK	ELK_t	ELK	ΔREDD_t	ΔREDD	VCU_t	VCU	VBC_t	VBC
	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}
2019	88,622	88,622	1,977	1,977	21,132	21,132	296	296	13,293	13,293	296	296	55,580	55,580	47,481	47,481	8,099	8,099
2020	713,187	801,809	15,877	17,853	156,409	177,542	2,382	2,678	106,978	120,271	2,382	2,678	460,913	516,493	394,100	441,581	66,813	74,912
2021	898,977	1,700,786	19,786	37,640	183,775	361,317	2,968	5,646	134,847	255,118	2,968	5,646	594,206	1,110,699	508,381	949,962	85,824	160,736
2022	924,327	2,625,113	20,060	57,699	187,075	548,392	3,009	8,655	138,649	393,767	3,009	8,655	612,644	1,723,343	524,174	1,474,137	88,470	249,206
2023	897,557	3,522,669	19,166	76,866	182,557	730,949	2,875	11,530	134,633	528,400	2,875	11,530	593,782	2,317,126	507,983	1,982,119	85,800	335,006
2024	893,956	4,416,625	18,803	95,669	181,514	912,464	2,820	14,350	134,093	662,494	2,820	14,350	591,510	2,908,636	506,017	2,488,136	85,493	420,499
2025	892,201	5,308,826	18,486	114,155	180,749	1,093,212	2,773	17,123	133,830	796,324	2,773	17,123	590,563	3,499,199	505,189	2,993,325	85,374	505,874
2026	905,313	6,214,139	18,506	132,661	182,213	1,275,425	2,776	19,899	135,797	932,121	2,776	19,899	600,257	4,099,456	513,485	3,506,810	86,772	592,646
2027	884,248	7,098,387	17,763	150,424	178,551	1,453,976	2,664	22,564	132,637	1,064,758	2,664	22,564	585,494	4,684,950	500,811	4,007,621	84,684	677,329
2028	838,914	7,937,301	16,490	166,913	171,248	1,625,223	2,473	25,037	125,837	1,190,595	2,473	25,037	553,372	5,238,322	473,252	4,480,872	80,120	757,449
2029	815,731	8,753,032	15,758	182,672	167,268	1,792,491	2,364	27,401	122,360	1,312,955	2,364	27,401	537,135	5,775,456	459,319	4,940,191	77,816	835,265
2030	851,258	9,604,290	16,552	199,224	172,094	1,964,586	2,483	29,884	127,689	1,440,643	2,483	29,884	563,061	6,338,518	481,562	5,421,753	81,500	916,764
2031	824,642	10,428,932	16,007	215,231	167,599	2,132,185	2,401	32,285	123,696	1,564,340	2,401	32,285	544,551	6,883,069	465,706	5,887,459	78,845	995,610
2032	825,568	11,254,499	16,087	231,318	167,236	2,299,421	2,413	34,698	123,835	1,688,175	2,413	34,698	545,758	7,428,826	466,758	6,354,217	79,000	1,074,609
2033	824,712	12,079,211	16,113	247,431	166,605	2,466,025	2,417	37,115	123,707	1,811,882	2,417	37,115	545,680	7,974,506	466,707	6,820,924	78,973	1,153,582
2034	827,352	12,906,563	16,212	263,643	166,498	2,632,524	2,432	39,546	124,103	1,935,984	2,432	39,546	548,099	8,522,605	468,797	7,289,721	79,302	1,232,885
2035	802,584	13,709,147	15,693	279,336	162,280	2,794,804	2,354	41,900	120,388	2,056,372	2,354	41,900	530,901	9,053,506	454,065	7,743,785	76,836	1,309,721
2036	804,563	14,513,710	15,779	295,115	162,075	2,956,879	2,367	44,267	120,684	2,177,056	2,367	44,267	532,849	9,586,355	455,750	8,199,536	77,099	1,386,820
2037	805,663	15,319,373	15,833	310,948	163,381	3,120,259	2,375	46,642	120,849	2,297,906	2,375	46,642	532,516	10,118,871	455,442	8,654,977	77,074	1,463,894
2038	758,209	16,077,581	14,784	325,732	156,263	3,276,522	2,218	48,860	113,731	2,411,637	2,218	48,860	498,564	10,617,435	426,330	9,081,307	72,234	1,536,127
2039	748,604	16,826,186	14,584	340,316	154,822	3,431,344	2,188	51,047	112,291	2,523,928	2,188	51,047	491,701	11,109,135	420,447	9,501,754	71,254	1,607,381
2040	736,122	17,562,308	14,335	354,651	152,950	3,584,293	2,150	53,198	110,418	2,634,346	2,150	53,198	482,789	11,591,924	412,808	9,914,562	69,981	1,677,362
2041	736,824	18,299,132	14,375	369,026	153,055	3,737,348	2,156	55,354	110,524	2,744,870	2,156	55,354	483,308	12,075,232	413,256	10,327,818	70,052	1,747,414
2042	723,052	19,022,184	14,093	383,119	150,989	3,888,337	2,114	57,468	108,458	2,853,328	2,114	57,468	473,470	12,548,702	404,823	10,732,641	68,648	1,816,062
2043	702,191	19,724,374	13,658	396,777	147,860	4,036,197	2,049	59,517	105,329	2,958,656	2,049	59,517	458,563	13,007,265	392,043	11,124,684	66,520	1,882,581
2044	691,025	20,415,400	13,447	410,224	146,185	4,182,382	2,017	61,534	103,654	3,062,310	2,017	61,534	450,599	13,457,864	385,218	11,509,902	65,381	1,947,962
2045	645,998	21,061,398	12,475	422,699	139,431	4,321,813	1,871	63,405	96,900	3,159,210	1,871	63,405	418,400	13,876,265	357,612	11,867,514	60,788	2,008,750
2046	599,839	21,661,237	11,495	434,194	132,507	4,454,320	1,724	65,129	89,976	3,249,186	1,724	65,129	385,402	14,261,667	329,322	12,196,837	56,080	2,064,830
2047	575,284	22,236,521	11,011	445,205	128,824	4,583,144	1,652	66,781	86,293	3,335,478	1,652	66,781	367,875	14,629,542	314,300	12,511,137	53,575	2,118,405
2048	543,208	22,779,729	10,351	455,556	124,012	4,707,156	1,553	68,333	81,481	3,416,959	1,553	68,333	344,960	14,974,503	294,657	12,805,794	50,303	2,168,709
2049	349,834	23,129,562	6,427	461,984	86,850	4,794,006	964	69,298	52,475	3,469,434	964	69,298	215,008	15,189,511	183,450	12,989,244	31,558	2,200,267

Table 12. Updated estimated GHG Emission Reductions or Removals⁵⁶

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
2019	55,580
2020	460,913
2021	594,206
2022	612,644 ⁵⁷
2023	593,782
2024	591,510
2025	590,563
2026	600,257
2027	585,494
2028	553,372
2029	537,135
2030	563,061
2031	544,551
2032	545,758
2033	545,680
2034	548,099
2035	530,901
2036	532,849
2037	532,516
2038	498,564
2039	491,701
2040	482,789
2041	483,308
2042	473,470
2043	458,563
2044	450,599
2045	418,400
2046	385,402
2047	367,875
2048	344,960
01/01/2049 - 22/10/2049	215,008
Total estimated ERs	15,189,511
Total number of crediting years	30

⁵⁶ "Estimated GHG ERs" tab from updated PD calculation sheet.

⁵⁷ The 2022 estimated value is different from validated PD since the baseline approach has been updated effective in 2023 (from time function to historical average). Thus, since the ER estimation considers the upcoming year forest cover, the 2022 calculation was updated once 2023 forest cover was updated with the historical average approach.

Average annual ERs

506,317

It is worth noting that such deviation is applicable up to the next baseline reassessment.

- **Carbon stock increment due to logging**

To reinforce the project conservativeness approach, the carbon stock increase due to logging was omitted in the present monitoring report. Since such increment was considered in the registered Joint VCS PD, this approach in the current monitoring period is considered a Project Description deviation.

As per the adopted methodology VM0015 v1.1⁵⁸, item 7.1.1, “If the project activity generates an increase in carbon stocks, ignoring the carbon stock change is conservative”.

Once ignoring the carbon stock increase due to logging does not impact in the aforementioned VCS Standard guidelines and reduces the amount of VCUs that would be generated during the current monitoring period, this deviation reinforces the conservativeness of Rio Madeira Project. Such deviation is applicable up to the next baseline reassessment.

2.2.6 Grouped Projects (VCS, 3.6; CCB, G1.13-G1.15, G4.1)

2.2.6.1 New Project Areas and Communities (VCS, 3.6; CCB, G1.13)

No new project areas and communities were included since the validation.

2.2.6.2 Removed Project Areas and Communities (CCB, G1.13)

There were no changes in the project area during the monitored period, just as there was no exclusion or removal of new communities and other stakeholders.

However, for the next monitoring period (year 2024), the possibility of reviewing the composition of the stakeholders selected to be part of the LMA will be assessed.

After the results of the socioeconomic diagnoses and the construction of the Theory of Change, the most strategic and priority stakeholders to benefit from the project activities will be assessed for the next monitoring period, considering several factors, such as socioeconomic vulnerability, scope of impact, stakeholder engagement, relationship with the project objectives, among others.

These changes will be duly communicated to the stakeholders involved, especially in the case of the removal or inclusion of a new community.

2.2.6.3 Eligibility Criteria for Grouped Projects (VCS, 3.6.14; CCB, G1.14)

⁵⁸ Available at: <<https://verra.org/documents/vm0015-methodology-for-avoided-unplanned-deforestation-v1-1/>>

Not applicable. No new project areas were included since the validation.

2.2.6.4 Risk Mitigation for Grouped Projects (VCS, 3.6; CCB, G1.15)

Not applicable. No new project areas were included since the validation.

2.2.6.5 Project Zone Map (CCB, G1.13)

Not applicable. No new project areas and communities were included since the validation.

2.2.6.6 Changes to Management (CCB, G4.1)

No changes in the management structure during this monitoring period.

2.2.7 Risks to the Project (CCB, G1.10)

The risks to the expected climate, community, and biodiversity benefits were mapped using the guidelines from the VCS AFOLU Non-Permanence Risk Tool v4.2 (Table 13). Additionally, potential socio-environmental risks not addressed in the NPRR but still relevant to the project were also identified and included in the APPENDIX 1: PROJECT RISKS TABLE.

Table 13. Main Risks to the Project and Mitigation Actions Implemented - Part 1

Identified Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and implemented to mitigate the risk
Financial Viability The payback period is equal to 6 years from the current risk assessment.	The lack of sufficient cash flow in the initial years to cover the establishment and maintenance of project activities could hamper the positive climate, community, and biodiversity impacts expected from project implementation.	As a business model, the project proponent has the funds needed for the project activities obtained through internal funding sources from the landowners and Future Carbon Group. In this sense, the Rio Madeira Grouped REDD+ Project has secured the funds needed for its implementation and maintenance until 2025. The socio-environmental actions planned to be implemented on the basis of the Theory of Change began to be implemented with the revenue from carbon credits in 2024.
Financial Viability Project has secured less	Currently, the project does not have available callable funds to cover the total cash out before the project breaks even.	From the start date project until the project reaches the break-even point (NPV = 0), the project proponent through external funding

than 15% of funding needed to cover the total cash out before the project reaches breakeven.		sources obtained from investors such as pre-issuance credit buyers, have covered more than 15% of the funds needed to implement and maintain the project activities.
Project Longevity Non continuity of the management practice beyond project lifetime with legal agreement or requirement	Landowners have a 100-year contract signed with Future Carbon, on which they must guarantee the native forest conservation within the project area. Furthermore, instances 1 and 3 carry out a sustainable forest management plan ⁵⁹ authorized by the Brazilian Environmental Agency, which guarantees the maintenance of the project area for at least 30 years from the first harvesting activity.	The project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over the length of the project crediting period. The contract signed between the project proponent and the landowners for 100 years is considered legally valid, as it is signed by all parties, including suitable witnesses, as required by the Civil Code (Art. 104)⁶⁰. In addition, there is an addendum signed on May 24, 2024, which confirms the validity of the contract until the first 100-year period, according to clause 1.1, also signed by the owners and witnesses. The contract is legally binding, as it meets all the formal requirements, such as signatures, appropriate witnesses and the explicit definition of the object. In the event of non-compliance with the clauses, the contract can be terminated by either party, with 30 days' notice, in situations of fraud or bad faith, according to clause 5.5. Clause 6 also states that the owners confirm that the contract

⁵⁹ During the current monitoring period there were no sustainable forest management activities. For more information, please see table 25b in the ER spreadsheet

⁶⁰ Available at: <https://www.jusbrasil.com.br/legislacao/91577/codigo-civil-lei-10406-02#art-104>

		does not violate any pre-existing agreements and that they are not involved in illicit practices such as bribery or money laundering. If such practices are proven, the contract can be terminated immediately, with no liability for the party requesting termination. In addition, the project area is protected by the Brazilian Forest Code (Law nº 12.651/2012 and CAR – in Portuguese, Cadastro Ambiental Rural) and the remainder is protected as an environmental forest reserve, in accordance with Brazilian law and agreements already instituted by the landowners.
Political Risk Discontinuation of project activities due to changes in government policy and legislation	The most recent legislative initiative of the Brazilian government is Bill 412/2022, which proposes a nationwide carbon market regulation, the Brazilian Greenhouse Gas Emissions Trading System (SBCE), that would set up a mandatory trading system to cut greenhouse gas emissions by 50% from 2005 levels by 2030. Changes in legislation or new policies should have a positive impact on the rules for the Brazilian carbon credits to be marketed internationally under the Article 6.4 mechanism of the Paris Agreement.	As a result of the approval draft bill (PLS) 412/2022 in October 2023, the Brazilian government could be inclined to recentralize their forest management systems because SBCE requires governments to establish National Forest Emission Reference Levels as reliable baseline, MRV mechanisms, and national institutions for the trading and payment of carbon stocks in the forests. The draft law already included provisions for the eligibility of international carbon credits generated under Article 6 of the Paris Agreement, for example by REDD+ activities. In addition, there are no risks of discontinuation of project activities due to the approval of Bill 412/2022 and other government policy and legislation since the project occurs on private lands.
Fire (F) Increase of fire outbreaks	Fire outbreaks in the project boundaries can negatively affect climate and biodiversity generate forest cover loss, habitat and species burned by fires, and	During this monitoring period local rural patrolling and remote satellite monitoring continued to operate, allowing to identify possible fire

	can also affect the loss of carbon stocks through GHG emissions. During this monitoring period, 9 heat spots were identified within the property boundaries, where 0.341 hectares of forest was lost within the project area, which corresponds to less than 0.1% of project area instance, or also less than 0.1% of VCUs previously issued by the project. Thus, no loss event occurred during the monitored period due to heat spots.	spots and report to the management team to take the appropriate measures, if necessary. During the monitoring rounds of the project area, the management team can identify if a fire has broken out and report it to a team trained to take the appropriate measures to contain the fire. However, it was considered that no mitigation measures were taken.
Projected future climate change Climatic impact drivers (CIDs) were assessed to project future climate change, due to the project location in the IPCC Reference Region classified as South American Monsoon.	According to the project future climate change, there is a high confidence of increase in mean air temperature, extreme heat, agricultural and ecological drought and fire weather in the South American-Monsoon Reference Region (IPCC), where the project is located. These changes may potentially have a negative impact on the project. For this monitoring period, the Future Climate Impact Factor is equal to 2,76, indicating a moderate level.	No climate adaptation measures were implemented during this monitoring period to reduce the risks of projected future climate change.
Ability to adapt to climate change and climate variability Impact of climate change on the project	Risk of severe droughts, floods or other extreme weathers	No significant climate-related events—such as droughts or floods—have been reported within the properties covered by the project. Due to the presence of extensive forested areas, the ecosystem shows natural resilience and adaptability to events like flooding, where vegetation often acts as a buffer, mitigating the potential impacts. Furthermore, ongoing and planned monitoring activities serve as key mitigation measures against climate variability. These actions enable the early detection of potential climate-related events,

		allowing for timely and context-specific responses aimed at minimizing their effects on forest integrity and project outcomes.
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The risks were evaluated based on an assessment of the risk factors and a score was assigned to each factor by category and subcategory, that are added together to determine the total risk rating (see Non-Permanence Risk Report). The result of the non-permanence risk for the Rio Madeira Grouped REDD+ Project estimates a 12% rating for the determination of the Risk Buffer, as summarized in the table below and per the supporting documents. Detailed information on the risk assessment can be found in the NPRR.

Table 14. Overall Non-Permanence Risk Rating and Buffer Determination for Rio Madeira Grouped REDD+ Project

Risk Category	Rating
Internal Risk	1.00
External Risk	1.00
Natural Risk	4.80
Overall Risk Rating (a + b + c)	12⁶¹

2.2.8 Benefit Permanence (CCB, G1.11)

In order to maintain and enhance the climate, community and biodiversity benefits beyond the project lifetime, a set of activities has been taken. These activities have been divided into specific climate, community and biodiversity objectives, with the aim of improving the long-term sustainability of the project. In this sense, the project intends to implement five programs in alignment with the Theory of Change (see section 2.1.8 in the CCB PD); namely (i) adaptation and improvement of infrastructure, (ii) continuous communication and stakeholder engagement, (iii) conservation and monitoring of biodiversity and ecosystems resources, (iv) capacity building and support to promote sustainable production practices and (v) monitoring and forest integrity. These programs allow the project to enhance the life quality and well-being of the communities, as well as the protection of the natural environment and the connectivity between forest cover and wildlife.

Climate

⁶¹ According to AFOLU Non-Permanence Risk Tool v4.2, the minimum risk rating shall be 12. Available at: <https://verra.org/documents/afolu-non-permanence-risk-tool-v4-2/>.

All project activities focused on climate benefits have as main goal to decrease deforestation and reduce GHG emissions. For that purpose, forest integrity and property security will be maintained during the project lifetime. During this monitoring period, patrimonial surveillance and local rural patrolling continued to operate in all three Instances, as well as remote satellite monitoring in Instance 2, allowing to identify possible illegal activities in the project area that could compromise climate benefits.

Community

All project activities aimed at promoting benefits for communities have as main objective of promoting inclusive, quality, and equitable education and training, as well as adapting community facilities to promote well-being and socio-economic development in the region. The project is also committed to developing and implementing appropriate communication mechanisms and providing accessible information for stakeholder engagement.

During this monitoring period, on-site visits were carried out to provide an update on the project development and mapping communities' priorities to subsidize planning and implementation of further project activities based on the local actor's involvement.

A socioenvironmental diagnosis was conducted⁶² to collect primary data in surrounding communities. In this sense, the main socio-economic, environmental, and territorial aspects of the project area surroundings were identified and characterized, as well as the availability of public infrastructure for the communities. The main themes mapped were basic infrastructure for public services and transport, public safety, local productive activities, education, health, the environment, social organization, culture and leisure, communication, basic sanitation and water resources, female representation and local demands.

The socio-economic diagnosis and on-site visits were of fundamental importance for structuring the Theory of Change and for planning socio-environmental actions for the project, considering territorial specificities and local demands.

The project has also implemented an internet antenna at Flor do Cupuaçu School to increase access to information and communications technology (ICT) and to provide a high-quality internet access, as well as provided technical training for nut collectors to disseminate good Brazil nut management practices.

Biodiversity

All project activities designed to promote biodiversity benefits have as main objective to protect and monitor ecosystems, as well as develop scientific knowledge about local fauna and flora.

⁶² This diagnosis was outsourced to a consultancy company which provided Future Carbon with the necessary info. Future Carbon evaluated this report and assessed its quality.

During this monitoring period, a biodiversity diagnosis was conducted⁶³ to allow a better understanding of the fauna and flora diversity in the project region, including the faunal groups mammal fauna, ornithofauna, herpetofauna, entomofauna and ichthyofauna.

In addition, a photographic recording of birds in the Project Area (Instance 3) was made by photographers Thiago Kalil, Ary Nazar and Ricardo Plácido. Although this was not developed as part of the Rio Madeira Grouped REDD+ Project, it demonstrates the landowners' initiative and commitment to promote biodiversity benefits beyond the project lifetime.

2.3 Stakeholder Engagement & Safeguards

2.3.1 Stakeholder Identification (VCS, 3.18, 3.19; CCB, G1.5)

Not applicable. There have been no changes since the validation of the PD CCB regarding the stakeholder identification process.

2.3.2 Stakeholder Access to Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

The Rio Madeira Grouped REDD+ Project adopted three methods of making accessible the Project Description Documentation and Project Monitoring Reports to communities and other stakeholders via oral and virtual formats during this monitoring period, as well as the distribution of graphic materials, as presented below.

- **Virtual:** all documents related to the Project are available on the VCS CCB Registry Page⁶⁴.
- **Oral:** all relevant information related to the project design and implementation were made accessible to communities and other stakeholders during the on-site visits that took place on June and October 2023. Technical terms and definitions of the carbon market were explained in a didactic way, in a language and manner that is understandable to the public.
- **Graphic materials:** Printed materials, such as banners and folders, were created and distributed to stakeholders during in-person visits. These documents detailed important information about the Rio Madeira Grouped REDD+ Project in order to guarantee sustainability and transparency in the relationship with the relevant stakeholders, as detailed in section 2.3.3.

2.3.3 Dissemination of Summary Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

The project proponent actively disseminated summary project documents to communities and stakeholders through a variety of methods during the third monitoring period. The distribution of

⁶³ This diagnosis was outsourced to a consultancy company which provided Future Carbon with the necessary info. Future Carbon evaluated this report and assessed its quality.

⁶⁴ <https://registry.terra.org/app/projectDetail/VCS/2878>

summary documents, including project goals, design, long-term viability, and monitoring reports, were distributed through on-site visits and virtual mechanisms. This combination of direct and digital communication ensured that the project information was accessible and aligned with the community's understanding and needs.

To enhance accessibility, supporting informational materials such as banners (*Figure 10*) and folders (

Figure 11 and

Figure 12), in Portuguese were distributed widely. These materials covered key aspects of the project, including:

- **Main Project Topics:** Details on the project area, stakeholders' location, the role of the Madeira River, main objectives of the Project and the socioenvironmental benefits provided by the Project.
- **Project Certification:** Detailed explanations of the Verified Carbon Standard (VCS), co-benefits measured by the Climate, Community & Biodiversity (CCB) standards.
- **Carbon Credits:** An overview of what carbon credit represents and how it is generated.
- **Project's Audit Information:** A description of the validation and verification audit process, and information on the validation/verification body audit visit to the Project Area and surrounding communities.
- **Sustainable Development Goals (SDGs):** A summary of the SDGs the project contributes to.
- **Net Positive Impact:** Results demonstrating the project's positive impact on climate, community, and biodiversity.

Figure 10. Rio Madeira Grouped REDD+ Project Informative Banner

Projeto Rio Madeira REDD+



Área do projeto: 52.274,05 ha

Localização: Porto Velho/RO e Lábrea/AM

Biotoma: Amazônia - Brasil

Tipo de projeto: REDD+ AUD+

Standards: VCS + CCBS

Resultados: Redução de 27.534,520 tCO₂



O Projeto REDD+ Agrupado Rio Madeira é a localização nas municípios de Porto Velho (Rondônia) e Lábrea (sul do estado do Amazonas), na região Norte do Brasil, a qual é circundada por muitos rios e suas orlas tendo contato direto com o Rio Madeira. As instâncias de atividades do projeto possuem áreas de 52.274,05 ha, que pertence a três proprietários privados: dois no município de Porto Velho (Grupo ROVEMA e Grupo Leite) e um no município de Lábrea (Grupo Tuza), os quais são compostos por 100% de floresta amazônica.

O bioma amazônia

O Bioma Amazônico chega ocupar uma área de 4.196.943 Km², que corresponde mais de 40% do território nacional e é constituída principalmente por uma floresta tropical.

A Amazônia abriga quase 25% de todas as espécies de seres vivos da Terra, sendo estimado mais de 30 milhões de espécies animais, mas nem todas foram encontradas e estudadas ainda, e muitos já estão vulneráveis à extinção.

A Amazônia também é o berço da maior foz hidrográfica do mundo. A floresta garante as chuvas para boa parte da América do Sul e tem papel natural no combate ao aquecimento global e às mudanças climáticas.

O bioma Amazônia está

Presente em nove estados brasileiros

e em oito países vizinhos ao Brasil.

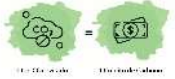
Existem mais de

30 milhões de espécies

de espécies animais

O que é Crédito de Carbono?

O Crédito de Carbono é uma moeda verde, que representa 1 tonelada de Gás do Efeito Estufa (GEE) não emitido para a atmosfera, que pode ser comercializada no mercado.



Benefícios socioambientais

O projeto REDD+ Rio Madeira prevê a geração de co-benefícios para a comunidade e biodiversidade nas regiões onde o projeto está localizado, baseando-se nas principais necessidades locais.



+300 espécies identificadas

A conservação florestal torna possível evitar emissões de GEE provenientes do desmatamento e degradação florestal, atenuar impactos das Mudanças Climáticas e gerar ganhos econômicos pela preservação, com os Créditos de Carbono!

Certificação do projeto

VCS Verified Carbon Standard

O padrão Verified Carbon Standard (VCS) é o padrão mais utilizado no mundo para validar, monitorar e contabilizar a redução de emissões de gases de efeito estufa (GEE) dos projetos de carbono e, consequentemente, os créditos de carbono gerados. O VCS é gerido pela VERRA, uma organização sem fins lucrativos, com sede nos Estados Unidos que gerencia, dentre outros programas, o VCS e o CCB.

CCB Climate, Community & Biodiversity Standards

Já o padrão Climate, Community & Biodiversity (CCB) tem como objetivo monitorar benefícios gerados pelo projeto de carbono, quanto ao ambiente e às comunidades locais. A fim de garantir que o projeto está gerando benefícios socioeconômicos e ambientais tangíveis para a região, serão realizados diagnósticos socioeconômicos nas comunidades e inventários de biodiversidade para um melhor entendimento do cenário local, buscando maior efetividade das ações e serem implementadas.

A participação da comunidade durante todo o processo de planejamento de ações, implementação e monitoramento é de extrema importância, uma vez que a geração de benefícios é um compromisso e propósito do projeto com o intuito de gerar melhorias na região e contribuir com o desenvolvimento sustentável local e conservação da natureza.

Figure 11. Rio Madeira Grouped REDD+ Project Informative Folder - Front Cover



Figure 12. Rio Madeira Grouped REDD+ Project Informative Folder - Back Cover



During the third monitoring period, there were several opportunities to disseminate the project monitoring results through consultations with stakeholders held in June and October 2023, and in February and April of 2024. It is important to note that during the period, no comments were received outside of the public comment period throughout the communication channels

implemented (via email: forest@futurecarbon.com.br and socioambiental forest@futurecarbon.com.br).

In February 2024, the Project Management Team (PMT), based in São Paulo, conducted a remote consultation. During this meeting, a detailed presentation was given that summarized the project's progress and performance since its inception. The presentation focused on comparing the current monitoring results with those from previous years, demonstrating that the project continues to generate net positive benefits for climate, community, and biodiversity.

Furthermore, a summary of the third monitoring report for VCS & CCB Verification, also in Portuguese, was open for public comments from April 4, 2024, to May 4, 2024, on the Verra website. No comments were received.

2.3.4 Informational Meetings with Stakeholders (VCS, 3.18, 3.19; CCB, G3.1)

Informational meetings and interviews were carried out with communities and other local stakeholders in order to present the main information on the Rio Madeira Grouped REDD+ Project during this period. In addition, these visits were important to understand the communities and other stakeholders perceptions about the Project and map local demands to subsidise the elaboration of the Theory of Change and Impact Plan in a participatory way. In this sense, on-site visits were carried out to the Project Area and its surroundings in:

- June (06-June-2023 to 09-June-2023)
- July (14-July-2023 to 17-July-2023) and
- October (03-October-2023 to 06-October-2023)

1st On-site Visit (06-June-2023 to 09-June-2023)

In this visit, Future Carbon's Socioenvironmental Team and representatives of the landowners, more specifically farm managers, visited five communities (Santa Rita, Vila do Jirau, Vila da Penha, Abunã and Nova Califórnia), one cooperative (RECA) and one school (Jean Pierre Mingan Family Agricultural School). The main objective of the visit was to present the main information about the Project to the communities and to perform a preliminary diagnosis with the aim of mapping local needs and shortcomings, as well as planning preliminary socio-environmental actions. During visits to schools and communities in the region, the main demands were identified: lack of educational and professional training opportunities, as well as extracurricular activities in schools; need for repairs to the infrastructure of schools and health centres; contamination of drinking water; lack of internet access; burning of waste; young adults dropping out due to lack of job opportunities; lack of technical knowledge in good agricultural practices; lack of community coordination through community organizations and associations; lack of outdoor public spaces, among others.

Figure 13. On-site visit to Abunã Community



Figure 14. On-site visit to Santa Rita Community



2nd On-site Visit (14-July-2023 to 17-July-2023)

The second visit was made in July 2023 with key stakeholders from local communities, ensuring their involvement and incorporating their local knowledge and cultural practices. The team engaged with various representatives, starting with a crucial meeting with officials from the State Secretariat for Environmental Development (SEDAM) and the Municipal Secretariat of Environment and Sustainable Development (SEMA). This dialogue provided valuable insights from these governmental bodies, which are essential for the project's success.

Community engagement extended to leaders from Santa Rita and Morrinhos, including the local school director. During these discussions, Sebastião, a community leader, expressed concerns about the community's limited understanding of the project. He also highlighted lingering distrust due to past experiences, particularly related to a nearby dam, which had left unresolved issues.

The team then visited the Rio Madeira farm, a key area for the project, where discussions took place about the surrounding community and the identification of local infrastructure, such as a nearby school. Consultations continued at Escola Marechal Rondon, where representatives voiced concerns about the project benefits distribution among different community groups, including fishermen and educators.

Further engagement with leaders from Vila da Penha uncovered additional challenges, particularly related to the local health system. Meanwhile, discussions with local stakeholders revealed the presence of forest product collectors, such as açaí harvesters, with whom the project could potentially collaborate to promote sustainable harvest practices. The team also met with Paulo, a representative of local nut collectors, to discuss the marketing challenges they face.

Throughout these consultations, representatives from various stakeholder groups—community leaders, government officials, and environmental organizations—actively participated. The overall project design, implementation plans, scope, activities, and objectives were presented.

3rd On-site Visit (03-October-2023 to 06-October-2023)

The last visit was made in October 2023 and focused on the following topics:

1. Define the main community groups to be involved in project activities in the early years;
2. Conduct a preliminary diagnosis of the infrastructure of the three instances' properties;
3. Present about the project and inform about the VCS validation and verification audit that will take place in December 2023;
4. Disclose communication channels;
5. Have been realized participatory dynamics to capture the positive and negative perceptions of communities about the projects Future Carbon's Socioenvironmental Team and representatives of the landowners visited and presented to 12 different groups, described in the table below. It was of fundamental importance to present the project to the employees and nut collectors to get their perceptions of the Project, to ensure that the proposed activities meet their demands and needs. In addition, establishing initial contact with the public body EMBRAPA to establish connections about possible actions aimed at training nut collectors, with the goal of establishing good management practices and adding value to the nut. The visit was also fundamental in diagnosing the conditions of the housing and work infrastructure of the farm workers to support the planning of socio-environmental actions aimed at improving and adapting the infrastructure to strengthen the quality of life of the employees.

Figure 15. 3rd on-site visit to Marechal Rondon Municipal School



Figure 16. 3rd on-site visit to RECA Cooperative



All on-site visits and meetings have documentary evidence, such as photographic records, attendance lists and minutes presented in the field reports. The elaboration of an informative leaflet and banner has helped to spread the main information about the Rio Madeira Grouped REDD+ Project to communities, workers and public bodies, as presented in section 2.3.2 above. It is important to emphasise that informative meetings and workshops with communities and other stakeholders will be held throughout the project implementation and monitoring.

To ensure the quality of the visits and to inform stakeholders in advance about the presence of project representatives in the communities, we sent invitations via text messages 30 days prior, encouraging participation in the in-person discussions about the project. The leaders of each community scheduled for a visit were contacted directly.

As demonstrated in the Graphic 1 below, the total number of participants in each in-person meeting was 152, 43 and 74. The composition of the participating public by gender was quite balanced, since, in the months of June and July, the female presence represented 51% and 42% of the total participants, respectively. The exception occurred in the October meeting, where 74% of the public was male, but this was due to the greater presence of employees from the project farms at the meetings, which is a predominantly male audience. Considering all three visits carried out in 2023, 19 different stakeholders groups were consulted, which can be seen in *Table 15* below.

Graphic 1. Number of participants per meeting, by gender

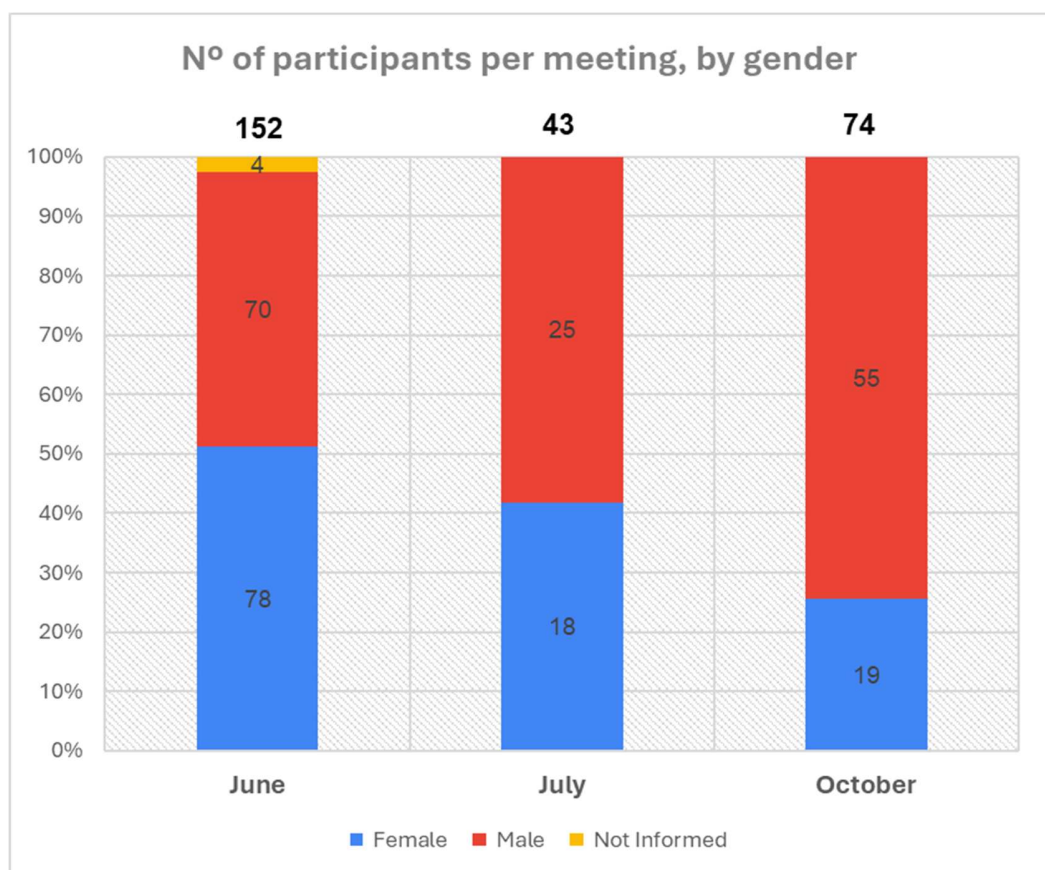


Table 15. Number of participants per meeting, by stakeholder

MONTH	STAKEHOLDER	N° OF PARTICIPANTS
	ASDAMOR – Morrinhos Resettlement	1

JUNE	Assoc. De Pescadores De Abunã	1
	Comunidade Distrito de Abunã	63
	EMEF Flor Do Cupuaçu School	1
	EMEF Marechal Rondon School	2
	EMEF Olympia Salvatore Ribeiro School	4
	EMEF Santa Julia School	1
	Polícia Militar	2
	Santa Rita Resettlement	2
	Reca	16
	USF Santa Rita	1
	Vila Da Penha	57
	Vila Jirau	1
TOTAL - JUNE		152
JULY	ASDAMOR – Morrinhos Resettlement	3
	Assoc. De Pescadores De Abunã	1
	Comunidade Distrito De Abunã	4
	EMEF Flor Do Cupuaçu School	1
	EMEF Marechal Rondon School	2
	EMEF Santa Julia School	1
	Santa Carmem Farm - Employees	1
	Grupo Rovema - Employees	6
	Grupo Tupá - Employees	2
	Santa Rita Resettlement	2
	Reca	7
	Sedam-RO	4
	Sema	3
	Usf Santa Rita	1
	Vila Da Penha	5
TOTAL - JULY		43
OCTOBER	ASDAMOR – Morrinhos Resettlement	1
	Embrapa Acre	3
	EMEF Flor Do Cupuaçu School	1
	EMEF Marechal Rondon School	2
	Nova Fronteira Farm - Employees	15
	Rio Madeira Farm - Employees	24
	Santa Carmem Farm - Employees	16
	Grupo Rovema - Employees	1
	Santa Rita Resettlement	2
TOTAL - OCT		74
TOTAL GERAL		269⁶⁵

⁶⁵ Although the total number of participants across the three meetings was 269, this figure does not represent the number of unique individuals, as some participants attended more than one meeting and may therefore be counted multiple times.

2.3.5 Risks from the Project and No Net Harm (VCS, 3.18, 3.19)

For this period, two risk factors were identified: risks related to low communication and stakeholder engagement, and human-driven risks, specifically deforestation. Below are the mitigation measures implemented to address these identified risks⁶⁶.

Deforestation

The project is located in an area of high deforestation pressure, which increases the risks related to intentional deforestation caused by humans. During this period and throughout the life of the project, monitoring of the project areas has been conducted by the project proponent and outsourced to a third party with sufficient capacity to carry out the monitoring tasks. The monitoring tasks and responsibilities were carried out by both the project proponent (Future Carbon) and the landowners (Grupo ROVEMA, Grupo Leite, and Grupo Tupá). The project proponent managed the technical aspects of monitoring, including GIS analysis and emission tracking, and carried out the monitoring activities for the VCS and CCB Standards. The landowners focused on the operational side, such as monitoring forest conditions and responding to natural disturbances on-site.

Table 16. Brazil Nut Extractivists Risks⁶⁷

Risk identified	Mitigation Plan
Inclusion of new Brazil nut extractivists as partners: The inclusion of new nut extractivists as partners of Instance 03 may generate conflicts with current extractivists, as well as generate dissatisfaction among extractivists who want to participate in the partnership.	It's crucial to emphasize that the Rio Madeira Grouped REDD+ Project operates as a private initiative, with the farms in Instance 03 (Tupá) being privately owned properties. Consequently, the partnership contracts established with the 10 Brazil nut collector groups residing in the region were formed on a voluntary basis. This agreement allows the collectors to harvest the Brazil nut trees on the farms, as long as they follow good management practices and report any signs of deforestation, fires or invasions of the forest The project aims to include new extractivists in the partnership over time, therefore, the following mitigation measures were adopted to avoid possible conflicts: 1. Responsible Inclusion: New extractivists will be gradually included based on expressed interest and the sustainable capacity of the forest. 2. Suitability Assessment: Before inclusion, a regional assessment is conducted Tupá Group to verify the

⁶⁶ More information are available in *Appendix 2*.

⁶⁷ More information are available in *Appendix 2*.

suitability of candidates, ensuring alignment with the project's values. The process of verifying individuals interested in joining the nut collector partnership involves a qualitative community assessment. There are no rigid criteria or standardized questions, nor is there a document review. The main goal of this assessment is to assess whether the candidate has good relations within the community. Farm staff, who are also residents of the district, use their understanding of local social dynamics to provide an assessment based on their perceptions and experiences with the candidate, ensuring that new participants are well-regarded in the region.

3. Adherence to Best Practices: All extractivists, current and potential, are required to adhere to the terms of good management practices, ensuring the sustainability of collection activities and the conservation of the forest.

4. Partnership with EMBRAPA: In collaboration with EMBRAPA⁶⁸, an inventory of Brazil nut trees was started in November 2024 to determine the productive capacity of the area. This inventory will provide critical data on the potential and productive capacity of farms, enabling informed resource management without compromising forest integrity and ecological balance.

5. Optimization of Harvesting Routes: With the data provided by EMBRAPA's inventory, the harvesting routes of current collectors will be optimized. This will help maximize efficiency and minimize environmental impacts, ensuring that the carrying capacity of the forest is not exceeded.

6. Mapping of Exploration Zones: The boundaries of the areas explored by each group of partner extractivists are not completely defined. However, the extractivists claim that there is no overlap between the explored areas, as they are distributed across the farms of Instance 03 and use the access roads as geographic references.

Each group of collectors may have areas of different sizes and/or productivity. Currently, what determines the limits of exploration is the collection capacity of the groups themselves, that is, it is not determined by the landowner of the farms. Given that this is highly manual

⁶⁸ The technical cooperation partnership with EMBRAPA was formalized in July 2024 and will be valid until July 2025, with the possibility of extension. This partnership exclusively covers the farms of Instance 03 (Tupã Group), given the geographical proximity to the EMBRAPA office in the state of Acre and the existing partnership with the nut extractivists/collectors.

	and physically demanding work, extractivists face physical limitations regarding the extent of the areas they can cover. As a result, each group presents variations in the volume collected. In order to improve the understanding and management of these areas, detailed mapping of each exploration area is planned. This mapping will be carried out in partnership with EMBRAPA, which will provide a technique to monitor the extractivists in the field during the 2024/2025 harvest season. This zoning will not only facilitate the mapping process and ensure more precise management of forest resources, but will also allow the identification of unexplored areas that could accommodate new collecting partners, thus promoting more efficient and sustainable use of available resources. 7. Continuous Communication: Current and potential partner extractivists have access to the communication channels established by the project, so that they can communicate any concerns. In the event that a new collector joins the group, he or she will be introduced to all current partners and will be informed about the Rio Madeira project and the communication channels. During this monitoring period, no new extractivists were included in the partnership.
Reduction of available Brazil nut trees: Without an effective system for monitoring and controlling deforestation, the area occupied by Brazil nut trees is at risk of diminution.	Implementing comprehensive monitoring and mitigation strategies is essential to safeguard the Brazil nut trees against both anthropogenic and natural challenges. As explained previously, during this period, monitoring of the project areas has been conducted by the project proponent and outsourced to a third party with sufficient capacity to carry out the monitoring tasks. The plan for monitoring and combating deforestation and forest fires includes the following activities: 1. Satellite Monitoring System: Satellite monitoring already takes place monthly in instance 2. In addition, for the next monitoring period (2024) the project areas will be monitored using weekly Planet⁶⁹ images by the Future team.

⁶⁹ Available at: <https://www.planet.com>

	2. Ground Patrol: Led by teams hired by the Instances. 3. Rural Patrol: All instances joined Rural Patrol, whose main objective is public safety in the state's rural of private properties areas. 4. Fire brigade: Training will be carried out with farm employees on techniques for fighting and preventing forest fires. Currently, the risk of conflict between extractivists due to the possible reduction of Brazil nut tree areas is considered low. This is due to the effectiveness of the protection measures implemented by the project so far, which have proven successful in reducing deforestation within the project area. These measures include continuous monitoring and ground patrols to ensure the integrity of forest areas. In addition, the inventory planned in partnership with EMBRAPA will provide critical data on the productive potential of farms in Instance 03. This inventory will allow a detailed assessment of sustainable production capacities and will contribute to more effective resource management. With this data, we will be able to not only optimize the allocation of collection areas among existing groups, but also plan the introduction of new collectors strategically, ensuring long-term sustainability and minimizing potential conflicts.
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2.3.6 Community Costs, Risks, and Benefits (CCB, G3.2)

The Rio Madeira Grouped REDD+ Project, all climate, community and biodiversity activities have been planned in a participatory manner with workers, local communities and other stakeholders, considering local needs mapped during on-site visits, as well as their perceptions on the Project. In October 2023, as detailed in section 2.3.7, participatory mapping was carried out with the communities visited to capture positive and negative perceptions about the project. No risk perception of the project for the communities was raised, only benefits associated with social activities and the protection of the Forest and ecosystem resources. The project was very well received by the communities, with the only negative point being communication, as they said they would like more communication. The WhatsApp messaging app was a suggestion brought up by community members in informal conversations during their visits over the period. The app is widely used in Brazil, both for informal conversations and for business. The tool is being

implemented by Future Carbon as the company's institutional communication mechanism, as well as the creation of an email address to contact in case of doubts, complaints and suggestions for the projects.

During the visits in the period, graphic materials (flyers) explaining the project were distributed, as well as oral presentations and videos were made using banners and videos (when possible the use of a projector and/or television) to explain the objectives of the project and how the activities will not have direct costs for the communities. No trade-off risks were identified for community members, since the activities to be carried out will be entirely covered by the project and there are no project activities that impact negatively livelihoods and food security or that implicate loss of yields. In this sense, it was emphasized that the project will not bring any financial cost to the communities, which will benefit from the project's direct and indirect positive impacts. It is important to emphasize that the presentation made was very conservative when it came to mentioning the economic and social benefits of the Project, since it is not wanted to create false expectations on the part of the communities.

2.3.7 Information to Stakeholder on Verification Process (VCS, 3.18.6, 3.19; CCB, G3.3)

During this monitoring period, more specifically in meetings held at on-site visits that took place in June and October 2023, communities and other stakeholders were informed of the process for VCS and CCB Standards validation and verification, and that a third-party audit (VVB) would personally come to the project and interview stakeholders.

Before the audit in April 2024, proactive communication was conducted with the communities and stakeholders, informing them about the upcoming verification process. This communication was conducted through emails, WhatsApp messages, and audio recordings. A total of eight key stakeholders—including members of local schools, farm workers, and Brazil nut collectors—were notified in advance and given the opportunity to communicate directly with the auditors, with contact information provided in the communication.

Figure 17. Communication about the upcoming Verification Audit



The notifications included:

- **WhatsApp Messages:** Sent on specific dates depending on the stakeholder's preferred communication method.
- **Emails:** Delivered to institutional stakeholders, such as EMBRAPA and school communities.
- **WhatsApp Audio:** Used to further clarify the details for some groups.

Table 17. Stakeholders informed about the upcoming verification audit

ID	Stakeholder	Communication Mechanism		
		WhatsApp Message	E-mail	WhatsApp Audio
4	EMBRAPA Acre Members	-	13-March-2023	-
9	Marechal Rondon Municipal School	12-March-2023	12-March-2023	-
10	Flor do Cupuaçu School	08-March-2023	11-March-2023	20-March-2023
11	Nova Fronteira Farm Workers	08-March-2023	11-March-2023	20-March-2023
14	Brazil Nut Collectors	08-March-2023	-	20-March-2023
15	Santa Carmem Farm Workers	11-March-2023	11-March-2023	20-March-2023

17	Rio Madeira Farm Workers	21-March-2023	19-March-2023	19-March-2023
18	ASDAMOR Members	08-March-2023	11-March-2023	20-March-2023

2.3.8 Site Visit Information and Opportunities to Communicate with Auditor (VCS, 3.18.6, 3.19; CCB, G3.3)

During on-site visits that took place in June and October 2023, communities and other stakeholders have been informed of the audit process and the on-site visits that would take place in the project area and its surroundings during the project validation and verification.

According to the information presented in the folder that was made available to communities and other stakeholders (see section 2.3.3), it was explained to the interested parties that the Rio Madeira Grouped REDD+ Project it would be audited in the first half of 2024 by an external company, to guarantee impartiality in the evaluation of the project. It was informed that compliance with social, biodiversity and climate agreements will be assessed during the audit, as well as identifying risks and improving community involvement and deforestation prevention processes. It was emphasised that external audits are carried out annually to guarantee the ongoing quality of the project.

As explained in the section 2.3.7 above, representatives of the project stakeholder groups were informed and invited in advance to participate in the audit process, and these invitations were made through different communication methods. During the field visit conducted by the Validation and Verification Body (VVB), stakeholders were interviewed independently, without the presence of the project proponent. This approach was adopted to ensure the confidentiality and anonymity of the interviewees, thereby fostering an environment where stakeholders could express their views freely and securely.

2.3.9 Stakeholder Consultation (VCS, 3.18; CCB, G3.4)

Based on the stakeholder consultation requirements, and prior to the project's verification, the Project Proponent (PP) conducted a series of stakeholder consultations for the Rio Madeira Grouped REDD+ Project from June 2023 to October 2023, following an inclusive and participatory approach. The main goals of these consultations were to ensure that all representative stakeholder groups were well-informed about the project's results showing that the project has delivered net positive climate, community and biodiversity benefits and had the opportunity to express their concerns, feedback, and suggestions. Below is a detailed description of the consultation process and its outcomes.

Ongoing consultation

The On-site Stakeholder Consultation for the Rio Madeira Grouped REDD+ Project was conducted by the Socioenvironmental Team as part of Project Management Team (PMT). This consultation place over three days, from **June 6th to 9th, 2023** and took place

at several locations in the municipalities of Porto Velho (RO) and Acrelândia (AC).

A diverse group of stakeholders was engaged in advance, including community representatives, farm workers, and local families, ensuring broad and inclusive participation. Each stakeholder group was represented by at least one representative, reinforcing the inclusive nature of the consultation. The sessions aimed to present the project design, share monitoring results, and facilitate a meaningful exchange between the project proponent (PP) and the local communities.

Figure 18. On-site Stakeholder Consultation Meetings on June-2023



Throughout the consultation, the PP provided a detailed overview of the project, covering its objectives, methodology, and expected outcomes. Participants were introduced to critical concepts such as carbon credits, forest conservation, and the benefits of sustainable land management. The consultation's primary objective was twofold: to communicate the results from the second monitoring report and to identify local needs through the participatory development of the Theory of Change (ToC) and the Socioenvironmental Impact Plan.

During the sessions, the PMT provided a clear explanation of the potential risks, costs, and benefits that the project may bring to the community. This included both environmental risks, such as potential degradation or disruptions to local livelihoods, and the economic opportunities, infrastructure improvements, and sustainable development initiatives.

Date(s) of stakeholder consultation

06-June-2023 to 09-June-2023

Communication of monitored results

A key focus of the consultation was on ensuring stakeholders understood the project's lack of impact on property rights. Since the project is being developed on private land, there are no issues concerning customary rights within the project area. Stakeholders

	were reassured that the project would not result in displacement or loss of land. In addition, detailed information was shared regarding the CCB Validation and Verification processes, including the role of the validation/verification body and their upcoming site visit. This transparency was key to maintaining the integrity of the project's monitoring and reporting processes. The consultation also emphasized the project's adherence to both national labor laws and international conventions on workers' rights. This commitment includes ensuring fair wages, safe working conditions, the right to freedom of association, and a strict prohibition of child labor and forced labor. Following the presentation, stakeholders were given the opportunity to ask questions, provide feedback, and raise concerns about the project design and implementation. The PP ensured that all feedback was considered as part of the ongoing project development process, fostering an atmosphere of mutual respect and collaboration.
Consultation records	The process for documenting the outcomes of the stakeholder consultation involved several methods: ▪ Stakeholder Consultation Report: to document the questions, concerns, and inputs raised by stakeholders during the consultations. This report serves as the primary written record, capturing the key themes discussed, the responses provided by the project management team, and any follow-up actions that were planned based on stakeholder feedback. ▪ Multimedia Documentation: photos and video recordings were used to capture important moments of the consultation process, stakeholder interactions, ensuring that the audit team has access to visual evidence of the engagement activities. Attendance Lists: to ensure transparency and accountability, attendance lists were maintained for each consultation session. These lists recorded the names and affiliations details of all participants, demonstrating who was involved in the discussions.
Stakeholder input	During the consultations with the communities, various needs and concerns were raised that were carefully considered and integrated into the project design where appropriate. The input received focused primarily on infrastructure, education, health, and socio-economic issues. Below is a detailed explanation of how these inputs were addressed, and why certain updates to the project were implemented, while others were not deemed necessary or feasible at this stage: 1. School Infrastructure and Educational Needs:

- **IT Equipment and Sports Facilities:** Communities highlighted the lack of IT resources at the Flor do Cupuaçu school, such as computers and a proper lab, as well as the need for improved sports facilities. The project responded to this by incorporating these needs into the **Quality Infrastructure Program**, which focuses on improving local infrastructure, including educational and recreational facilities.
- **School Transportation and Vocational Training:** The demand for improved school transportation and access to technical courses led to the creation of the **Quality Training and Education Program**, designed to enhance educational opportunities. This program includes efforts to support access to technical and vocational education, helping young people attend courses and reducing dropout rates.
- **Agricultural Education and Nutrition:** The suggestion to use land behind the school for a vegetable garden was integrated into the project's environmental education component, promoting sustainable agriculture and contributing to both student nutrition and practical learning.

2. Employment and Income Generation:

- **Support for Local Economy:** Given the challenges with income generation, particularly the seasonal nature of the Brazil nut harvest, the project is actively exploring partnerships with cooperatives and industries. However, due to current constraints, no updates have been made to directly address these economic concerns within the existing project scope. The project continues to seek external partners for sustainable employment opportunities.

3. Public Health and Sanitation:

- **Water Contamination and Sanitation:** The community's concerns about water contamination due to local mining activities and the lack of basic sanitation have been noted. However, addressing these complex issues requires significant external resources and government intervention beyond the immediate scope of the project. The project will continue to raise awareness and advocate for better sanitation services, but no direct changes to the project design have been made at this time.

4. Public Lighting and Safety:

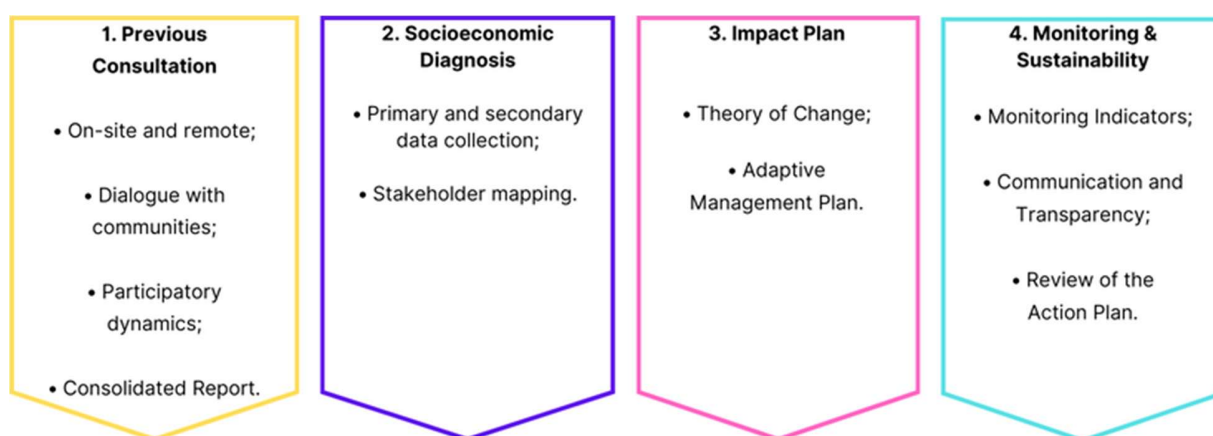
- **Lighting and Public Safety:** While the need for better public lighting to improve safety was discussed, addressing this is beyond the project's direct mandate. The project will facilitate dialogue with local authorities

	to help prioritize these issues but did not update its scope to include public lighting improvements. 5. Spaces for Elderly and Public Areas: ▪ Community Spaces: Requests for outdoor gyms and social spaces were taken into account, and the project will seek partnerships or opportunities to support these initiatives, possibly integrating them into future phases of the Quality Infrastructure Program. The feedback received from stakeholders informed the construction of the project's Theory of Change, ensuring that the project objectives aligned with community needs. As a result, two major programs—Quality Infrastructure Program and Quality Training and Education Program—were developed to address the infrastructure and educational demands. In summary, the feedback from stakeholders has been incorporated into the project where feasible, particularly in the areas of education, infrastructure, and professional training. Some issues, such as health and sanitation, while important, require broader external interventions, and thus were not addressed directly through project updates. No major changes were required in areas where stakeholders did not raise complaints or concerns about the project itself.
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2.3.10 Continued Consultation and Adaptive Management (VCS, 3.18; CCB, G3.4)

The project proponent has developed a Stakeholder Engagement Operating Procedure (PO.SA.01 – Engajamento com Stakeholders em Projetos de Carbono) to facilitate effective engagement with local stakeholders, which has been disseminated at all stage of the project's design and implementation. The procedure comprises five stages outlined below.

Figure 19. Stakeholder Engagement Procedure



For the Rio Madeira Grouped REDD+ Project, stages one and two had already been conducted in previous monitoring periods. During this monitoring period, socio-environmental and biodiversity diagnoses were conducted to gather additional information on the social, biodiversity, environmental, economic, and territorial context of local communities and the project region, supporting subsequent stages. Additionally, stages 3 and 4 involved organizing meetings and interviews with relevant stakeholders, particularly communities, using participatory methodologies. These interactions helped identify key topics of interest and local demands, which subsidised the development of the Impact Plan in stage four.

Based on the socio-environmental diagnosis and on-site visits conducted by the Future Carbon Socio-Environmental Team, the main socio-economic, environmental, and territorial aspects of the project area and its surroundings were identified and characterized, along with the availability of public infrastructure for the communities. The main themes mapped included basic infrastructure for public services and transport, public safety, local productive activities, education, health, environment, social organization, culture and leisure, communication, basic sanitation and water resources, women's representation, and other local demands. These studies and interactions helped identify key topics of interest and local demands, which subsidised the planning of the Theory of Change and Socio-environmental Impact Plan in stage four.

It is important to emphasise that the main beneficiaries of the socio-environmental actions of the Rio Madeira Grouped REDD+ Project are the employees who live on the properties comprised in the project and the communities mapped around the project area.

Therefore, the **Continuous Communication and Stakeholder Engagement Program** contains proposals to address and encourage the participation of community groups in governance and decision-making processes for project activities through the development and implementation of appropriate communication mechanisms and accessible information for stakeholder engagement.

During this monitoring period, continuous communication and consultation between the project proponent and the communities and other stakeholders of the Rio Madeira Grouped REDD+ Project were based on on-site meetings, workshops, and virtual communications. All community leaders have regular internet access, facilitating effective and continuous contact with the project proponent via WhatsApp, email, and phone calls. These communication channels are also reflected in the distributed materials, such as folders, banners, and booklets.

Additionally, the following elements were essential for enhancing and maintaining communication and consultation between the project proponent and stakeholders regarding the project and its impacts to facilitate adaptive management:

- **Communication Channels:** The primary communication channels include the project proponent's email address (faleconosco@futurecarbon.com.br) and a WhatsApp contact

number (+55 11 94183-7277)⁷⁰. However, since the procedure was still being structured during on-site visits, the emails of the technical and socio-environmental team from Future Carbon Group (the project proponent) were previously shared with the communities and other stakeholders (forest@futurecarbon.com.br, riomadeira@futurecarbon.com.br and socioambiental-forest@futurecarbon.com.br). These emails were documented in the distributed folders to establish preliminary communication channels.

- **Stakeholder Consultation and Engagement Process:** Timely and accessible information was provided in a language and manner understandable to the communities and other stakeholders. Consultations were conducted with all relevant stakeholders, and participation was ensured, as appropriate, for those interested in being involved. The Stakeholder Engagement Operating Procedure (presented above) developed by the project proponent includes stakeholder participation to promote full and effective engagement of communities and other stakeholders in the decision-making and implementation processes of the project. Consultation will be ongoing and repeated before each verification to present project results and progress, inviting stakeholders to provide opinions and suggestions about the project. Informative materials will always be provided during these consultations, such as updated folders, banners, and booklets, along with relevant communication channels.
- **Communication Procedure:** An integrated mechanism detailed in the operating procedure, called "PO.SAM.02 GRIEVANCE AND REQUEST MANAGERMENTS" (PO.SAM.02 – Gestão de Manifestações), is responsible for addressing all stakeholder comments, including doubts, complaints, compliments, criticisms, and suggestions about the services and projects developed by the Future Carbon Group, and providing answers in a fair and transparent manner. The main communication channels are available and accessible 24 hours a day, any day of the week. If a complaint is received through informal channels (such as interactions during field visits, community dialogues, social networks, etc.), it should be forwarded to the formal flow, preferably reported to the official email address mentioned earlier. All interactions, regardless of the input channel, are documented and addressed following established guidelines. During this monitoring period, no manifestations were received through the communication channels (formal or informal).
- **Conflict Management Procedure:** The integrated mechanism detailed in the operating procedure, "PO.SAM.02 GRIEVANCE AND REQUEST MANAGERMENTS" (PO.SAM.02 – Gestão de Manifestações), also includes a specific procedure to ensure quality in receiving, listening to, responding to, and attempting to resolve conflicts. This procedure is further described in section 2.3.12 of PD CCB. No conflicts were reported during this monitoring period.

⁷⁰ It's important to note that the WhatsApp communication channel and the email faleconosco@futurecarbon.com.br were still under development during this monitoring period.

In addition to the communication mechanisms already in place, another practice adopted by the project management team, especially the socio-environmental team, is to record the contributions arising from interactions with stakeholders during field visits and consultations. These inputs are consolidated into field reports and meeting minutes, serving as a basis for documenting the received contributions. Below, it is highlighted some of these contributions identified during the project implementation, corresponding to the period covered in the 3rd monitoring report.

Summary of comments received	Actions taken
Question received on 12-14-2023 – Instagram On 12/14/2023, a question was submitted via Future Carbon's Instagram regarding the Rio Madeira project. The questions were: On public or private property? Is it in a protected area? Was there a prior, free, and informed consultation with traditional communities that use or reside in the area?	The response provided on 12-14-2023 to the post was: "Hello! This is a project exclusively on private lands. Visits were conducted to inform the relevant communities and institutions about the project's development. If you'd like more details, there is a summary in Portuguese available on the VERRA website."
Request received on 10-20-2023 – Marechal Rondon School On 11/20/2023, the Principal of Marechal Rondon School informally contacted a project team member to inquire whether there was any preparation or plan from the project for the school's Christmas event. The request was forwarded to the Coordination team for internal evaluation.	On 11-20-2023, it was communicated that the project did not have any plans for the 2023 Christmas event, as this activity was not aligned with the project's objectives.
Request received on 10-04-2023 – Marechal Rondon School On 10/04/2023, the owner Júnior (Instance 02) received a request for a donation of footwear via personal WhatsApp. Júnior forwarded the request (audio message) to the Social and Environmental Coordinator.	On 10-04-2023 the coordination advised the owner to respond that the project is not intended to make one-time donations for activities unrelated to the project's Theory of Change.
Request received on 11-27-2023 - Family Health Unit of Santa Rita Contact was initiated on 11/27/2023 by Nonata, Manager of the Family Health Unit of Santa Rita, via the personal WhatsApp of the representative of Instance 1, inquiring whether it would be possible for the Rio Madeira project to donate a Starlink antenna to the health	The representative of Instance 1 responded that the request would be evaluated in accordance with the project's Theory of Change for further consideration, if applicable.

center, similar to what was done for the Flor do Cupuaçu School.

2.3.11 Stakeholder Consultation Channels (CCB, G3.5)

As described in section 2.3.4, meetings and consultations have already been held in June and October 2023 between the communities' leaders, farms workers and their families, Brazil nut extractivists and the project proponent. In this sense, all consultations and participatory processes have been undertaken directly with communities' leaders and other stakeholders.

For remotely contacted stakeholders, a project presentation was conducted, informing them about the availability of both the project summary and full description on the VERRA website, and inviting them to provide feedback on the project.

Regarding the accessibility of digital communication, WhatsApp is a powerful tool that is already used by the project as a communication channel and is viable for communities. Considering issues of connectivity and familiarity with these technologies, the use of such platforms to transmit information about the project is highly effective, even in contexts where connectivity and digital literacy are challenging. Firstly, the expansion of internet access in rural and remote areas has been growing significantly. According to the Regional Center for Studies on the Development of the Information Society (Cetic.br)⁷¹, internet access in rural areas of Brazil increased to 53% in 2022, highlighting a trend toward digital inclusion.

Furthermore, WhatsApp is one of the most popular tools in rural areas and traditional communities in Brazil. According to the 2022 TIC Domicílios survey⁷², 98% of internet users in the country use WhatsApp, which is widely accepted as a communication channel, even in areas where access to other digital platforms is limited. This familiarity makes it easier to send information in a direct and accessible manner, using simple language adapted to the local context, which enhances the reach and understanding of the messages.

Specifically, in the dissemination of project information, the use of these platforms allows for effective community communication, ensuring that the information reaches all community members, while also enabling continuous dialogue and feedback from the communities. Additionally, making the data available on websites such as the Verra Registry contributes to transparency and compliance with access-to-information standards, reinforcing the project's commitment to inclusion and social participation.

⁷¹ <https://cetic.br/pt/noticia/uso-da-internet-avanca-em-areas-rurais-durante-a-pandemia-revela-nova-edicao-da-tic-domicilios/>

⁷² https://cetic.br/media/docs/publicacoes/2/20230825143720/tic_domicilios_2022_livro_eletronico.pdf

A banner and folder with project information were available during the consultation, featuring a map of the project area and key details such as location, farm names, expected benefits, certifications, REDD+ and carbon project concepts, and official project contacts. The community had an open opportunity during the meeting to ask questions and offer suggestions about the project.

Figure 20. Information Banner



Projeto Rio Madeira REDD+

Área do projeto: 52.274,05 ha

Localização: Porto Velho/RO e Lábrea/AM

Bioma: Amazônia - Brasil

Tipo de projeto: REDD+ AUD+

Standards: VCS + CCBS

Resultados: Redução de 27,534,520 tCO2



Área do Projeto

LÁBREA

PORTO VELHO

Reserva de Referência

Área do Projeto

Limites Municipais

*Conservação florestal ao evitar o desmatamento / não-planejamento

O Projeto REDD+ Agrupado Rio Madeira está localizado nos municípios de Porto Velho (Rondônia) e Lábrea (sul do estado do Amazonas), na região Norte do Brasil, a qual é circundada por muitos rios e suas orlas tendo contato direto com o Rio Madeira. As instâncias de atividade do projeto possuem área de 52.274,05 ha, que pertence a três proprietários privados: dois no município de Porto Velho, (Grupo ROVEMA e Grupo Leite) e um no município de Lábrea (Grupo Tupã), os quais são compostos por 100% de floresta amazônica.

O bioma amazônia

O Bioma Amazônico chega ocupar uma área de 4.196.943 Km², que corresponde mais de 40% do território nacional e é constituída principalmente por uma floresta tropical.

A Amazônia abriga quase 25% de todas as espécies de seres vivos da Terra, sendo estimado mais de 30 milhões de espécies animais, mas nem todas foram encontradas e estudadas ainda, e muitas já estão vulneráveis à extinção.

A Amazônia também é o berço da maior bacia hidrográfica do mundo. A floresta garante as chuvas para boa parte da América do Sul e tem papel central no combate ao aquecimento global e às mudanças climáticas.

O bioma Amazônia está Presente em nove estados brasileiros e em oito países vizinhos do Brasil.

Existem mais de 30 milhões de espécies de espécies animais

O que é Crédito de Carbono?

O Crédito de Carbono é uma moeda verde, que representa 1 tonelada de Gás de Efeito Estufa (GEE) não emitido para a atmosfera, que pode ser comercializada no mercado.

1 tCO2-emitido = 1 Crédito de Carbono

Benefícios socioambientais

O Projeto REDD+ Rio Madeira prevê a geração de co-benefícios para a comunidade e biodiversidade nas regiões onde o projeto está localizado, baseando-se nas principais necessidades locais



+300 espécies identificadas

A conservação florestal torna possível evitar emissões de GEEs provenientes do desmatamento e degradação florestal, atenuar impactos das Mudanças Climáticas e gerar ganhos econômicos pela preservação, com os Créditos de Carbono!

Certificação do projeto

VCS 

O padrão Verified Carbon Standard (VCS) é o padrão mais utilizado no mundo para validar, monitorar e contabilizar a redução de emissões de gases de efeito estufa (GEE) dos projetos de carbono e, consequentemente, os créditos de carbono gerados. O VCS é gerido pela VERRA, uma organização sem fins lucrativos, com sede nos Estados Unidos que gerencia, dentre outros programas, o VCS e o CCB.

CCB 

Já o padrão Clima, Comunidade e Biodiversidade (CCB) tem como objetivo monitorar benefícios gerados pelo projeto de carbono, quanto ao ambiente e as comunidades locais. A fim de garantir que o projeto está gerando benefícios socioeconômicos e ambientais tangíveis para a região, serão realizados diagnósticos socioeconômicos nas comunidades e inventários de biodiversidade para um melhor entendimento do cenário local, buscando maior efetividade das ações a serem implementadas.

2.3.12 Stakeholder Participation in Decision-Making and Implementation (VCS, 3.18, 3.19; CCB, G3.6)

The Stakeholder Engagement Procedure has been developed to enable the effective participation of all communities and other stakeholders during the project design, implementation, monitoring and evaluation throughout the project lifetime.

During this monitoring period, meetings and interviews were held with relevant stakeholders, especially communities, using participatory methodologies. These interactions allowed to map the main topics of interest, local demands and perceptions on the project, which subsidised the elaboration of the Theory of Change and Impact Plan.

In addition, the participation of women is of fundamental importance to the development of the project, given the importance of their leading role in project activities. Furthermore, during the project implementation, the need to build safe listening spaces for discussion with the feminine public was identified and was included as a community group in the Rio Madeira Grouped REDD+ Project. In this sense, during this monitoring period, a consultation on October 2023 was conducted with the women who live and work on the farms, with the aim of understanding their daily routine and the specific demands to subsidise the implementation of project activities aimed at this community group.

2.3.13 Anti-Discrimination Assurance (VCS, 3.19; CCB, G3.7)

The project proponent (Future Carbon Group) and the Rio Madeira Grouped REDD+ Project respect internationally proclaimed human rights and are not complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights, United Nations Declaration on the Rights of Indigenous Peoples, ILO Convention 169 on Indigenous and Tribal Peoples and International Labour Organization's Declaration on Fundamental Principles and Rights at Work during the project design and implementation. In addition, the Project is committed to non-discrimination regarding the participation and inclusion of any workers, local communities, indigenous peoples and other stakeholders, providing equal pay for equal work in project design and implementation. Future Carbon also provides equal opportunities in the context of gender for employment and participation in consultation and project activities to ensure women's participation during project design and implementation.

Future Carbon's Compliance Department conducts due diligence analyses prior to the start of the project to guarantee the integrity of the property and the landowner to ensure that there are no human rights violations, including sexual harassment, forced labor, child labor or victims of human trafficking. These conditions will continue to be monitored during the implementation of the project by on-site visits, interviews with stakeholders and landowners, as well as documentation analysis.

The Due Diligence process of Future Carbon Group follows the Core Carbon Principles to ensure that projects can generate high-integrity carbon credits, based on transparency, information disclosure, and socio-environmental safeguards. This process includes land and socio-environmental analyses to identify any liabilities related to the areas where the projects will be developed, as well as integrity issues involving the landowners (legal entities and individuals). In the land analysis, in addition to verifying the necessary registrations with regulatory agencies, the property's succession chains are assessed up to the point of detachment from public ownership, to ensure the legal security and permanence required by the project, considering the timelines of the credits generated.

Regarding the socio-environmental analysis, databases are reviewed to map and verify the existence of liabilities, whether associated with the property or with the partner, to transparently determine their status and how they have been managed. The focus of this analysis is to ensure the socio-environmental compliance of these properties, implementing measures to combat forest fires, deforestation, and other illegal or incompatible activities with carbon credit generation.

Through Integrity Due Diligence, compliance with fiscal, social security, and tax obligations is verified, along with a detailed analysis of negative media coverage, judicial and administrative proceedings involving the partner, their partners, and related companies. Integrity Due Diligence also includes screening against restricted lists (Cepim, CEAf, CNEP, Slave Labor, Irregularly Judged Accounts), as well as the verification of politically exposed persons (PEP)⁷³. Once the analyses are completed, a preliminary risk and potential liability scenario is prepared, serving as a basis for decision-making regarding the feasibility of moving forward with the project. If the decision is made to move forward with the project, the identified risks will be continuously monitored.⁷⁴ During this monitoring period, this due diligence analysis was updated, and the final report was shared with the VVB. According to the analysis elements, the Future Carbon team expressed its agreement to continue the project, since no red flags were identified in the records and documents verified regarding compliance, land regularity and socio-environmental restrictions affecting the partner and property.

Future Carbon's Code of Conduct and other institutional policies prohibit discrimination or sexual harassment in project design or implementation and endeavors to promote social inclusion. For demands related to ethics and situations that violate the project proponent's Code of Conduct, contact should be made via the Ethics Channel available on the website <https://contatoseguro.com.br/futurecarbon>. This platform is provided to offer an open and secure channel to report grievances and possible human rights violations within the framework of the project.

⁷³ More information about the list of documents reviewed during the due diligence process can be found in the document "Due Diligence Description", shared with the VVB

⁷⁴ Further information on the development and analysis of the risk matrix can be found in the document "Due Diligence Description", shared with the VVB

In addition, Future Carbon also shares and guides its suppliers in compliance with the Code of Conduct guidelines, in order to ensure compliance with good governance, ethics and transparency practices.

During the monitoring period, the company "AMBIENS RESOLVE INOVACAO SUSTENTABILIDADE E MEIO AMBIENTE LTDA" ("Ambiens"), was contracted by Future Carbon to provide the socioeconomic diagnosis and fauna inventory service. In the contract, among the legal compliance clauses, the following stand out:

9.3 The Contracted Party commits to becoming aware of and respecting the terms of the Contracting Party's Code of Conduct, as well as the Policies that comprise its integrity system, especially the Code of Conduct and the General Policy, all available on its website.

9.15 The Parties must observe and ensure observance by their employees, suppliers, subcontractors, administrators, and/or any third parties contracted by them, of the highest ethical standard throughout the entire term of the Contract, declaring that:

(iii) They do not adopt illegal labor practices and, in particular, declare that they do not allow practices in their activities that constitute discrimination of any kind, nor do they employ labor that characterizes child labor or slave labor, in accordance with the provisions of the Federal Constitution, the CLT (Consolidation of Labor Laws), the Penal Code, the Statute of the Child and Adolescent, and other applicable legislation.

In conclusion, Future Carbon can assure that all other entities and parties involved in the implementation of project activities including but not limited to collaborators, suppliers, subcontractors, and administrators, are held to the same stringent ethical standards and are contractually obligated and expected to uphold the principles of non-discrimination.

2.3.14 Grievances (VCS, 3.18.4; CCB, G3.8)

No grievances were received during this monitoring period throughout the communication channels implemented (via email: forest@futurecarbon.com.br and socioambiental-forest@futurecarbon.com.br, riomadeira@futurecarbon.com.br and faleconosco@futurecarbon.com.br, WhatsApp and oral complaints received by farm managers⁷⁵) from local communities and other stakeholders.

The communication channels established for stakeholders were shared through visits conducted by the project team throughout 2023 and updated through the documents shared where applicable, as well as stakeholder consultations held in February 2024. These communications are outlined in the folders presented in section 2.3.3 and is easily accessible to stakeholders for ongoing consultation.

⁷⁵ It's important to note that the Future Carbon WhatsApp communication channel was still under development during this monitoring period.

Grievances received	Resolution and outcome
N/A	N/A

2.3.15 Worker Training (VCS, 3.19; CCB, G3.9)

The Rio Madeira Grouped REDD+ Project has implemented a set of orientation and training activities for project workers involved in the project activities. Below is a detailed description of the activities implemented during the monitoring period:

- **Training for Project's Workers on the Farms:** Landowners provided orientation for project workers on the farms based on their specific roles. The topics covered environmental management and occupational hazards, including the prevention of work accidents and proper utilization of Personal Protective Equipment (PPE), ensuring compliance with safety protocols.

All conducted trainings are documented and reported to minimize capacity loss in cases of staff turnover, contributing to the overall success of the project.

2.3.16 Community Employment Opportunities (VCS, 3.19.13; CCB, G3.10)

The project has not generated any employment opportunities during this monitoring period. However, efforts to improve the well-being of community groups were undertaken through on-site visits and training sessions. More detailed information can be found in section 4.1.3 of this report.

2.3.17 Occupational Safety Assessment (VCS, 3.19; CCB, G3.12)

For the identification and assessment of occupational risks that could arise due to project implementation, Project Proponent is in compliance with the mandatory applicable occupational health and safety laws and regulations established by the federal and state governments.

In this context, all risks present in the work environment to each function or activity carried out by all instances of the Rio Madeira Grouped REDD+ Project were identified, evaluated, and classified in accordance with the Brazilian Regulatory Standards (also known as 'NR' in Portuguese), which regulate and provide guidance on mandatory procedures related to occupational health and safety, as stated by the Brazilian Ministry of Labor. The main tool to manage occupational risks for the project are the Risk Management Programs, which can be named Rural Work Risk Management Program (PGRTR⁷⁶), Risk Management Program (PGR⁷⁷), Preliminary Risk Analysis (PRA⁷⁸). Although the name can vary, such programs aim to identify,

⁷⁶ In Portuguese: Programa de Gerenciamento de Riscos de Trabalhadores Rurais (PGRTR)

⁷⁷ In Portuguese: Programa de Gerenciamento de Riscos (PGR)

⁷⁸ In Portuguese: Análise Preliminar de Risco (APR)

control, train workers and track occupational health and safety risks. The following 2023 occupational programs were shared with VVB team⁷⁹:

- **Grupo ROVEMA:**
 - 2023 PGRTR from Fazenda Rio Madeira;
 - 2023 PGR from Fazenda Rio Madeira;
 - 2023 PGR from Fazenda Serra Verde.
- **Grupo Leite:**
 - PGRTR from Fazenda Santa Carmem.
- **Grupo Tupá:**
 - PGRTR from Fazenda Nova Fronteira.

It is worth mentioning specialized the abovementioned programs are developed by Health and Safety specialized companies.

Table 18. Measures to manage identified occupational risks

Activity	Risk(s)	Mitigation Measures
Forest Surveillance Monitoring	Falls, getting lost in isolated areas, exposure to venomous animals as snakes and spiders, conflicts with deforestation agents	Risk assessment was performed by specialized companies and results were shared with employees ⁸⁰ .
Biodiversity Monitoring		
Fire Fighting	Burns, dehydration, asphyxiation, exposure to extreme heat, firebreaks	During the project lifetime, farm employees will be trained in fire prevention and firefighting to structure the fire brigade. Such initiative is under planning and might be carried out from 2025 onwards.

2.4 Management Capacity

2.4.1 Required Technical Skills (VCS, 3.19; CCB, G4.2)

⁷⁹ More information are available in Appendix 2.

⁸⁰ Risk assessment are documented in the Programs PGR and PGRTR mentioned above. Both assessment and attendance lists were shared with VVB team.

In over three years of activity as the project proponent, Future Carbon Group has increasingly established itself as one of the most relevant and impactful companies specializing in forest conservation projects in the Amazon, ensuring the quality and effectiveness of REDD+ activities developed, standing out both in Brazil and internationally for its work with rural producers, forest owners, communities, and investors.

The monitoring of Rio Madeira Grouped REDD+ Project, since its inception and throughout this period, has required a wide range of technical skills from various areas of expertise, focusing on the development and management of forest conservation projects in the Amazon biome. This includes a deep understanding of methodologies related to the VCS and CCB standards from Verra, aligned with the development of AFOLU projects, such as the application of socioeconomic and territorial diagnostics, stakeholder engagement, biodiversity assessment and monitoring, management of community impacts, projections and modeling necessary for calculating forest carbon stocks, and the application of GIS, among others, to ensure the quality and effectiveness of the REDD+ activities carried out.

The project team consists of highly qualified multidisciplinary professionals for the planning, implementation, and monitoring of the Rio Madeira Grouped REDD+ Project, including professional researchers and academics specialized in biodiversity, social, and climate aspects, such as forest and environmental engineers, territorial and social analysts, spatial analysts in geoprocessing, and other related fields.

The management team of the Rio Madeira Grouped REDD+ Project comprises a wide range of staff and professionals, specifically the Forestry Team, involved in the technical REDD+ aspects of the project. Some of the technical skills required for the successful implementation of the project and specific activities of the collaborators who participated in the project during this period include:

Table 19. Key technical skills required by role

Roles	Required Technical Skills
Head of Forest	Supervision of the development, implementation, and monitoring of the high-level Forest REDD+ project, providing or sourcing technical assistance and support where necessary, to achieve project validation and certification and sale of carbon credits; Expertise in the planning, design, management, development and evaluation of REDD+ projects and carbon certification under Verra's Voluntary Carbon Standard (VCS) and Climate, Communities and Biodiversity Standards (CCBS); Relevant work experience in climate finance, voluntary carbon markets, carbon credit value chain or similar, and financial management of forest conservation projects; Experience in leading the REDD+ forestry technical team in a diverse portfolio of carbon projects in the Brazilian Amazon region; Knowledge of forest and/or landscape conservation issues, and related funding mechanisms and trends.

REDD+ Technical Coordinator	Technical expert on REDD+ and related methodologies, including Verra's Voluntary Carbon Standard (VCS) and Climate, Communities and Biodiversity Standards (CCBS), providing guidance on technical aspects of REDD+ programme design, implementation and monitoring, and follow-up to support capacity to develop and implement multiple projects simultaneously; Support the entire formulation of the project document (PD) and preparation of the due diligence response; Follow-up of external validation and verification bodies to project audit process; Lead the project field visit and audits processes.
REDD+ Technical Analyst	Experience in writing and developing full Project Document (PD) and Monitoring Report (MR), baselines, carbon accounting, leakage, additionality and risks of non-permanence, and managing the data essential for these calculations in various methodologies, including Avoided Unplanned Deforestation and Degradation, Avoided Planned Deforestation and Degradation, Afforestation, Reforestation and Revegetation based on VCS and CCB standards.
Socioenvironmental Coordination	Background experience in developing activities with social focus, stakeholder consultation and engagement for carbon projects, and analysis of drivers and causes of deforestation to establish project baseline; Ability to lead carbon projects involving multiple stakeholders across various sectors, geographies, and cultural backgrounds; Develop activities in conjunction with the community and monitoring and evaluation of biodiversity to formulate strategies and frameworks for REDD+ safeguards, including governance structures and monitoring systems; Provide technical guidance and support to define sustainable development impact accounting and assessment methodologies, including the establishment and monitoring of social and biodiversity co-benefit indicators in various AFOLU activities based on sustainable development objectives.
Socioenvironmental Analyst	Knowledge of social sciences and experience in approaching community engagement; communicating with stakeholders about opportunities to contribute to the collection and production of data and information on REDD+ activities; Experience in sustainable practices for local/rural development, conservation and management of biodiversity and ecosystem services, continuous monitoring of biodiversity indicators by service providers' specialists to ensure local species, their habitat, status, and protection; Experience in the application and development of socio-economic and territorial diagnostics; monitoring of socio-environmental indicators.

Biodiversity expert	The biodiversity specialist must have adequate academic training to guide the socio-environmental team on the best strategies for biodiversity monitoring methodologies, selection of monitoring indicators, identification of HCVs, mapping and risk mitigation. The specialist will also be responsible for selecting strategic partners to implement field activities related to biodiversity monitoring and must monitor the execution of activities and analyze the reports sent to ensure data quality.
GIS Coordinator	Coordinate outsourced GIS mapping tasks; develop and select baseline model; generate and analyze satellite land use monitoring information on carbon stocks from deforestation rates and greenhouse gas emissions produced or avoided during the project.
GIS Analyst	Capacity to manage the Geographical Information System and databases and to produce all necessary cartographic analyses; Spatial data analysis for REDD+ projects based on proven methodologies using ArcGIS, QGIS, R and Google Earth Engine. Conducting projections and modelling necessary for the calculation of carbon stocks in forests.
Command and Control Lead Executive	Management of the Integrated Carbon Command and Control Center (CI3C), production of risk analyses, monitoring of threats and vulnerabilities and actions aimed at protecting project areas. The CI3C team is also responsible for monitoring the project areas via satellite images (updated every 7 days) and informing the field team and owners in case of any incident.

In addition to the skills of the internal Forestry team, during this period, the project also engaged the services of *Ambiens Resolve Inovação Sustentabilidade e Meio Ambiente LTDA*⁸¹ for conducting a fauna inventory and a socio-environmental diagnostic survey. The company, based in São Paulo, SP, has been specializing in creating solutions for the viability of environmental ventures and projects since 1997. Some of the projects developed by the company have objectives such as: developing environmental education projects focused on licensing processes and environmental monitoring, environmental and business management with diverse audiences, sustainability projects for companies, preparation of socio-environmental diagnostics, fauna and flora inventories, environmental monitoring, environmental impact studies, waste management, management of environmental liabilities, investigation and remediation of contaminated areas, and wildlife exclusion plans, among other services.

2.4.2 Management Team Experience (VCS, 3.19; CCB, G4.2)

⁸¹ Website: <https://www.ambiens.com.br/>

The resumes of the Project Management Team (PMT) members, along with their respective positions and qualifications, are detailed below. These serve as proof of their expertise and experience in successfully implementing forest management and carbon projects at a scale comparable to this project.

Name	Marcelo Hector Sabbagh Haddad
Role in the project	Head of Future Forest
Education	Environmental engineer and master's in environmental technology from the Institute of Technological Research (IPT)
Resume Summary	Marcelo has been active in the carbon market and in the development of projects to reduce greenhouse gas emissions since 2008. Marcelo is the Head of Future Forest, where he manages the company's carbon credit projects and other activities related to forest carbon projects. Marcelo developed approximately 55 carbon credit projects and participated in the audit of more than 200 monitoring reports during his period as the technical officer for Sustainable Carbon and Ecológica Assessoria.

Name	Aline Ramos de Sousa
Role in the project	REDD+ Technical Analyst
Education	Bachelor in Environmental Engineering and M.Sc. in Science and Environmental Technology
Resume Summary	As a REDD+ project analyst, she has experience with voluntary market (VCM) carbon projects under the VCS and CCB standards. Prior to joining Future Carbon Group, she worked for more than eight years as an independent consultant for third sector organizations developing socio-environmental projects focusing on agriculture, climate change and sustainability. She has also published in national and international climate journals.

Name	Gabriel Fernandes de Toledo Piza
Role in the project	REDD+ Technical Coordinator
Education	Environmental Engineer with Specialization at University of São Paulo (USP), and a master's degree at the University of Cádiz (UCA, Spain)
Resume Summary	Coordination of the team of technical analysts in the development and revision of REDD+ project documents, as well as the alignment of technical and commercial concepts. Over ten years of experience in consulting, construction, manufacturing, and climate change. He is currently Forestry Project Leader at Future Carbon. Between developing and monitoring carbon credit projects,

	Gabriel has worked on approximately 30 different projects by Future Carbon, Sustainable Carbon and Ecológica Assessoria.
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Name	Igor Oliveira Ribeiro
Role in the project	GIS Coordinator
Education	Forestry Engineer from the Federal University of Espírito Santo, Master's and PhD in Climate and Environment (Geosciences) from the National Institute for Amazonian Research, with a sandwich period at the Harvard School of Engineering and Applied Science, focusing on remote sensing applied to the impacts of changes in land use and fires on the chemistry of the atmosphere in terms of biosphere-atmosphere interaction and climate impacts.
Resume Summary	Technical coordination in geoprocessing, remote sensing and spatial modelling of projects, including the team of internal technical analysts and external consultants. He has been working in the carbon market since 2019, providing consultancy services to companies to develop feasibility analyses for REDD+ projects. He has more than 10 years' experience in geotechnologies applied to land use change.

Name	Jade Cavallieri
Role in the project	GIS Analyst
Education	Bachelor's degree in Sciences and Humanities and in Territorial Planning from the Federal University of ABC.
Resume Summary	Carrying out technical activities in geoprocessing and remote sensing processes and methods for the production and interpretation of REDD+ project analyses. She has professional experience in geotechnologies, geoprocessing, remote sensing and cartographic production, particularly in the areas of agricultural crop monitoring, protected area monitoring and sustainability promotion.

Name	Mariana Urrestarazu de Freitas
Role in the project	Socio-environmental Analyst
Education	Bachelor's degree in sciences and Humanities and Bachelor's degree in Territorial Planning from the Federal University of ABC (UFABC).
Resume Summary	Support in the development of social diagnosis and socio-environmental monitoring. She has been working professionally on conservation, environmental justice and social development issues in the public and private sectors since 2019. She was awarded a CNPq scholarship in the area of Urban and Regional

	Planning (2019-2020) to study the impacts of mining activities in Protected Areas. She has been responsible for the development and implementation of projects to generate carbon credits and socio-environmental monitoring since 2021.
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Name	Mayara do Nascimento
Role in the project	REDD+ Technical Analyst
Education	Environmental and Sanitary Engineer, postgraduate in Environmental Licensing and Auditing
Resume Summary	Technical analyst for forestry projects. She works in technical development in the process of designing, implementing and monitoring forest conservation projects, where she carries out feasibility analyses of REDD+ projects for forest conservation.

Name	Yasmin Villa Nova Mascarenhas
Role in the project	Socio-environmental Analyst
Education	BA in Business Administration from São Judas Tadeu University.
Resume Summary	She has been working in the socio-environmental field since the beginning of 2023, carrying out visits and socio-environmental diagnoses in rural and vulnerable communities. In 2021, she worked in the third sector on environmental remediation and circular economy projects in contaminated areas, carrying out administrative activities, presenting workshops and seminars, mapping data, attracting investors, participating in and scripting a podcast on contaminated areas and possible sustainable solutions, as well as providing administrative support and assistance in dam failure projects. She has also had experience in the administrative and financial sector since August 2018, working with accounts payable and receivable, invoicing, purchasing, real estate, facilities and general administration.

2.4.3 Project Management Partnerships/Team Development (VCS, 3.19; CCB, G4.2)

While the Future Carbon Group has not entered partnerships for the development of the Rio Madeira Grouped REDD+ Project, the collaborative efforts showcased within the project structure emphasize its commitment to building and utilizing key partnerships where necessary.

As explained in the CCB PDD's Project Governance Structure section, the Forest Team plays a crucial role in coordinating daily activities crucial for the project's success. Not only does the team create and execute the PDD, but it also monitors the project's progress, providing necessary technical knowledge and support. Moreover, the Forest Team serves as the main contact for

building relationships with the project's landowners. This internal structure highlights the robust partnerships and organizational structure essential for maintaining a high-integrity carbon project.

In biodiversity monitoring and socio-environmental diagnosis, strategic collaborations have been forged with well-established organization such as AMBIENS. Drawing on their expertise in environmental studies, AMBIENS takes charge of preparing biodiversity diagnostics integrated to the Project Design Document and, as far as the socio-environmental part is concerned, carries out field diagnostics based on primary (through on-site interviews) and secondary data from the communities. This collaboration is facilitated through service contracts, demonstrating the project's ability to draw on external expertise when specialized skills are required.

Furthermore, the project proponent has established a notable collaboration with EMBRAPA for training nut collectors in "Good Practices for Brazil Nut Production." This collaboration not only enhances the project's social and educational aspects but also demonstrates a proactive approach to engaging and working with reputable organizations to improve the project's overall impact.

The Future Carbon Group's strategic collaborations with internal teams, environmental experts, and research institutions underscore a deliberate and effective approach to building the necessary alliances for the successful development and implementation of the Rio Madeira Grouped REDD+ Project.

No gaps or lack of relevant experience were identified in the previous CCB validation.

2.4.4 Financial Health of Implementing Organization(s) (CCB, G4.3)

The financial cash management for the Rio Madeira Grouped REDD+ Project is systematically addressed within a dedicated Socio-environmental Committee. The committee comprises members from the Project Proponent and landowners who collaboratively strategize the best way to manage of financial resources arising from credit sales. The aim is to ensure proper allocation for each project activity, promoting co-benefits and preventing leakage.

As indicated in the Non-Permanence Risk Report, the Rio Madeira Grouped REDD+ Project's cash flow breakeven point, in the worst-case scenario corresponds to 6 years based on the current risk assessment. However, positive Net Present Value (NPV) is anticipated in the subsequent years. To avoid non-permanence of the project activities, the project proponent, landowners and co-investors contribute funds upfront until breakeven is achieved. The contributions paid are based on the management agreement, projected action plan, and periodically reviewed annual budgets, providing the Project Management Team (PMT) with visibility into anticipated expenses, including those related to project execution.

Thus, this proactive approach ensures that project ownerships have the necessary funds to maintain project activities until breakeven, as presented in the Non-Permanence Risk Report. No new instances were added to the project during this monitoring period.

The documents detailing Future Carbon's financial health are confidential and will be shared exclusively with VVB during the verification process.

2.4.5 Avoidance of Corruption and Other Unethical Behavior (VCS, 3.19; CCB, G4.3)

Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which seeks to achieve a high level of integrity through a commitment to professionalism and transparency in its business and relationships.

The document establishes the guidelines and responsibilities for its managers, employees and service providers and internal and external relations to combat and encourage the denunciation of all forms of corruption, especially when its objective is the control of information, and also provides, as prohibited acts in the corporate environment, the maintenance of any involvement in irregular or corrupt practices, which ensures and strengthens the company's commitment to preventive practices and combat corruption and other similar illegalities established in the legislation in force (Lei Anticorrupção Brasileira (Lei 12.846/2013).

Regarding the measures adopted by other entities, since they have any kind of relationship with Future Carbon, they are responsible for knowing, accepting, respecting and disclosing the information in this Code of Conduct, as well as ensuring strict compliance with its provisions. In this way, before concluding any type of contract, the owner is obliged to accept the PP conditions relating to corrupt actions. In addition, an analysis of the conduct of business partners annually through labor and judicial certificates is carried out by legal team.

In addition, internationally, the countries of the Organization for Economic Cooperation and Development (OECD), among which is Brazil, in 2022 became an active key partner⁸², setting the terms of the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions⁸³ (also known as the "Anti-Bribery Convention"), which aims to ensure free competition untainted by corrupt practices. However, there are still major policy issues and challenges for Brazil to become an OECD member.

The other two main legal instruments adopted at the national level aimed at preventing acts of corruption and unethical attitudes are (i) Law No. 12,846/2013 (Anti-Corruption Law)⁸⁴ and (i) Law No. 8,429/1992 (Law on Administrative Misconduct)⁸⁵. Law No. 12,846/2013, known as the Anti-Corruption Law, establishes rules regarding the administrative liability and civil liability of legal entities in the case of the practice of acts against the public administration, national and/or foreign.

⁸² Implementing the OECD Anti-Bribery Convention in Brazil. Available at: <https://www.oecd.org/corruption/anti-bribery/brazil-phase-4-report.pdf>

⁸³ Convention on Combating Bribery of Foreign Public Officials in International Business Transactions. Available at: <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0293>

⁸⁴ LEI Nº 12.846, DE 1º DE AGOSTO DE 2013. Disponível em: https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2013/lei/l12846.htm.

⁸⁵ LEI Nº 8.429, DE 2 DE JUNHO DE 1992. Disponível em: https://www.planalto.gov.br/ccivil_03/Leis/l8429.htm.

According to Law 8,429/1992, administrative impropriety is an immorality qualified by the dishonesty and bad faith of the public agent. Both practices, in addition to the legal risks, could represent an enormous reputational risk for the project proponent and the project. Because of these risks, Future Carbon Legal Compliance aims to verify and, if possible, mitigate any involvement of the landowner (partner) in such practices.

2.4.6 Commercially Sensitive Information (VCS, 3.5.2-3.5.4; CCB Program Rules, 3.5.13 – 3.5.14)

For the Rio Madeira Grouped REDD+ Project, some relevant information required by the VCS and/or CCB Standards is considered commercially sensitive and will not be included in the public version of the monitoring report. Instead, the project proponent will exclusively share this information with the VVB audit team during the verification process. Below is a list of commercially sensitive documents that will be made available to the VVB:

- Financial Performance Worksheet (budget) and other related documents;
- Agreements and contracts signed between the parties involved;
- Legal status and property right documents⁸⁶; and
- Trade agreements.

2.5 Legal Status and Property Rights

2.5.1 National and Local Laws (VCS, 3.1, 3.6, 3.7, 3.14, 3.18, 3.19; CCB, G5.6)

The national and local laws and regulations of Brazil that have gone into effect, changed or was eliminated since the project's last verification that are relevant to the project activities are listed in the table below:

⁸⁶ Legal status and property right documents are not explicit because they would expose the owner's name. However, section 2.5.1 of the PD indicates the registry number of each of the properties that compose the PA.

Table 20. Table of National and Local Laws⁸⁷

Regulation Instrument	No	Date	Implementation Sphere	Topic	Summary Description	Compliance
Resolution	495 ⁸⁸	11-08-2020	Federal	Sustainable Forest Management Plans (SFMPs)	Amends Resolution 406 of February 2, 2009, which establishes technical parameters to be adopted in preparation, presentation, technical assessment and execution of a Sustainable Forest Management Plan (SFMP) for timber purposes, for native forests and their forms of succession in the biome Amazon.	The instances that performs SFMP (1 and 3) complies with all technical parameters required by legislation. The same could be verified through evidence shared with VVB. ⁸⁹
Decree	20.627 ⁹⁰	08-03-2016	Local	Environmental Regularization Program for Rural Properties	Provides for the Environmental Regularization Program for Rural Properties in the State of Rondônia and other measures	Instances 1 and 3 are undergoing regularization processes and, depending on the agency's response and if necessary, will join the PRA.

⁸⁷ More information are available in Appendix 2.

⁸⁸ Available at: <https://www.idam.am.gov.br/wp-content/uploads/2021/01/resol495-2020-altera-a-406-09.pdf>
⁸⁹ During the current monitoring period there were not SFMP activities

⁹⁰ Available at: <http://ditel.casacivil.ro.gov.br/cotel/Livros/Files/D20627.pdf>

Complementary Law	1.193 ⁹¹	22-06-2023	Local	Environmental Regularization Program for Rural Properties	Implements the Permanent Environmental Regularization Program - PRA, with the aim of promoting the environmental regularization of rural properties with environmental liabilities relating to Permanent Preservation Areas, Legal Reserves and Restricted Use Areas.	Regarding instance 1, despite having an APP area of 202ha on the property, it is important to note that this plot is not part of the Rio Madeira Project. In addition, for this liability, the owners have applied to join the Environmental Regularization Program under the Rural Environmental Registry and are awaiting an opinion on the technical analysis carried out by the environmental agency.
Law	4.406 ⁹²	28-12-2016	Local	Environmental Regularization Policy, provides for the Rural Environmental Registry - CAR, the Rural Environmental Registry System - SICAR-AM, the Environmental Regularization Program - PRA	Establishes the State Environmental Regularization Policy, provides for the Rural Environmental Registry - CAR, the Rural Environmental Registry System - SICAR-AM, the Environmental Regularization Program - PRA, in the State of Amazonas.	Instance 2 has its CARs regularized, without the need to join the PRA. For instance 1, despite having a liability of an APP area of 202ha on the property, it is important to note that this parcel is not part of the Madeira River Project. In addition, for this liability, the owners have applied to join the Environmental Regularization Program under the Rural Environmental Registry, and are awaiting an opinion on the technical analysis carried out by the environmental agency. In instance 3, the CARs listed as suspended are in the process of being regularized, awaiting the environmental agency's instructions on the next steps.

⁹¹ Available at: <http://ditel.casacivil.ro.gov.br/COTEL/Livros/Files/LC1193.pdf>

⁹² Available at: <https://www.idam.am.gov.br/wp-content/uploads/2021/01/Lei-Estadual-4406-16-CAR.pdf>

2.5.2 Relevant Laws and Regulations Related to Worker's Rights (VCS, 3.18, 3.19; CCB, G3.11)

The Rio Madeira Grouped REDD+ Project adheres meticulously to all applicable laws and regulations safeguarding workers' rights. This commitment encompasses compliance with Decrees, Service Orders, and Normative Instructions outlined by the Ministry of Social Security and the Ministry of Labour. Furthermore, the project upholds Brazil's adherence to international agreements, particularly those enshrined in the fundamental conventions of the International Labour Organization (ILO), ratified and respected by the country.

Workers of the Future Carbon Group (project proponent) are formally associated with the company through fixed-term contracts, aligning with the regulations stipulated in Federal Decree-Law No. 5.452 (1943)⁹³, commonly known as the Consolidation of Labor Laws (CLT). This comprehensive framework addresses various aspects, including prescribed hourly, daily, weekly, and monthly working hours, regulations for the employment of minors and women, the definition of a minimum wage, provisions for worker safety and a secure work environment, the imposition of penalties for employer non-compliance, and the establishment of a judicial process to address all issues related to workers.

In instances where the provision of services falls outside the scope of labor laws or fails to adhere to the criteria defining an employment relationship, agreements are consistently crafted in accordance with the stipulations outlined in Law No. 10.406/2002, also known as the Brazilian Civil Code, specifically in articles 593 to 609.

When hired by the Future Carbon Group, employees are thoroughly briefed on their rights, as part of the Code of Conduct and Compliance Guideline, in strict accordance with the legal framework for worker rights specified in the PDD at the Validation stage. Beyond these protocols, the project proponent adopts additional frameworks to demonstrate its commitment to complying with labor laws and ensuring employees are well-informed about their rights. These include:

Table 21. Activities, processes and/or frameworks implemented to inform workers about their rights

Framework	Description	Application
Manuals and Internal Policies	Internal manuals and policies are designed to provide a clear delineation of employee rights and responsibilities.	The code of conduct and compliance guideline are made available to all employees, ensuring straightforward access and comprehension.
Periodic Trainings	Regular training sessions are conducted	These training sessions, whether in-person, online, or a combination of both, cover internal policies,

⁹³ Reference: DECRETO-LEI Nº 5.452, DE 1º DE MAIO DE 1943. Available at: https://www.planalto.gov.br/ccivil_03/decreto-lei/del5452.htm.

	to keep employees abreast of changes in labor laws and reinforce fundamental concepts.	vacation protocols, and occupational safety measures.
Open Communication Channels	Effective communication channels are established to enable employees to address doubts and access information regarding their rights.	Electronic channels such as emails (gente@futurecarbon.com.br), intranet, or internal applications are used for regularly disseminating information about labor rights, legal updates, and news relevant to employees (https://contatoseguro.com.br/futurecarbon). Additionally, routine question-and-answer sessions are conducted, and suggestion boxes are made available for the human resources department.
Employee Feedback	Employees are regularly invited to provide feedback on the efficacy of communication and training practices related to labor rights.	Each employee is encouraged to participate annually in completing the "Satisfaction Survey", which aims to evaluate the organizational climate, identify areas for continuous improvement, and facilitate planning for the upcoming year.

For this monitoring period, the following labor laws and regulations continue in force:

Regulatory Framework	Description	Compliance
Constitution of the Federal Republic of Brazil (1988)⁹⁴	Establishes Chapter II – Social Rights, Articles 7-11, which addressed: i) minimum wage; (ii) normal working hours; (iii) guidance on vacation and weekly leave; (iv) guidance on maternity and paternity leave; (v) recognition of collective bargaining; (vi) prohibition of discrimination.	Formal employees of the three instances and Future Carbon, registered under the CLT employment system (Federal Law No. 13.467, cited below), are guaranteed the rights mentioned in Chapter II of the Federal Constitution.
Federal Decree-Law N° 5.452 (1943) – Consolidation of Working Laws (CLT)⁹⁵	Approves the Consolidation of Labor Laws. Gave more clarification on the following subjects: (i) hourly, daily, weekly, and monthly working hours; (ii) employment of minors and women; (iii) establishment of a minimum wage; (iv) worker safety and safe working environments; (v) definition of penalties for employer's non-compliance; (vi) establishment of a judicial work-related process for addressing all worker related issues.	Formal employees of the three instances and Future Carbon, registered under the CLT employment system (Federal Decree-Law No. 5.452 and Federal Law No. 13.467, cited below), are guaranteed the rights mentioned through the law.

⁹⁴ Available at: https://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm

⁹⁵ Available at: https://www.planalto.gov.br/ccivil_03/decreto-lei/lei5452.htm

Federal Law N° 5.889 (1973)⁹⁶	Establishes Regular Norms for Rural Workers. Prior to 1973, rural workers did not have the same rights as urban workers. Federal Law N° 5.889 established the equality between urban and rural workers, along with compensation overtime.	Farm employees who work in agricultural and livestock activities are covered by this law, which establishes rights and duties for rural workers.
Federal Law N° 6.514 (1977)⁹⁷	Provides for infractions and administrative sanctions to the environment, established the federal administrative process for the investigation of these infractions and make other provisions. Amendments to Chapter V of Title II of Consolidation of Labor Laws (CLT) on the matter of occupational safety, medicine, and other measures.	The employees of the 3 instances and Future Carbon have adequate working conditions regarding the health and safety of workers. This can be proven through the Prevention Programs adopted by the farms, such as the PGR. ⁹⁸
Federal Law n° 13.467 (2017)⁹⁹	Amends articles of Federal Decree-Law N° 5.452 (1943) - Consolidation of Working Laws (CLT) concerning working hours, holidays, compensatory time, overtime pay and wages.	Formal employees of the three instances and Future Carbon, registered under the CLT employment system are guaranteed the rights mentioned through the law.

2.5.3 Human Rights (VCS, 3.19)

The Rio Madeira Grouped REDD+ Project demonstrates its commitment to recognizing, respecting, and promoting the protection of the rights of Indigenous Peoples (IPs), Local Communities (LCs), and customary rights holders by adhering United Nations Declaration on the Rights of Indigenous Peoples and the International Labour Organization (ILO) Convention 169 on Indigenous and Tribal Peoples. This commitment includes ensuring their consultation and participation in decisions that affect, as well as adhering to key national human rights laws such as the Statute of the Indian.

Moreover, the project has established an effective mechanism for resolving conflicts and grievances that may arise between the project proponents and all stakeholders, including IPs, LCs, or customary rights holders. This mechanism is culturally appropriate, accessible, and responsive to the needs and concerns of these communities.

Table 22. Human Rights laws¹⁰⁰

Regulation	Description	Rio Madeira Project Compliance
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⁹⁶ Available at: https://www.planalto.gov.br/ccivil_03/leis/l5889.htm

⁹⁷ Available at: https://www.planalto.gov.br/ccivil_03/leis/l6514.htm

⁹⁸ Occupational Risk Management Program, which can also be named PGRTR or PPRA. Occupational programs were shared with VVB team.

⁹⁹ Available at: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2017/lei/l13467.htm

¹⁰⁰ More information are available in *Appendix 2*.

Law No. 6.001/ 1973.¹⁰¹	Commonly known as the Statute of the Indian (Estatuto do Índio), establishes the legal framework for the protection of the rights of indigenous peoples in Brazil. It recognizes the social organization, customs, languages, and traditions of indigenous communities, while also implementing measures to protect their cultural heritage and ensure their physical and moral integrity.	The project complies with the Statute of the Indian by recognizing and respecting the rights of indigenous peoples. This includes respecting their territorial rights, supporting the preservation and promotion of indigenous cultural practices, languages, and traditions. The project activities are designed to prevent cultural assimilation and safeguard the integrity of indigenous identities.
Constitution of the Federal Republic of Brazil - 1988¹⁰²	The Federal Constitution recognizes and protects the rights of indigenous peoples and quilombola communities, guaranteeing them territorial, cultural, social, and economic rights. It establishes that indigenous peoples are recognized for their social organization, customs, languages, beliefs, and traditions, as well as rights over the lands they traditionally occupy.	The project recognizes and respects the customary land tenure rights of IPs and LCs and ensures that they have secure and equitable access to and control over their lands, territories, and resources. This includes refraining from any activities that could lead to the displacement or dispossession of these communities from their lands.
Decree No. 6.040/2007¹⁰³	Establishes the National Policy for the Sustainable Development of Traditional Peoples and Communities, recognizing and guaranteeing their territorial, cultural, and environmental rights.	The project doesn't encroach upon or negatively impact indigenous lands, territories, and natural resources. It respects the demarcation and protection of indigenous territories established under Brazilian law.
Law No. 9.985/2000¹⁰⁴	Establishes the National System of Nature Conservation Units (SNUC)	☐ The project contributes to the conservation and sustainable management of

¹⁰¹ Available at: https://www.planalto.gov.br/ccivil_03/leis/l6001.htm
¹⁰² Available at: https://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm
¹⁰³ Available at: https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2007/decreto/d6040.htm
¹⁰⁴ Available at: https://www.planalto.gov.br/ccivil_03/leis/l9985.htm

	and sets guidelines for the creation, implementation, and management of conservation units. It recognizes and protects the rights of traditional communities, including quilombolas, riverside dwellers, artisanal fishermen, among others, ensuring their right to participate in decisions affecting their territories and ways of life.	natural resources in alignment with the traditional ecological knowledge and practices of indigenous communities. It is important to emphasize that the project is being developed entirely on privately-owned properties. Thus, if there are any plans to extend project activities beyond the project area boundaries, including traditional communities, indigenous territories, or government-owned lands, prior consent will be sought. Therefore, the obtaining Free, Prior, and Informed Consent (FPIC) is not deemed necessary, as the project does not impact property rights.
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In addition to these international conventions ratified by Brazil and national legislation, there are other regulations and decrees that also contribute to the protection of the rights of indigenous peoples and traditional communities, but these are the main ones. By adhering to this regulatory framework and practices, the Rio Madeira Grouped REDD+ Project can demonstrate its commitment to upholding the rights of IPs, LCs, and customary rights holders, and contribute to the achievement of sustainable development goals in line with international human rights standards and the interests of Indigenous Peoples (IPs) and Local Communities (LCs).

2.5.4 Indigenous Peoples and Cultural Heritage (VCS, 3.18, 3.19)

The Rio Madeira Grouped REDD+ Project demonstrates its commitment to preserving and protecting cultural heritage as part of project activities through various means:

- **Geospatial and Socioenvironmental Assessments:** Prior to implementing project activities, comprehensive socioenvironmental impact assessments are conducted as part of the due diligence process using geospatial mapping. These assessments help identify any potential risks or adverse impacts on cultural heritage sites or practices.
- **Adherence to Cancun Safeguards:** The project aligns with the Cancun Safeguards, which were established to ensure that REDD+ initiatives address sensitive issues effectively. These safeguards encompass aspects such as respecting the rights of indigenous peoples and traditional communities, promoting social participation, conserving natural ecosystems, ensuring the permanence of achieved REDD+ results, and mitigating the risk of deforestation displacement to other regions. The table above shows how the Rio Madeira Grouped REDD+ Project meets some of these safeguards guidelines.
- **Integration of Traditional Practices:** By integrating traditional land management practices and promoting sustainable utilization of natural resources, the project not only advances conservation objectives but also upholds cultural heritage. For instance, activities such

as agroforestry initiatives and training sessions on good Brazil nut management techniques, conducted in October and December 2023, demonstrate the project's commitment to preserving traditional practices.

2.5.5 Recognition of Property Rights (VCS, 3.7, 3.18, 3.19; CCB, G5.1)

Disputes over rights to territories and resources	N/A
Respect for property rights	The Rio Madeira Grouped REDD Project demonstrates a commitment to recognizing, respecting, and supporting all property rights, territories and resources within its project area and reference region, including the statutory and traditional rights of indigenous peoples, communities and other stakeholders, ensuring alignment with legal and regulatory requirements. Within the project area, all lands are privately owned, each holding full rights of ownership, access, and use. The entire chain of ownership, starting from the detachment of properties from the public domain to their acquisition by private individuals, along with subsequent acts of alienation and fragmentation, will be transparently provided for audit purposes. The grouped project comprises multiple legally titled parcels of land, all authorized by the National Institute of Colonization and Agrarian Reform (INCRA). Every property involved in the project possesses title deeds or equivalent documents to validate and secure their rights. In a proactive effort to anticipate and mitigate potential risks to property rights, Future Carbon's Compliance team conducted thorough due diligence analyses before the project's initiation and during project implementation. This was done to ensure the integrity of the property and the landowners, mitigating any possibility of property rights violations. As of the current monitoring period, there are no known disputes with third parties regarding land ownership, natural resource use, or property use. It is imperative to note that the project strictly adheres to ethical practices. It will never encroach on private property or relocate individuals without their explicit consent. In cases where ongoing or unresolved conflicts over property rights, usage, or resources exist, the project refrains from engaging in any activities that could worsen the conflict or influence the outcome of a dispute. No community member has been or will be displaced from their land. On the contrary, the project is committed to supporting communities through various programs and activities.

2.5.6 Benefit Sharing Mechanism (VCS, 3.18, 3.19)

Not applicable. Since the project has been developed in a private area, there are no issues related to customary rights in the project area. Also, there are no communities living within the project area and the Project Proponent's legal team hasn't identified any conflicts or disputes regarding property rights, real estate use, or access to natural resources in the project area. Therefore, benefit sharing is not applicable.

2.5.7 Free, Prior, and Informed Consent (VCS, 3.18, 3.19; CCB, G5.2)

The project is being developed on private properties. Therefore, it does not aim to undertake any activities on properties outside the project area, traditional communities, indigenous lands, or government-owned lands without consent. In this sense, Free, Prior, and Informed Consent (FPIC) does not need to be obtained since property rights are not affected by the project. During field visits for the Socio-environmental Diagnosis, presentations were conducted for nearby communities and mapped stakeholders about the project's objectives and impacts. These moments also provided space for discussion, perceptions, and understanding of these stakeholders regarding the project's goals. Stakeholder engagement is a practice that will be adopted and conducted throughout the project's lifespan, aiming to facilitate effective and participatory dialogue.

Consent	Not applicable
Outcome of FPIC	Not applicable

2.5.8 Property Right Protection (VCS, 3.18, 3.19; CCB, G5.3)

No instances of involuntary removal or relocation have occurred as a consequence of the project activities. The project remains committed to upholding the rights and well-being of local communities, recognizing the significance of their cultural practices and activities to their overall livelihood.

2.5.9 Identification of Illegal Activity (VCS, 3.19, CCB, G5.4)

In Rio Madeira Project context, there are some illegal activities that could affect the project's climate, community or biodiversity impact in the project zone, such as deforestation or animal poaching for example. During the monitoring period, the following measures were taken regarding these risks:

- Monitoring of project areas;
- Installation of prohibited hunting and fishing signs on property boundaries;
- Meetings on environmental education with the communities involved.

On 07-June-2023, at approximately 10 a.m., a farm employee heard noises coming from the property's forest area. After contacting other farm employees, the team went to the site where it was possible to verify the occurrence of wood grabbing. An illegal patio was identified with timber

logs, besides machinery and trucks for the illegal activity. According to the farm team, the illegal suspects left the site as they noted the farm team was approaching. After the incident, the landowner was able to identify the illegal loggers and amicably stopped the activity.

The wood grabbing event was officially registered at the police department by instance 3. In addition, the instance 3 landowner hired an Engineer for the specific purpose of identifying the damage and register the episode in a report, where it was possible to obtain details of the event.

Despite this negative event, it is possible to observe that the surveillance routine is obtaining the expected results, by identifying squatter within the property. Otherwise, the damage forest loss could be even greater. In addition, it is worth emphasizing this impact was not captured by the satellite images, what reinforces the integrity of the project by informing the VVB during the site visit.

In addition to the actions already in place, as a way to combat and control illegal activities, the project aims to adopt mitigation and prevention measures, as presented in section 2.1.8 of the CCB PD, Project Activities and Theory of Change:

- Increased local monitoring and patrolling, as well as implementing remote monitoring;
- Register a police report in cases of illegal actions in the project areas;
- Prevent illegal timber extraction and trade through intensified monitoring;
- Train communities on environmental education topics, sustainable use of non-timber forest resources, etc.;
- Promote technical training aimed at good agricultural practices associated with sustainable techniques;
- Promote training for income diversification.

Future Carbon's Compliance team is responsible for carrying out due diligence on all carbon credit and service projects. This analysis includes the evaluation of reputational, socio-environmental, labor and other relevant factors, with detailed reports and periodic updates. The analyses are carried out in order to ensure greater credibility and trust with stakeholders and full compliance with national and international regulations.

2.5.10 Ongoing Disputes (VCS, 3.18, 3.19; CCB, G5.5)

In the areas that compose the Rio Madeira Grouped REDD+ Project, there are no ongoing or unresolved conflicts, disputes, or legal issues regarding land rights, land use, or access to natural resources. There are also no disputes with third parties or squatters that challenge the right to property. Despite this, a single event was reported in 2023 as described at Section 2.5.9 above.

3 CLIMATE

3.1 Monitoring GHG Emission Reductions and Removals

3.1.1 Data and Parameters Available at Validation (VCS, 3.16)

Data / Parameter	CF
Data unit	tC/tdm
Description	Default value of carbon fraction in biomass
Source of data	SILVA, Jéssika Luane. Danos florestais e estimativa da redução no estoque de carbono em áreas de manejo florestal sob concessão pública: Floresta Nacional do Jamari. 2014. Dissertação (mestrado) - INPA, Manaus, 2014. Available at: < https://repositorio.inpa.gov.br/handle/1/5065 >. Last visit on 09/December/2022.
Value applied	0.48
Justification of choice of data or description of measurement methods and procedures applied	Adopted data can be considered consistent since such conversion factor was used by Silva (2014), which is the adopted reference for carbon stock for the Rio Madeira REDD+ Project. Moreover, this study was carried out in the State of Rondônia (southern Amazon), where properties are located. In addition, Silva (2014) is more recent when compared to IPCC (2003) or IPCC (2006). Furthermore, the National Forestry Service (SNIF) reinforces the adoption of 0.48 as conservative conversion factor since SNIF informs carbon represents 50% of biomass.
Purpose of data	This parameter is used to calculate the baseline, project and leakage emissions from deforestation occurred in the baseline and project scenarios. Provides an estimate of the carbon content of the vegetation biomass within the project reference region.
Comments	If new and more accurate carbon fraction data become available, these can be used to estimate the net anthropogenic GHG emission reduction of the subsequent fixed baseline period.

Data / Parameter	Ctotfcl
Data unit	tCO ₂ e/ha
Description	Average carbon stock per hectare in anthropic areas in equilibrium of post-deforestation class fcl in tCO ₂ e/ha

Source of data	The average classification of post-deforestation land-uses within the reference region during the historical reference period was conducted through MapBiomass. Average carbon stocks of pastureland, agriculture and other land uses – National GHG Emissions Communication of Brazil to the UNFCCC (2019) Page 296 - Available at: https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene/publicacoes/comunicacoes-nacionais-do-brasil-a-unfccc/arquivos/3tcn_volume_3.pdf Secondary Forest average carbon stocks - Pereira, Izaura Cristina Nunes. Estoque de biomassa e carbono florestal em unidades de paisagem na Amazônia: uma análise a partir da abordagem metodológica. Universidade Federal do Pará, , Belém, 2013. Available at: https://ppgdstu.propesp.ufpa.br/ARQUIVOS/teses/TESES/2013/IZAURA%20CRISTINA%20NUNES%20PEREIRA.pdf Belowground biomass – Root to shoot ratio available at VM0015. A weighted average of the post-deforestation carbon stocks was done, considering the % of area for each land use.						
Value applied		<table><tr><th>Ctotfcl +90% (within PA)</th><th>Ctotfcl +90% (within LB)</th></tr><tr><td>41.39</td><td>28.38</td></tr></table>	Ctotfcl +90% (within PA)	Ctotfcl +90% (within LB)	41.39	28.38	
Ctotfcl +90% (within PA)	Ctotfcl +90% (within LB)						
41.39	28.38						
Justification of choice of data or description of measurement methods and procedures applied	Most of post-deforestation land uses within the reference region is composed by pasturelands. In order to estimate the post-deforestation carbon stocks, the average carbon stocks of pasturelands, agriculture and other land uses were taken from the National GHG Emissions Communication of Brazil to the UNFCCC (2019). For secondary forests, a regional study was conducted. Most secondary forests in the Brazilian Amazon are young. In 2017, 65% of secondary forests was ≤10 years old. On average, 35% of annual land abandonment to secondary forests was re-cleared within 5 years, and 57% within 10 years. The half-life of secondary forests is 8 years, on average, which is also the same value found by other study that concludes that more than 50% of the secondary forests in the Amazon biome have less than 8 years old. According to the referenced study, conducted in the State of Pará, that analyzed the carbon stocks of a secondary forest with 14 years old, the average carbon stock in above ground biomass is around 19 tC/ha. Below ground biomass was estimated through the root-to-shoot ratio from the applied methodology. Therefore, the average value for secondary forests is around 22,8 tC/ha.						
Purpose of data	This parameter is used to calculate the baseline emissions from deforestation occurred in the baseline scenario. Provides an average of the post-deforestation carbon stock per hectare within the reference region.						

Comments	If new and more accurate biomass stock data become available, these can be used to estimate the net anthropogenic GHG emission reduction of the subsequent fixed baseline period. According to the adopted methodology, if uncertainty is higher than 10%, the lower boundary of the 90% confidence interval should be considered for final non-forest class in the leakage belt. In the other hand, the same error condition implies that the higher boundary of the 90% confidence interval should be considered for final non-forest class in the project area, as follows: Please see detailed calculation at CCB+VCS 3rd MR Spreadsheet Table 16p.
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Data / Parameter	DLF
Data unit	%
Description	Displacement Leakage Factor
Source of data	According to VCS requirements, where the applied methodology requires the quantification of activity-shifting leakage, projects may apply the optional default activity-shifting leakage deduction of 15 percent to the gross GHG emission reductions and/or removals.
Value applied	15
Justification of choice of data or description of measurement methods and procedures applied	The DLF was estimated as 15%, based on default value of the VCS requirements, where the applied methodology requires the quantification of activity-shifting leakage
Purpose of data	This parameter is used to calculate leakage emissions in the baseline scenario due to activity displacement leakage, providing an ex ante estimation of the decrease in carbon stocks and increase in GHG emissions. This value was calculated based on the percent of deforestation expected to be displaced outside the project boundary due to the implementation of the AUD project activity.
Comments	Ex post monitoring of the leakage belt will be done to determine deforestation rate outside the project area and the leakage emissions and carbon stock decrease.

Data / Parameter	Dm
Data unit	g/cm ³

Description	Mean wood density
Source of data	NOGUEIRA, E. M. Densidade de Madeira e Alometria de Árvores em Florestas do 'Arco do Desmatamento': Implicações para Biomassa e Emissão de Carbono a partir de Mudanças de Uso da Terra na Amazônia Brasileira (Wood Density and Tree Allometry in 'Arc of Deforestation' Forests: Implications for Biomass and Carbon Emissions from Land Use Change in the Brazilian Amazon). 2008. 151 pages. Doctor Thesis - Tropical Rainforest Science Course, INPA, Manaus, 2008. Information available at page 38, Table 2. Available at: < https://repositorio.inpa.gov.br/bitstream/1/4959/2/Euler_Nogueira.pdf >
Value applied	0.589
Justification of choice of data or description of measurement methods and procedures applied	The mean wood density presented in Nogueira (2008) was obtained from the Brazilian Amazon, where the project region is located. The value is for the Open Tropical Rainforest in the state of Rondônia. (Table 3 of the referred study).
Purpose of data	This parameter is used to calculate baseline, project and leakage emissions through the conversion from m ³ to tons for estimating above-ground biomass from local forest inventories.
Comments	Furthermore, it is also used to calculate project emissions from logging activities occurred in the project scenario due to sustainable forest management. Carbon stock decrease due to planned logging activities were calculated through multiplying the harvested volume by the mean wood density. Carbon stock increase due to natural regeneration after periodical harvest cycle can be calculated through multiplying the mean annual increment by the mean wood density.

Data / Parameter	$\Delta\text{CBSLLKt}$
Data unit	tCO ₂ e
Description	Annual carbon stock changes in leakage management areas in the baseline case at year t
Source of data	- Planned interventions proposed by the project proponent. Remote sensing and GIS.
Value applied	0

Justification of choice of data or description of measurement methods and procedures applied	Leakage prevention activities generating a decrease in carbon stocks should be estimated ex ante and accounted. The leakage prevention measures proposed by the present project do not include decrease in carbon stocks due to activities implemented in the leakage management area.
Purpose of data	This parameter was used to calculate leakage emissions in the baseline scenario due to leakage prevention measures implemented in the leakage management area. It provides an ex ante estimation of the decrease in carbon stocks due to the activities implemented.
Comments	<i>Ex post</i> monitoring of the leakage management area will be done to determine the carbon stock decrease and the leakage emissions. This parameter will be updated at each renewal of fixed baseline period.

Data / Parameter	EBBBSLPAt
Data unit	tCO ₂ e
Description	Sum of (or total) baseline non-CO ₂ emissions from forest fire at year t in the project area
Source of data	Remote sensing data and GIS, supervisor reports.
Value applied	16,081.61 (Annual average actual non-CO ₂ emissions due to biomass burning within the project area during the crediting period)
Justification of choice of data or description of measurement methods and procedures applied	Slash-and-burn deforestation to clear the area is carried out for subsistence agriculture, which is the main cause of deforestation within the project area. Therefore, baseline deforestation in the project area involves fire and all above ground biomass is burnt. Non-CO₂ emissions from biomass burning are calculated according to requirements of methodology VM0015 v1.1. In order to estimate non-CO₂ emissions from forest fires, the average percentage of the area which contemplates the three municipalities within the RR that was cleared by burning for other land uses involving deforestation, such as cattle raising and farming (Fburnt), and the average of biomass that has commercial value, and could be removed prior to clear cutting and burning (Pburnt,p) were estimated, either for the baseline and project case. Baseline deforestation in the project area involves fire and all above ground biomass is burnt to clear the area. Therefore, this parameter is estimated as the multiplication of the annual area of deforestation of initial forest classes in the project area in the baseline scenario (ABSLPAicl,t) times the total GHG emission from biomass burning in initial forest classes (EBBbtoticl,t).

Purpose of data	This parameter is used to calculate non-CO2 emissions due to forest fires within the project area in the baseline scenario, providing an ex-ante estimation.
Comments	Ex post monitoring of forest fires and non-CO2 emissions (EBBPSPAt) will be done to determine GHG emissions within the project area (when the forest fire was significant).

Data / Parameter	Fburntici
Data unit	%
Description	Proportion of forest area burned during the historical reference period in the forest class.
Source of data	<i>Fburnt</i> data source: 3ª Comunicação nacional do Brasil à convenção-quadro das Nações Unidas sobre Mudança do Clima (3rd national communication to UNFCCC) – volume 3, page 269, table 136 ¹⁰⁵
Value applied	45
Justification of choice of data or description of measurement methods and procedures applied	Official data from Brazilian Government. The data considers the combustion factor for the phytophysionomies “Florestas Ombrófilas Abertas”, which can be considered similar to Open Submontane Tropical Rainforest.
Purpose of data	This parameter is the average percentage of the area within the RR that was cleared by burning for other land uses involving deforestation, such as cattle raising and farming, and is used to calculate baseline and project non-CO2 emissions from forest fire at year t in the project area (parameter EBBBSLPAt).
Comments	Monitoring is done only once at project start.

Data / Parameter	Pburntici
Data unit	%
Description	Average proportion of mass burnt in the carbon pool in the forest class

¹⁰⁵ Available at <https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene/publicacoes/relatorios-de-referencia-setorial>

Source of data	Measured or estimated from literature. Pburnt data source: Anderson LO, Aragão LE, Gloor M, et al. Disentangling the contribution of multiple land covers to fire-mediated carbon emissions in Amazonia during the 2010 drought. <i>Global Biogeochem Cycles</i>. 2015; 29 (10):1739-1753. Doi: 10.1002/2014GB005008. Available at <https://agupubs.onlinelibrary.wiley.com/doi/10.1002/2014GB005008>.
Value applied	78
Justification of choice of data or description of measurement methods and procedures applied	Pburnt was estimated using the average biomass per hectare that has commercial value and could be removed prior to clear cutting and burning. Based on literature, an average value of 61.6 m³/ha was obtained, which would correspond to approximately 11% of the total biomass in 1 ha. In this way, the remaining is burned to clear the area, therefore, its new value is 88.6%. However, due to the lack of literature estimates, a study from the Brazilian Amazon in the Cerrado vegetation was used for the comparison. This study reported that the total biomass consumed by fires varies from 72% to 84% (average 78%) in denser Cerrado types, which is a forest vegetation. The most conservative value between these two estimates were used, i.e., Pburnt was estimated as 78%. It is important to note that slash and burn practices are commonly used in the Amazon region to clear the area for other land uses thus, when burning an area, the main objective is to completely remove all the remaining biomass. Therefore, assuming that 78% of the biomass is combusted, there would still be a 22% remaining biomass that shall be left to decompose, which also emits GHG to the atmosphere in this process.
Purpose of data	This parameter is the average of biomass that has commercial value, and could be removed prior to clear cutting and burning, and is used to calculate baseline and project non-CO ₂ emissions from forest fire at year t in the project area (parameter EBBBSLPAT).
Comments	Monitoring is done only once at project start.

Data / Parameter	EI
Data unit	%
Description	<i>Ex ante</i> estimated effectiveness index
Source of data	VCS Standard
Value applied	85

Justification of choice of data or description of measurement methods and procedures applied	Based on the VCS Standard, optional default activity shifting leakage deduction of 15% to the gross GHG emission reductions and/or removals. It was then applied to the ex-ante estimate of net carbon stock change in the project area under the project scenario. Based on the comparison between ex post and ex ante deforestation of similar REDD projects developed in Brazil, available in verified reports in VERRA database up to date.
Purpose of data	This parameter is used to calculate project emissions in the baseline scenario. Provides an ex ante estimation of the carbon stock changes due to unavoidable unplanned deforestation within the project area, based on the effectiveness of the proposed project activities to reduce the deforestation.
Comments	<i>Ex post</i> monitoring of the project area will be done to determine deforestation rate and the project emissions. This parameter will be updated at each renewal of fixed baseline period.

Data / Parameter	Logging damage factor (LDF)
Data unit	m ³ /m ³ of harvested timber
Description	The logging damage factor (LDF) is a representation of the quantity of emissions that will ultimately arise per unit of extracted timber (m ³). These emissions arise from the non-commercial portion of the felled trees (the branched and stump) and trees incidentally killed during felling.
Source of data	Feldpausch et al. When big trees fall: Damage and carbon export by reduced impact logging in southern Amazonia. Forest Ecology and Management 219 (2005) 199–215. Available at: < https://www.sciencedirect.com/science/article/abs/pii/S0378112705005232?via%3Dihub >
Value applied	2.0174
Justification of choice of data or description of measurement methods and procedures applied	This parameter is added to the harvested timber volume intensity in order to calculate carbon stock decrease from planned logging activities at each forest class. The emissions resulting directly from logging are calculated by estimating the emissions resulting from dead wood created in each logging gap measured divided by the volume of wood created, adding skidder trails damage. According to Feldpausch et al. (2005), Table 6 pag 209, the mean Coarse woody debris returned to the soil as necromass following logging and damage in: (1) tree felling gap formation (trees killed by tree-fall), (2) residual canopy from the felled tree, (3) road, (4) deck construction (whole trees plowed to the ground)

	and (5) skid maneuvering during logging, is about 6.9 Mg C/ha. According to section 4.3 (pg 212) from this same study, this represents 2.4 times the carbon taken off site in logs. However, the MR already takes into account as planned deforestation the roads and decks constructions, which represent around 16% of the total damage. Therefore, the LDF is $2.4 * (1-0,159) = 2.0174$.
Purpose of data	This parameter is used to calculate project emissions from logging activities occurred in the project scenario due to sustainable forest management, specifically for the calculation of the carbon stock decrease due to planned logging activities in the project area.
Comments	If no monitoring data is available, SFMP data shall be used.

3.1.2 Data and Parameters Monitored (VCS, 3.16)

Data / Parameter	abicl
Data unit	Mg/ha
Description	Average biomass stock per hectare in the above-ground biomass pool of initial forest class icl in Mg/ha.
Source of data	Average values for the above-ground biomass were taken from literature. The study was used as a source because it was based on data related to the carbon stock in forest management areas in the Jamari National Forest, located in Rondônia, where the project is mainly located. SILVA, Jéssika Luane. Danos florestais e estimativa da redução no estoque de carbono em áreas de manejo florestal sob concessão pública: Floresta Nacional do Jamari. 2014. Dissertação (mestrado) - INPA, Manaus, 2014. Available at: < https://repositorio.inpa.gov.br/handle/1/5065>
Description of measurement methods and procedures to be applied	According to the Study, the above-ground biomass of each individual was estimated using the equation proposed by Chave et al. (2005) (equation 2) and used by Mazzei et al. (2005) (equation 2, described below), and used by Mazzei et al. (2010), cited in this study. The equation uses DBH as an independent variable, which is easy to measure in the field and has a low sampling error (HIGUCHI et al., 1998) and takes into account the wood density value, an important variable for improving estimates of carbon stock loss from forest interventions (CHAVE et al., 2005; FEARNSIDE, 1997b; NOGUEIRA et al., 2007).
Frequency of monitoring/recording	Whenever current study should be replaced to meet methodology requirements.
Value monitored	Above-ground biomass

	<i>ab_{icl}</i> (Mg/ha)				
	ID _{icl}	Vegetation	Reference Region	Project Area	Leakage Belt
	1	Forest	294.16	294.16	294.16
Monitoring equipment	No monitoring equipment is used to determine this parameter.				
QA/QC procedures to be applied	Data shall be in accordance to VM0015 v1.1 requirements				
Purpose of the data	This parameter is used to calculate baseline emissions, project emissions and leakage emissions in both baseline and project scenarios.				
Calculation method	$AGB = \rho * \exp (-1,499 + 2,148 \ln(DAP) + 0,207 (\ln(DBH))^2 - 0,0281 (\ln(DAP))^3) (2)$ Where: AGB is above-ground woody biomass (kg), ρ is wood density (g.cm⁻³) and DBH is diameter at breast height (1.30 m). The wood density value (ρ) was obtained from published studies, such as those by Fearnside (1997b) and Nogueira et al. (2007). In order to compare and evaluate the percentages of forest biomass estimates, we consulted the list of studies carried out in the Brazilian Amazon systematized by Nogueira et al. (2008), specifically the study carried out by Cummings et al. (2002) in the Rondônia region. For the unidentified species, an average wood density value of 0.583 g.cm⁻³, estimated by Nogueira et al. (2007), was used.				
Comments	The values will be reassessed every 6 years or when data is more than 10 years old, whichever occurs first.				

Data / Parameter	bbicl
Data unit	Mg/ha
Description	Average biomass stock per hectare in the below-ground biomass pool of initial forest class icl in Mg/ha.
Source of data	The value applied to the above-ground biomass was taken from SILVA, Jéssika Luane. Danos florestais e estimativa da redução no estoque de carbono em áreas de manejo florestal sob concessão pública: Floresta Nacional do Jamari. 2014. Dissertação (mestrado) - INPA, Manaus, 2014. (Pg. 70, Table 9) , described above. Average values for the below-ground biomass were taken from the applied methodology VM0015 v1.1

Description of measurement methods and procedures to be applied	The methods and procedures to estimate the above-ground biomass are described at ab_{icl} parameter. Regarding the average values for below-ground biomass, the VM0015 methodology estimates a root-to-shoot ratio of 0.24 for tropical rainforest having above ground biomass values above 125 tons/ha, and 0.20 for values below 125 tons/ha. (Pg. 140, Table 2). ¹⁰⁶				
Frequency of monitoring/recording	At each monitoring report.				
Value monitored		Below-ground biomass			
		ab_{icl} (Mg/ha)			
	ID _{icl}	Vegetation	Reference Region	Project Area	Leakage Belt
	1	Forest	70.60	70.60	70.60
Monitoring equipment	No monitoring equipment is used to determine this parameter.				
QA/QC procedures to be applied	Data shall be in accordance to VM0015 v1.1 requirements				
Purpose of the data	This parameter is used to calculate baseline, project and leakage emissions in the baseline and project scenarios.				
Calculation method	To calculate the average biomass stock per hectare in the below-ground biomass, the root-to-shoot ratio of 0.24 for tropical rainforest was applied in relation to the above-ground biomass, since the value is above 125 tons/ha.				
Comments	The values will be reassessed every 6 years or when data is more than 10 years old, whichever occurs first.				

Data / Parameter	ACPA _t
Data unit	m/s
Description	Annual area within the Project Area affected by catastrophic events at year t.
Source of data	- INMET¹⁰⁷ - INPE¹⁰⁸ - NHC¹⁰⁹

¹⁰⁶ Available at: < <https://verra.org/wp-content/uploads/2023/11/VM0015-Methodology-for-Avoided-Unplanned-Deforestation-v1.1.pdf> >

¹⁰⁷ INMET. Instituto Nacional de Meteorologia. Available at: < <https://mapas.inmet.gov.br> >.

¹⁰⁸ INPE. Instituto Nacional de Pesquisas Espaciais. Available at: < <https://previsaonumerica.cptec.inpe.br/> >.

¹⁰⁹ NHC. National Hurricane Center and Central Pacific Hurricane Center. Available at: < <https://www.nhc.noaa.gov/aboutsshws.php> >.

Description of measurement methods and procedures to be applied	As this is secondary data, the measurement methods are available on the institutions' websites. ¹¹⁰¹¹¹¹¹²
Frequency of monitoring/recording	At each time a catastrophic event occurs or each monitoring report.
Value monitored	The value is calculated ex-post at each time a catastrophic event occurs, when significant. During the present monitoring period, there were no catastrophic events.
Monitoring equipment	No monitoring equipment is used to determine this parameter.
QA/QC procedures to be applied	• INPE (National Institute for Space Research) is a Brazilian federal institute dedicated to space research and exploration, as well as being a Research Unit of the Ministry of Science, Technology and Innovations (MCTI). As an internationally renowned body, it follows strict standards and procedures and makes its data and results publicly available in a transparent manner. • INMET (National Institute of Meteorology) is the federal agency responsible for weather and climate measurements in Brazil. INMET represents Brazil at the World Meteorological Organization (WMO) and can be considered a reliable institution for a number of reasons, such as being linked to the Ministry of Agriculture, Livestock and Supply (MAPA) and having its work recognized and regulated by the federal government, which reinforces its credibility and importance in the national meteorology system. • Finally, the National Hurricane Center is the division of the United States' NOAA/National Weather Service responsible for tracking and predicting tropical weather systems in some places. In addition to being made up of a team of experts on the subject, the NHC uses cutting-edge technologies to forecast natural phenomena and is recognized throughout the world. Given the credibility and knowledge of these bodies, it can be said that a QA/QC was applied to the generation of the data used in this parameter.
Purpose of the data	This parameter is used to calculate project emissions in the project scenario. Provides an ex post estimation of the area affected by catastrophic events within the project area.

¹¹⁰ Available at: < <http://lim.cptec.inpe.br/> >

¹¹¹ Available at: <https://www.cemtec.ms.gov.br/wp-content/uploads/2019/02/Nota_Tecnica-Rede_estacoes_INMET.pdf>

¹¹² Available at: <<https://www.nhc.noaa.gov/aboutsshws.php>>

Calculation method	Research was carried out on the websites of the local authorities mentioned above to verify that there had been no catastrophic events during the monitored period. To this end, was considered the types of damage listed on the National Hurricane Center website, where Sustained Winds must be between 209-251 km/h to be characterized as a catastrophic event. For the Lábrea weather station (this was chosen because it is the closest station to the project region and offers complete data for the monitored period), the wind speed did not exceed 8.3 m/s and the wind gust did not exceed 9.9 m/s.
Comments	Decreases in carbon stocks and increases in GHG emissions (e.g. in case of forest fires) due to natural disturbances (such as hurricanes, earthquakes, volcanic eruptions, tsunamis, flooding, drought, fires, tornados or winter storms) or man-made events, including those over which the project proponent has no control (such as acts of terrorism or war), are subject to monitoring and must be accounted under the project scenario, when significant.

Data / Parameter	ABSLLKt
Data unit	Ha
Description	Annual area of deforestation within the leakage belt at year t.
Source of data	- Monitoring data for the previous year (2022) - MapBiomas Land Use and Land Cover Maps (Collection 9)¹¹³. - Sentinel 2A images acquired from Google Earth Engine platform.
Description of measurement methods and procedures to be applied	Land use and cover maps from MapBiomas were utilized to generate cumulative deforestation data for both the historical reference period and the monitored years. The cumulative deforestation maps were produced using a post-classification comparison method, which involves analyzing changes in pixel classifications between consecutive years. Quality assurance was implemented through accuracy analysis. For a comprehensive understanding of the methods and processes employed, please refer to section 3.1.3, titled "MapBiomas methodology for analyzing land use land cover change".
Frequency of monitoring/recording	Annually
Value monitored	The table below shows the deforestation within the leakage belt during the monitored period.

¹¹³ MapBiomas Project - Collection 9 of the Annual Land Use Land Cover Maps of Brazil. Available at: <https://brasil.mapbiomas.org/en/colecoes-mapbiomas/>.

		Rio Madeira Grouped REDD+ Project	ABSLK _t (ha) in 2023	
		Total	513.67	
Monitoring equipment	Remote sensing and GIS analysis tools such as QGIS, ArcGIS and Python. The monitoring process is detailed in section 3.1.3.			
QA/QC procedures to be applied	The imagery data used on MapBiomass LULC maps is subjected to pre-processing, including geometric correction (to ensure correct pixel location), radiometric correction (to adjust digital numbers and remove atmospheric effects), and cloud filtering (to remove cloud-covered areas). After processing, a confusion matrix accuracy analysis was conducted, as detailed in Section 3.1.3, to assess classification accuracy.			
Purpose of the data	This parameter is utilized to monitor the project since it provides ex post values of the deforested area within the leakage belts.			
Calculation method	The deforestation calculation method is based on post-classification change detection. Pixels classified as forest at the end of the previous monitoring period (2022) and reclassified to another class in the current period (2023) are identified as deforestation in the monitored year. The annual difference constitutes the deforestation data, which is then input into the ER sheet.			
Comments	N/A			

Data / Parameter	ABSLPA _t
Data unit	Ha
Description	Annual area of deforestation within the Project Area at year t.
Source of data	- Monitoring data for the previous year (2022) - MapBiomass Land Use and Land Cover Maps (Collection 9)¹¹⁴. - Sentinel 2A images acquired from Google Earth Engine platform.

¹¹⁴ MapBiomass Project - Collection 9 of the Annual Land Use Land Cover Maps of Brazil. Available at: <https://brasil.mapbiomas.org/en/colecoes-mapbiomas/>.

Description of measurement methods and procedures to be applied	Land use and cover maps from MapBiomass were utilized to generate cumulative deforestation data for both the historical reference period and the monitored years. The cumulative maps were produced using a post-classification comparison method, which involves analyzing changes in pixel classifications between consecutive years. Quality assurance was implemented through accuracy analysis. For a comprehensive understanding of the methods and processes employed, please refer to section 3.1.3, titled "MapBiomass methodology for analyzing land use land cover change".										
Frequency of monitoring/recording	Annually										
Value monitored	The table below shows the deforestation within the project area during the monitored period. <table> <tr> <th>Instance</th><th>ABSLPAt (ha) in 2023</th></tr> <tr> <td>Grupo Rovema (Instance 1)</td><td>31.92</td></tr> <tr> <td>Grupo Leite (Instance 2)</td><td>13.06</td></tr> <tr> <td>Grupo Tupa (Instance 3)</td><td>4.48</td></tr> <tr> <td>Total</td><td>49.46</td></tr> </table>	Instance	ABSLPAt (ha) in 2023	Grupo Rovema (Instance 1)	31.92	Grupo Leite (Instance 2)	13.06	Grupo Tupa (Instance 3)	4.48	Total	49.46
Instance	ABSLPAt (ha) in 2023										
Grupo Rovema (Instance 1)	31.92										
Grupo Leite (Instance 2)	13.06										
Grupo Tupa (Instance 3)	4.48										
Total	49.46										
Monitoring equipment	Remote sensing and GIS analysis tools such as QGIS, ArcGIS and Python. The monitoring process is detailed in section 3.1.3.										
QA/QC procedures to be applied	The imagery data used on MapBiomass LULC maps is subjected to pre-processing, including geometric correction (to ensure correct pixel location), radiometric correction (to adjust digital numbers and remove atmospheric effects), and cloud filtering (to remove cloud-covered areas). After processing, a confusion matrix accuracy analysis was conducted, as detailed in Section 3.1.3, to assess classification accuracy.										
Purpose of the data	This parameter is utilized to monitor the project since it provides ex post values of the deforested area within the project area.										
Calculation method	The deforestation calculation method is based on post-classification change detection. Pixels classified as forest at the end of the previous monitoring period (2022) and reclassified to another class in the current period (2023) are identified as deforestation in the monitored year. The annual difference constitutes the deforestation data, which is then input into the ER sheet.										
Comments	N/A										

Data / Parameter	ABSLRR _t				
Data unit	Ha				
Description	Annual area of deforestation within the Reference Region at year t.				
Source of data	- Monitoring data for the previous year (2022) - MapBiomas Land Use and Land Cover Maps (Collection 9)¹¹⁵.				
Description of measurement methods and procedures to be applied	Land use and cover maps from MapBiomas were utilized to generate cumulative deforestation data for both the historical reference period and the monitored years. The cumulative deforestation maps were produced using a post-classification comparison method, which involves analyzing changes in pixel classifications between consecutive years. For a comprehensive understanding of the methods and processes employed, please refer to section 4.4, titled "MapBiomas methodology for analyzing land use land cover change".				
Frequency of monitoring/recording	Annually				
Value monitored	The table below shows the deforestation within the reference region during the monitored period. <table> <tr> <th>Rio Madeira Grouped REDD+ Project</th><th>ABSLRR_t (ha) in 2023</th></tr> <tr> <td>Deforestation</td><td>11,021.22</td></tr> </table>	Rio Madeira Grouped REDD+ Project	ABSLRR _t (ha) in 2023	Deforestation	11,021.22
Rio Madeira Grouped REDD+ Project	ABSLRR _t (ha) in 2023				
Deforestation	11,021.22				
Monitoring equipment	Remote sensing and GIS analysis tools such as QGIS, ArcGIS, and Python. The monitoring process is detailed in section 3.1.3				
QA/QC procedures to be applied	The imagery data used on MapBiomas LULC maps is subjected to pre-processing, including geometric correction (to ensure correct pixel location), radiometric correction (to adjust digital numbers and remove atmospheric effects), and cloud filtering (to remove cloud-covered areas). After processing, a confusion matrix accuracy analysis was conducted, as detailed in Section 3.1.3, to assess classification accuracy.				
Purpose of the data	This parameter is utilized to monitor the project since it provides ex post values of the deforested area within the reference region.				
Calculation method	The deforestation calculation method is based on post-classification change detection. Land use/land cover (LULC) maps are generated for				

¹¹⁵ MapBiomas Project - Collection 9 of the Annual Land Use Land Cover Maps of Brazil. Available at: <https://brasil.mapbiomas.org/en/colecoes-mapbiomas/>.

	both the previous (2022) and current (2023) monitoring periods. Pixels classified as forest at the end of the previous period and reclassified to another class in the current period are identified as deforestation in the monitored year. The annual difference in LULC map pixel classes constitutes the deforestation data, which is then input into the ER sheet.
Comments	N/A

Data / Parameter	APDPA _{icl,t}										
Data unit	Ha										
Description	Areas of planned deforestation in forest class <i>icl</i> at year <i>t</i> in the project area										
Source of data	- Annual operational plan; - Annual post-harvesting report;										
Description of measurement methods and procedures to be applied	The planned deforestation activities in the project area that result in carbon stock decrease will be subject to monitoring. The forest management team records such information according to procedures established in its sustainable forest management plan.										
Frequency of monitoring/recording	Annually										
Value monitored	The table below shows the annual average planned deforestation expected to occur within the project area for each instance during the monitoring period. <table> <tr> <th>Instance</th><th>APDPA_{icl,t} (ha) in 2023</th></tr> <tr> <td>Grupo Rovema (Instance 1)</td><td>0.00</td></tr> <tr> <td>Grupo Leite (Instance 2)</td><td>0.00</td></tr> <tr> <td>Grupo Tupa (Instance 3)</td><td>0.00</td></tr> <tr> <td>Total</td><td>0.00</td></tr> </table>	Instance	APDPA _{icl,t} (ha) in 2023	Grupo Rovema (Instance 1)	0.00	Grupo Leite (Instance 2)	0.00	Grupo Tupa (Instance 3)	0.00	Total	0.00
Instance	APDPA _{icl,t} (ha) in 2023										
Grupo Rovema (Instance 1)	0.00										
Grupo Leite (Instance 2)	0.00										
Grupo Tupa (Instance 3)	0.00										
Total	0.00										
Monitoring equipment	No monitoring equipment is used to monitor this parameter, since the source is the Annual Operational Plan or Annual Post-Harvesting report.										
QA/QC procedures to be applied	The pre and post-exploration reports can be considered a reliable source of data, as they comply with the legislation required to implement a Sustainable Forest Management Plan. In addition, these reports are prepared by responsible technicians.										

Purpose of the data	This parameter will be used to calculate project emissions in the project scenario. Provides the ex post value of the decrease in carbon stocks due to planned deforestation in the project area.
Calculation method	Emissions from deforestation at each forest class are quantified by multiplying the detected area of forest loss by the average forest carbon stock per unit area. For an ex ante estimation, it was considered that 1.50% of each annual production unit will be deforested for the implementation of SFMP infrastructure.
Comments	Planned deforestation mainly includes implementation of the forest management infrastructure, such as opening of main and secondary roads, skidding trails, and timber yards in each annual production unit within the project area.

Data / Parameter	APLPA _{icl,t}										
Data unit	Ha										
Description	Areas of logging activities at year t in the project area										
Source of data	- Annual operational plan; - Annual post-harvesting report; - Logging permit										
Description of measurement methods and procedures to be applied	The logging activities in the project area that resulted in carbon stock increase or decrease shall be subjected to monitoring, when significant.										
Frequency of monitoring/recording	Annually										
Value monitored	The table below shows the logging areas within the project area during the monitoring period. <table> <tr> <th>Instance</th><th>APLPA_{icl,t} (ha) in 2023</th></tr> <tr> <td>Grupo Rovema (Instance 1)</td><td>0.00</td></tr> <tr> <td>Grupo Leite (Instance 2)</td><td>0.00</td></tr> <tr> <td>Grupo Tupa (Instance 3)</td><td>0.00</td></tr> <tr> <td>Total</td><td>0.00</td></tr> </table>	Instance	APLPA _{icl,t} (ha) in 2023	Grupo Rovema (Instance 1)	0.00	Grupo Leite (Instance 2)	0.00	Grupo Tupa (Instance 3)	0.00	Total	0.00
Instance	APLPA _{icl,t} (ha) in 2023										
Grupo Rovema (Instance 1)	0.00										
Grupo Leite (Instance 2)	0.00										
Grupo Tupa (Instance 3)	0.00										
Total	0.00										

Monitoring equipment	Forest Management files, based on the Sustainable Forest Management Plan, AUTEX (logging permit), DOFs (Forest Origin Document)
QA/QC procedures to be applied	In addition to the procedures established in the Forest Management Plans in force, such as measuring and choosing the trees to be logged based on a forest inventory and criteria that comply with the law, the plans have the appropriate license to carry them out. The AUTEX is a document issued by the responsible environmental agency, in which the applicant must meet various criteria and procedures until the document is in force.
Purpose of the data	This parameter is used to calculate project emissions in the project scenario. Provides the ex post value of the increase or decrease in carbon stocks due to planned logging activities in the project area.
Calculation method	Carbon stock decrease from planned logging activities at each forest class are quantified by multiplying the detected area subject to logging by the harvested timber volume intensity, and then by the mean wood density ¹¹⁶ . Carbon stock increase from planned logging activities at each forest class are quantified by multiplying the detected area subject to logging by the mean annual increment due to natural regeneration of managed forests, and then by the mean wood density. ¹¹⁷
Comments	The SFMP net area is obtained from the logging permit (AUTEX). Moreover, if the same logging area has been partially exploited in previous years, it was utilized linear proportion rule to define the logged area during the monitored period. Please see MR spreadsheet to check details.

Data / Parameter	AUDPA _{icl,t}
Data unit	Ha
Description	Areas of unplanned deforestation in forest class icl at year t in the project area
Source of data	- MapBiomass Land Use and Land Cover Maps (Collection 9)¹¹⁸. - Sentinel 2A images acquired from Google Earth Engine platform.

¹¹⁶ The reduction in stock per hectare is evidenced in the post-management report and DOF's (mandatory license for the transport and storage of forest products of native origin).

¹¹⁷ CONAMA (National Environmental Council) resolution, nº 406 from February 02, 2009, provides for technical parameters to be adopted in forest management areas. Available at: <
https://www.mprs.mp.br/media/areas/gapp/arquivos/resolucao_conama_n_406_09.pdf>. Last visited on July 21, 2023.

¹¹⁸ MapBiomass Project - Collection 9 of the Annual Land Use Land Cover Maps of Brazil. Available at:
<https://brasil.mapbiomas.org/en/colecoes-mapbiomas/>>.

Description of measurement methods and procedures to be applied	Land use and cover maps from MapBiomas were utilized to generate cumulative deforestation data for both the historical reference period and the monitored years. The cumulative deforestation maps were produced using a post-classification comparison method, which involves analyzing changes in pixel classifications between consecutive years. Quality assurance was implemented through accuracy analysis. For a comprehensive understanding of the methods and processes employed, please refer to section 3.1.3, titled "MapBiomas methodology for analyzing land use land cover change".										
Frequency of monitoring/recording	Annually										
Value monitored	The table below shows the unplanned deforestation occurred within the project area during the monitoring period <table> <tr> <th>Instance</th><th>AUDPA_{def,t} (ha) in 2023</th></tr> <tr> <td>Grupo Rovema (Instance 1)</td><td>31.92</td></tr> <tr> <td>Grupo Leite (Instance 2)</td><td>13.06</td></tr> <tr> <td>Grupo Tupa (Instance 3)</td><td>4.48</td></tr> <tr> <td>Total</td><td>49.46</td></tr> </table>	Instance	AUDPA _{def,t} (ha) in 2023	Grupo Rovema (Instance 1)	31.92	Grupo Leite (Instance 2)	13.06	Grupo Tupa (Instance 3)	4.48	Total	49.46
Instance	AUDPA _{def,t} (ha) in 2023										
Grupo Rovema (Instance 1)	31.92										
Grupo Leite (Instance 2)	13.06										
Grupo Tupa (Instance 3)	4.48										
Total	49.46										
Monitoring equipment	Remote sensing and GIS analysis tools such as QGIS, ArcGIS, and Python. The monitoring process is detailed in section 3.1.3.										
QA/QC procedures to be applied	The imagery data used on MapBiomas LULC maps is subjected to pre-processing, including geometric correction (to ensure correct pixel location), radiometric correction (to adjust digital numbers and remove atmospheric effects), and cloud filtering (to remove cloud-covered areas). After processing, a confusion matrix accuracy analysis was conducted, as detailed in Section 3.1.3, to assess classification accuracy.										
Purpose of the data	This parameter will be used to calculate project emissions in the project scenario. Provides the ex post value of the decrease in carbon stocks due to unplanned deforestation in the project area.										
Calculation method	The deforestation calculation method is based on post-classification change detection. Pixels classified as forest at the end of the previous monitoring period (2022) and reclassified to another class in the current period (2023) are identified as deforestation in the monitored year. The annual difference constitutes the deforestation data, which is then input into the ER sheet.										
Comments	N/A										

Data / Parameter	$\Delta CADLK_t$						
Data unit	tCO ₂ e						
Description	Total decrease in carbon stocks due to displaced deforestation at year t						
Source of data	ABSLLK _t						
Description of measurement methods and procedures to be applied	Besides monitoring the parameter ABSLLK_t, it was also considered the comparison between the total ex-ante and ex-post net actual carbon stock change (parameter $\Delta CBSLLK_t$), as detailed in ER sheet, tab 21d_ex post. In summary, if ex-ante carbon stock change is greater than ex-post carbon stock change, then $\Delta CBSLLK_t$ is zero. Otherwise, the difference between ex-post and ex-ante is considered the total ex-post leakage. $\Delta CADLK_t$ also considers the carbon stock per hectare (parameters ab_{icl} and ab_{icl}). All the above-mentioned parameters and its dependencies can be observed at ER sheet.						
Frequency of monitoring/recording	Annually						
Value monitored		<table><tr><th>Project year t</th><th>$\Delta CADLK_t$ (tCO₂e)</th></tr><tr><td>2023</td><td>0.00</td></tr></table>	Project year t	$\Delta CADLK_t$ (tCO ₂ e)	2023	0.00	
Project year t	$\Delta CADLK_t$ (tCO ₂ e)						
2023	0.00						
Monitoring equipment	Since $\Delta CADLK_t$ data is related to deforestation data within leakage belt and carbon stock per hectare, please see related parameters Tables.						
QA/QC procedures to be applied	Since $\Delta CADLK_t$ data is related to deforestation data within leakage belt and carbon stock per hectare, please see related parameters Tables.						
Purpose of the data	This parameter will be used to calculate leakage emissions in the project scenario. Provides the ex post value of the decrease in carbon stocks due to displaced deforestation in the leakage belt.						
Calculation method	Ex-post deforestation within leakage belt was calculates using GIS method (please see ABSLLK _t parameter table) and then subtracted from ex-ante deforestation at the same limit and period. Since ex-post data was greater, the difference between baseline and actual deforestation at baseline was multiplied by carbon stock per hectare parameters.						
Comments	N/A						

Data / Parameter	$\Delta CPA dPat$
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Data unit	tCO ₂ e				
Description	Total decrease in carbon stock due to all planned activities at year t in the project area				
Source of data	- SFMP plans - Post-harvesting SFMP report and DOFs (Forestry Origin Documents)				
Description of measurement methods and procedures to be applied	The planned activities in the project area that result in carbon stock decrease was monitored by SFMP records, which are available at ER sheet (Tables 25a and 25b).				
Frequency of monitoring/recording	Annually				
Value monitored	<table> <tr> <th>Project year t</th><th>ΔCPAdPat (tCO₂e)</th></tr> <tr> <td>2023</td><td>0.00</td></tr> </table>	Project year t	ΔCPAdPat (tCO ₂ e)	2023	0.00
Project year t	ΔCPAdPat (tCO ₂ e)				
2023	0.00				
Monitoring equipment	Since ΔCPAdPat data is related to areas of logging activities at year t in the project area, please see related parameters Tables.				
QA/QC procedures to be applied	Internal procedures required by the SFMP process: SFMP plans, post-exploitation records and DOFs. Such records comply legal requirements for SFM activities.				
Purpose of the data	This parameter is used to calculate project emissions in the project scenario. Provides the ex post value of the decrease in carbon stocks due to planned activities in the project area.				
Calculation method	This parameter is obtained by summing emissions from logging structure (roads and decks), and logging exploitation, as available at ER sheet, Table 25d.				
Comments	N/A				

Data / Parameter	ΔCPSLKt
Data unit	tCO ₂ e
Description	Total annual carbon stock change in leakage management areas in the project case at year t

Source of data	MapBiomass Land Use and Land Cover Maps (Collection 9) ¹¹⁹ .		
Description of measurement methods and procedures to be applied	Land use and cover maps from MapBiomass were utilized the monitoring period. The cumulative deforestation maps were produced using a post-classification comparison method, which involves analyzing changes in pixel classifications between consecutive years. For a comprehensive understanding of the methods and processes employed, please refer to section 3.1.3, titled "MapBiomass methodology for analyzing land use land cover change".		
Frequency of monitoring/recording	Annually		
Value monitored		Project year t	ΔCPSLkt (tCO₂e)
		2023	0.00
Monitoring equipment	Remote sensing and GIS analysis tools such as QGIS, ArcGIS, and Python. The monitoring process is detailed in section 3.1.3.		
QA/QC procedures to be applied	The imagery data used on MapBiomass LULC maps is subjected to pre-processing, including geometric correction (to ensure correct pixel location), radiometric correction (to adjust digital numbers and remove atmospheric effects), and cloud filtering (to remove cloud-covered areas).		
Purpose of the data	This parameter will be used to calculate leakage emissions in the project scenario. Provides the ex post value of the change in carbon stocks due to leakage prevention measures in the leakage management area.		
Calculation method	The deforestation calculation method is based on post-classification change detection. Land use/land cover (LULC) maps are generated for both the previous (2022) and current (2023) monitoring periods. Pixels classified as forest at the end of the previous period and reclassified to another class in the current period are identified as deforestation in the monitored year. The annual difference in LULC map pixel classes constitutes the deforestation data, which is then input into the ER sheet.		
Comments	The leakage prevention measures proposed by the present project do not include decrease in carbon stocks due to activities implemented in the leakage management area.		

¹¹⁹ MapBiomass Project - Collection 9 of the Annual Land Use Land Cover Maps of Brazil. Available at: <<https://brasil.mapbiomas.org/en/colecoes-mapbiomas/>>.

Data / Parameter	ΔCUDdPA_t		
Data unit	tCO ₂ e		
Description	Total actual carbon stock change due to unavoided unplanned deforestation at year t in the project area		
Source of data	MapBiomass Land Use and Land Cover Maps (Collection 9) ¹²⁰ .		
Description of measurement methods and procedures to be applied	Land use and cover maps from MapBiomass were utilized to generate cumulative deforestation data for both the historical reference period and the monitored years. The cumulative deforestation maps were produced using a post-classification comparison method, which involves analyzing changes in pixel classifications between consecutive years. For a comprehensive understanding of the methods and processes employed, please refer to section 3.1.3, titled "MapBiomass methodology for analyzing land use land cover change".		
Frequency of monitoring/recording	Annually		
Value monitored		Project year t	ΔCUDdPA_t (tCO ₂ e)
		2023	31,752.65
Monitoring equipment	Remote sensing and GIS analysis tools such as QGIS, ArcGIS, and Python. The monitoring process is detailed in section 3.1.3.		
QA/QC procedures to be applied	The imagery data used on MapBiomass LULC maps is subjected to pre-processing, including geometric correction (to ensure correct pixel location), radiometric correction (to adjust digital numbers and remove atmospheric effects), and cloud filtering (to remove cloud-covered areas). After processing, a confusion matrix accuracy analysis was conducted, as detailed in Section 3.1.3, to assess classification accuracy.		
Purpose of the data	This parameter will be used to calculate project emissions in the project scenario. Provides the ex post value of the change in carbon stocks due to unavoided unplanned deforestation within the project area.		
Calculation method	The deforestation calculation method is based on post-classification change detection. Land use/land cover (LULC) maps are generated for both the previous (2022) and current (2023) monitoring periods. Pixels classified as forest at the end of the previous period and reclassified to another class in the current period are identified as deforestation in the monitored year. The annual difference in LULC map pixel classes		

¹²⁰ MapBiomass Project - Collection 9 of the Annual Land Use Land Cover Maps of Brazil. Available at: <https://brasil.mapbiomas.org/en/colecoes-mapbiomas/>.

	constitutes the deforestation data, which is then input into the ER sheet.
Comments	N/A

Data / Parameter	EADLK _t		
Data unit	tCO ₂ e		
Description	Total ex post increase in GHG emissions due to displaced forest fires at year t.		
Source of data	- MapBiomass Land Use and Land Cover Maps (Collection 9)¹²¹. - EBB_{tot} and relative parameter at ER sheet Table 23.		
Description of measurement methods and procedures to be applied	It was compared between the total ex-ante and ex-post net actual carbon stock change (parameter ΔCBSLLK_t), as detailed in ER sheet, tab 21d_ex post. In summary, if ex-ante carbon stock change is greater than ex-post carbon stock change, then ΔCBSLLK_t is zero. Otherwise, the difference between ex-post and ex-ante is considered the total ex-post leakage. The GWP and non-CO₂ gases parameters that compose EBB_{tot} and impact on the EADLK_t parameter are available at ER sheet, Table 23		
Frequency of monitoring/recording	Annually		
Value monitored		Project year t	EADLK _t (tCO ₂ e)
		2023	0.00
Monitoring equipment	Since parameter depends on ABSLLK _t , it can be considered same equipment, such as remote sensing and GIS analysis tools such as QGIS, ArcGIS, and Python. The monitoring process is detailed in section 3.1.3.		
QA/QC procedures to be applied	In order to obtain ABSLLK_t, the imagery data used on MapBiomass LULC maps is subjected to pre-processing, including geometric correction (to ensure correct pixel location), radiometric correction (to adjust digital numbers and remove atmospheric effects), and cloud filtering (to remove cloud-covered areas). After processing, a confusion matrix accuracy analysis was conducted, as detailed in Section 3.1.3, to assess classification accuracy.		
Purpose of the data	This parameter will be used to calculate leakage emissions in the baseline and project scenario. Provides the ex post value of the		

¹²¹ MapBiomass Project - Collection 9 of the Annual Land Use Land Cover Maps of Brazil. Available at: <https://brasil.mapbiomas.org/en/colecoes-mapbiomas/>.

	increase in GHG emissions due to displaced forest fires in the leakage belt.
Calculation method	Estimated by multiplying $ABSLK_t$ by EBB_{tot} .
Comments	N/A

Data / Parameter	EBBPSPA _t						
Data unit	tCO ₂ e						
Description	Sum of (or total) of actual non-CO ₂ emissions from forest fire at year t in the project area						
Source of data	- MapBiomass Land Use and Land Cover Maps (Collection 9)¹²². - EBB_{tot} and relative parameter at ER sheet Table 23.						
Description of measurement methods and procedures to be applied	It was considered the ex-post carbon stock change (parameter ABSLPAt). The GWP and non-CO ₂ gases parameters that compose EBB _{tot} and impact on the EBBPSPAt parameter are available at ER sheet, Table 23						
Frequency of monitoring/recording	Annually						
Value monitored		<table><tr><th>Project year t</th><th>EBBPSPAt (tCO₂e)</th></tr><tr><td>2023</td><td>621.20</td></tr></table>	Project year t	EBBPSPAt (tCO ₂ e)	2023	621.20	
Project year t	EBBPSPAt (tCO ₂ e)						
2023	621.20						
Monitoring equipment	Since parameter depends on ABSLPAt, it can be considered same equipment, such as remote sensing and GIS analysis tools such as QGIS, ArcGIS, and Python. The monitoring process is detailed in section 3.1.3.						
QA/QC procedures to be applied	In order to obtain ABSLPAt, the imagery data used on MapBiomass LULC maps is subjected to pre-processing, including geometric correction (to ensure correct pixel location), radiometric correction (to adjust digital numbers and remove atmospheric effects), and cloud filtering (to remove cloud-covered areas). After processing, a confusion matrix accuracy analysis was conducted, as detailed in Section 3.1.3, to assess classification accuracy.						

¹²² MapBiomass Project - Collection 9 of the Annual Land Use Land Cover Maps of Brazil. Available at: <https://brasil.mapbiomas.org/en/colecoes-mapbiomas/>.

Purpose of the data	This parameter will be used to calculate non-CO ₂ emissions due to forest fires within the project area in the project scenario, providing an estimate of the ex post value.
Calculation method	Estimated by multiplying ABSLPA _t by EBB _{tot} .
Comments	N/A

Data / Parameter	EBBtot _{icl,t}										
Data unit	tCO2e										
Description	Total GHG emission from biomass burning in forest class icl at year t										
Source of data	Calculated according to methodology VM0015 v1.1 and related parameters available at ER sheet Table 23.										
Description of measurement methods and procedures to be applied	This parameter was calculated according to requirements and default values established by the VM0015 v1.1 methodology. In order to estimate non-CO2 emissions from forest fires, the average percentage of the area which contemplates the three municipalities within the RR that was cleared by burning for other land uses involving deforestation, such as cattle raising and farming (Fburnt), and the average of biomass that has commercial value, and could be removed prior to clear cutting and burning (Pburnt,p) were estimated, either for the baseline and project case. These average percentage values are assumed to remain the same in the future, according to the applied methodology										
Frequency of monitoring/recording	Annually										
Value monitored	<table><tr><th colspan="2">Initial Forest Class</th><th rowspan="2">EBBtot_{icl} tCO2e/ha</th></tr><tr><th>IDcl</th><th>Name</th></tr><tr><td>1</td><td>Forest</td><td>12.56</td></tr></table>			Initial Forest Class		EBBtot _{icl} tCO2e/ha	IDcl	Name	1	Forest	12.56
Initial Forest Class		EBBtot _{icl} tCO2e/ha									
IDcl	Name										
1	Forest	12.56									
Monitoring equipment	Data was obtained from different literatures, available at ER sheet Table 23.										
QA/QC procedures to be applied	Literature is considered reliable (IPCC default values, VCS Standard, Fburnt and Pburnt from governamental sources)										
Purpose of the data	This parameter is used to calculate the baseline, project and leakage non-CO2 emissions from biomass burning occurred in the baseline and project scenarios										

Calculation method	This parameter was calculated according to requirements and default values established by the VM0015 v1.1 methodology. For further information, please see ER sheet Table 23.
Comments	N/A

Data / Parameter	EgLK _t			
Data unit	tCO2e			
Description	Emissions from grazing animals in leakage management areas at year t.			
Source of data	Activities report related to leakage prevention measures			
Description of measurement methods and procedures to be applied	GHG emissions from grazing animals in the leakage management area (i.e. enteric fermentation or manure management) will be subjected to monitoring, when significant.			
Frequency of monitoring/recording	Annually			
Value monitored		Project year t	EgLK _t (tCO2e)	
		2023	0.00	
Monitoring equipment	Field assessment data. Interviews with Leakage Management Areas living people.			
QA/QC procedures to be applied	Interviewed people from LMAs are aware of the project and he importance of providing reliable data.			
Purpose of the data	This parameter will be used to calculate GHG emissions from activities implemented in the leakage management area in the project scenario, providing an ex post value.			
Calculation method	Described in the methodology VM0015 v1.1, section 8.1.2: Ex ante estimation of CH ₄ and N ₂ O emissions from grazing animals.			
Comments	The community living within the leakage management area may practice grazing activities. Therefore, this shall be monitored during the monitoring period.			

Data / Parameter	HLIC _t
-------------------------	-------------------

Data unit	m³/ha																
Description	Harvesting intensity of timber in forest class icl at year t in the project area due to planned logging activities (i.e., sustainable forest management plan).																
Source of data	• Post-harvesting report; • Logging permit (AUTEX); • DOFs (Forestry Origin Documents).																
Description of measurement methods and procedures to be applied	Forest inventory and measurements of wood logs by the forest management team. Harvesting intensity followed procedures described in the Sustainable Forest Management Plan and Annual Operating Plan-AOP (POA, in Portuguese)																
Frequency of monitoring/recording	Annually																
Value monitored		<table><tr><th>Instance</th><th>Volume explored during monitored period (m³)</th><th>Harvesting area (ha)</th><th>Harvesting intensity (m³/ha)</th></tr><tr><td>Grupo Rovema (Instance 1)</td><td>0.00</td><td>0.00</td><td>0.00</td></tr><tr><td>Grupo Tupá</td><td>0.00</td><td>0.00</td><td>0.00</td></tr></table>	Instance	Volume explored during monitored period (m³)	Harvesting area (ha)	Harvesting intensity (m³/ha)	Grupo Rovema (Instance 1)	0.00	0.00	0.00	Grupo Tupá	0.00	0.00	0.00			
Instance	Volume explored during monitored period (m³)	Harvesting area (ha)	Harvesting intensity (m³/ha)														
Grupo Rovema (Instance 1)	0.00	0.00	0.00														
Grupo Tupá	0.00	0.00	0.00														
Monitoring equipment	Post-deforestation reports, logging permit (AUTEX), DOFs (Forest Origin Documents).																
QA/QC procedures to be applied	• Control procedures applied to forest inventory. • SFMP reports. • Logging permit (AUTEX) issued by Environmental Agency¹²³.																
Purpose of the data	This parameter is used to calculate project emissions in the project scenario. Provides the ex post value of the harvested timber volume due to planned logging activities in the project area.																
Calculation method	This parameter was calculated by dividing the total volume exploited (in m3) by the net logging area (in hectares). Please see MR spreadsheet to (Table 25b) to see detailed calculation.																
Comments	N/A																

¹²³ The responsible environmental agency in this case is the SEDAM (for instance 1, located in the State of Rondônia) or IPAAM (for instance 3, in the State of Amazonas)

Data / Parameter	RF _t
Data unit	%
Description	Risk factor used to calculate VCS buffer credits
Source of data	• Joint VCSPD spreadsheet; • SFMP plans; • Instances cashflow; • Contract between Project Proponent and landowners; • Legal documents; • GIS analysis; • Literature data.
Description of measurement methods and procedures to be applied	The procedures for calculating the RF _t follow the guidelines of the Non-Permanence Risk Tool, version 4.2. ¹²⁴
Frequency of monitoring/recording	Each monitoring report
Value monitored	12
Monitoring equipment	No monitoring equipment is used to monitor this parameter directly.
QA/QC procedures to be applied	The documents considered for the analysis of this parameter are, for the most part, certified by recognized bodies or, when another source is used (such as GIS or literature), submitted to the institution's accuracy analysis.
Purpose of the data	This parameter represents the non-permanence risk rating of the project, which was used to determine the number of buffer credits that shall be deposited into the AFOLU pooled buffer account.
Calculation method	This parameter was calculated using the last available version of the AFOLU Non-Permanence Risk Tool. All the risk factors described in the VCS Non-Permanence Risk Report will be assessed.
Comments	N/A

3.1.3 Monitoring Plan (VCS, 3.16, 3.20)

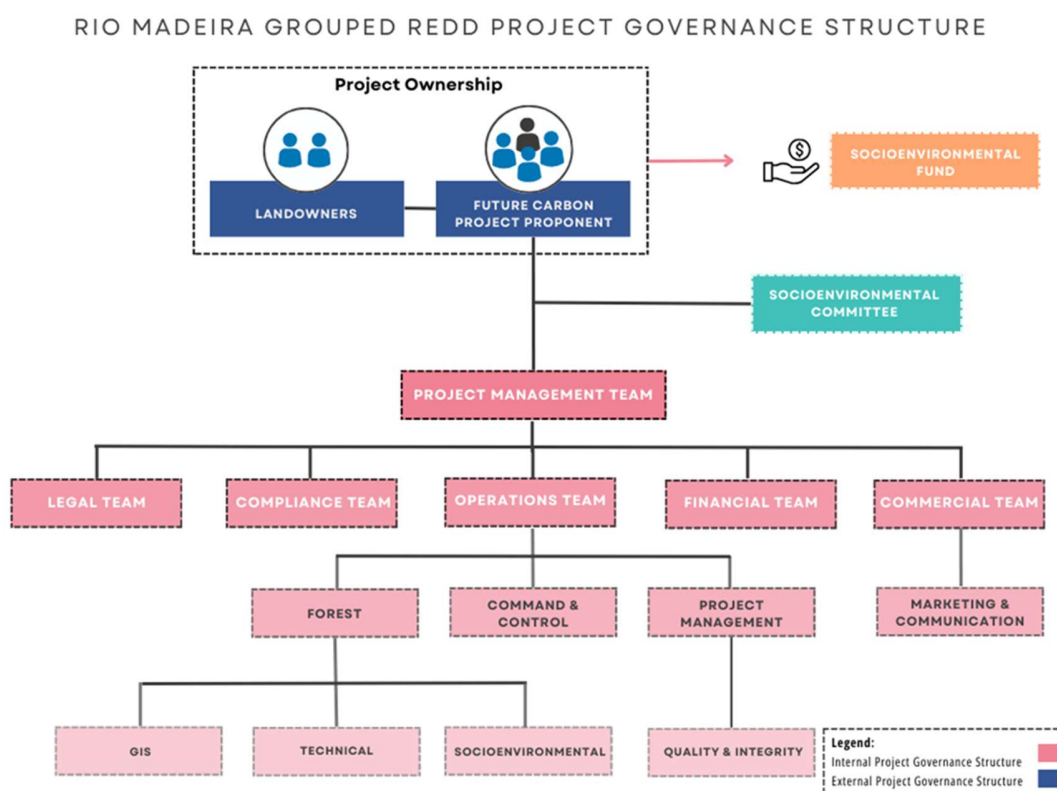
¹²⁴ Available at: < <https://verra.org/documents/afolu-non-permanence-risk-tool-v4-2/> >

This monitoring plan has been developed according to the VCS Methodology VM0015 version 1.1.

Organizational structure, responsibilities and competencies

As part of the Governance Structure of Rio Madeira Grouped REDD+ Project, the project activities were designed based on information collected during interviews with the project landowners, employees within four private properties, and local stakeholders. The project activities will be operated under the guidance of the Future Carbon Group Technical Team, along with local partners responsible for the implementation and monitoring, which involves a broad expertise in environmental and social issues, as well as, in biodiversity, ensuring the efficient and successful implementation of the project. The project governance structure organizational chart below describes the roles and responsibilities team members divided into interconnected areas:

Figure 21. Project Governance Structure



The internal governance structure comprises a Project Management Team (PMT) featuring five distinct departments, as illustrated in Figure 29. These departments consist of eight specialized areas working collaboratively to oversee, execute, and supervise various activities. Their responsibilities include coordination, implementation, and monitoring, coupled with the provision of logistical and technical support to ensure the seamless functioning of the overall project. The PMT has a broad range of expertise in environmental, social and biodiversity issues to ensure the efficient and successful implementation of the project. Further details on the project management team capacity can be found in section 2.4.2. The roles and responsibilities of each party involved in the governance structure of the Rio Madeira Grouped REDD+ Project are detailed in the table below:

Table 23. Parties involved in the Rio Madeira governance structure, their roles and responsibilities

Roles	Responsibilities
Project Proponent	Future Carbon Group is responsible for the coordination of all activities required for the preparation of the Project Design Document (PDD) and Monitoring Reports (MR), including socio-economic and environmental assessment, baseline studies and carbon stock estimation, initial financing, monitoring and implementation of proposed GHG emission reduction/mitigation activities, dissemination of project documentation, project validation/verification, delivery of monitoring results to stakeholders, commercialization of generated credits, and co-management of the project throughout its duration.
Landowners	Grupo Leite, Rovema and Tupá are the owners who own the land titles, all property assurance of rights are recognized, are linked to the project through conservation agreements signed between each property instance and the project proponent; responsible for implementing surveillance and monitoring the project area to avoid any invasions, changes in the biome or any other activity that could lead to deforestation and loss of biodiversity; responsible for conducting operations in the field and providing logistical support for on-site technical visits; provide investment in the protection of project area, link field staff to management team, report to project management team any deforestation outbreak in the project area.
Co-Investors	Companies that become investor in early-stage project development that require up-front funding to be built and then receive their portion of the credits as they are issued over time. Alternatively, the company may wish to invest in early-stage project without purchasing the credits if they simply like what the project is trying to accomplish. This is particularly helpful in the early stages of project development, as many projects and project developers require additional financial support as they scale up to meet the project's goals and provide benefits to the community. Equity investments can also help companies build trust and a long-term relationship with project developers. In addition, companies become part of the project governance structure to ensure the delivery of high-quality carbon credits.

The project governance structure operates in two distinct spheres: internal and external.

Internal Project Governance

The internal governance structure, as illustrated in the Figure above, is centered around the Project Management Team, which includes several specialized teams (e.g., Legal, Compliance,

Operations, Financial, Commercial). These teams are responsible for overseeing the project's design and implementation, ensuring adherence to legal requirements, and maintaining operational efficiency.

The Project Proponent plays a pivotal role in this structure, directly manage funds, and engaging with various internal teams to coordinate activities such as command and control, forest management, project management, quality, and integrity.

External Project Governance

The external project management governance structure is composed by landowners and local stakeholders groups, which include representatives of the different groups communities and other relevant institutional actors.

The external governance structure involves landowners and other key stakeholders. This group is vital in guiding project activities at a ground level, ensuring that the project aligns with local needs and priorities.

The link between Future Carbon and landowners is formalized through a contractual agreement, which outlines responsibilities for planning, execution, and monitoring of the project. Landowners are tasked with critical functions, including forest management and activities to reduce deforestation and degradation, surveillance, and fire prevention, among others. They are also responsible for implementing and maintaining social and environmental activities designed to minimize leakage and enhance the project's social and environmental co-benefits, as assessed by the CCB Standard.

The governance structure ensures that all parties are clear on their roles and responsibilities, thereby facilitating effective project implementation and monitoring.

Project Ownership and Responsibilities

The project ownership is shared between Future Carbon and the Landowners. Future Carbon is primarily responsible for developing project documentation, conducting monitoring activities in line with the Verified Carbon Standard (VCS) and CCB Standard. They ensure that data collection, processing, analysis, and reporting are conducted as per the monitoring plan.

In addition, it is responsible for keeping all documentation required by the project in order, as well as project maintenance expenses; Execute, monitor and maintain social and environmental activities (or designating and hiring third parties responsible for the activities).

The landowners, on the other hand, are accountable for the physical implementation and maintenance of the project. They manage on-the-ground activities, maintain essential project documentation, and ensure that the project infrastructure is operational, contributing to the overall goals of reducing deforestation and environmental degradation.

Monitoring and Reporting

Monitoring tasks are carried out by both Project Proponent (Future Carbon) and the landowners (Grupo ROVEMA, Grupo Leite, and Grupo Tupá). The project proponent manages the technical aspects of monitoring, including GIS analysis and emissions tracking, carry out the monitoring activities of VCS and CCB Standard. Landowners focus on the operational side, such as monitoring forest conditions and responding to natural disturbances, whenever necessary.

Monitoring was done by the project proponent and outsourced to a third party having sufficient capacities to perform the monitoring tasks. Specific responsibilities and frequencies for monitoring various project aspects are outlined in the table provided below:

Table 24. Type of Monitoring and Party Responsible for Monitoring

Variables to be monitored	Responsible	Frequency
Reassessment of the baseline	Future Carbon Group or its subsidiaries and external institutions qualified for the GIS analysis and monitoring	Every 6 years
Monitoring Deforestation and Project Emissions	Instance owner together with Future Carbon Group or its subsidiaries and external institutions qualified for the GIS analysis and monitoring	Prior to each verification
Monitoring of non-CO2 emissions from forest fires	Instance owner together with Future Carbon Group or its subsidiaries and external institutions qualified for the GIS analysis and monitoring	Prior to each verification
Monitoring Leakage emissions	Instance owner together with Future Carbon Group or its subsidiaries and external institutions qualified for the GIS analysis and monitoring	Prior to each verification
Monitoring of Natural Disturbance and catastrophic events	Instance owner	When a natural event occurs
Updating Forest Carbon Stocks Estimates	Instance owner	At least, every 10 years, only if necessary.

Regarding the competencies of the teams involved in the activities related to monitoring, the responsibilities and functions performed by Future Carbon's internal team are described in section 2.4.2, while the qualifications of the local monitoring team and landowners are described in the Non-Permanence Risk Report, under Project Management, which is covered under Internal Risk.

For all aspects of project monitoring, the project proponent will ensure that data collection, processing, analysis, management and archiving are conducted in accordance with the monitoring plan. The authority for the registration, monitoring, measurement and reporting is Future Carbon Group or its partners.

- **Monitoring of actual carbon stock changes and GHG emissions within the project area**

- **Monitoring of project implementation**

The project owner is responsible for the implementation of the project activity. The monitoring of the sustainable management plan is carried out by the municipal and state secretariats.

Information from the sustainable forest management plan and post-exploratory reports was used to update parameters related to planned deforestation and was verified during the validation and verification of the carbon project.

- **Updating Forest Carbon Stocks Estimates**

If new and more accurate carbon stock data become available, these can be used to estimate the net anthropogenic GHG emission reduction, provided that these data are in accordance to the requirements established by the applied methodology VM0015. New data on carbon stocks will only be used if they are validated by an accredited VVB.

- **Methods for generating, recording, aggregating, collating and reporting data on monitored parameters**

All data sources and processing, classification and change detection procedures is documented and stored in a dedicated long-term electronic archive maintained by the Project Proponent (Future Carbon International LLC or its controlled subsidiaries).

The Project Proponent will also keep a digital copy of all documents generated during the development of the VCS PD (first fixed baseline period) and the subsequent baseline reports and monitoring periods.

Given the extended time frame and the pace of production of updated versions of software and new hardware for storing data, electronic files are updated periodically or converted to a format accessible to future software applications, as needed.

All maps and records generated during project implementation are stored and made available to VCS verifiers at verification for inspection. In addition, any data collected from ground-truth points (including GPS coordinates, identified land-use class, and supporting photographic evidence) are recorded and archived.

Monitored data is to be kept for two years after the end of the crediting period or the last issuance of carbon credits for this project activity, whichever occurs later. For this purpose, the authority for the registration, monitoring, measurement and reporting is Future Carbon International LLC. Monitored parameters are described in Section 5.2 and are monitored with the frequency described further below.

Quality Assurance/Quality Control

To ensure consistency and quality of results, spatial analysts carrying out the image processing, interpretation, and change detection procedures will strictly adhere to the steps detailed in the Methodology.

All of this reliable data, which is collected and documented, is used as a technical support tool for decision-making in order to improve project outcomes, and to adapt the project according to the current needs and realities. Project activities implemented within the project area must be consistent with the management plan of the project.

The implementation of the project activity is monitored by continuous monitoring activities using remote sensing techniques. Additionally, field studies will also be used. The land-use monitoring was carried out with remote sensing methods, using images generated by Mapbiomas, INPE (PRODES)¹²⁵ and LANDSAT satellite images (or other available source accepted by the methodology), which was subject to digital processing to perform the interpretation and classification of the land cover classes studied.

The management structure will also rely on the local community to help monitor the area. All the monitored parameters were checked with the frequency detailed in the Section 5.2 above, as requested in the VCS Methodology VM0015, version 1.1.

One of the planned activities to be developed with the carbon credits income is complement the monitoring of the project area and its surroundings, the project proponent intends to improve the remote sensing methods and data used, which meet the accuracy assessment requirements laid out in the methodology.

Procedures for handling internal auditing and non-conformities

To ensure the quality of project information, a review process was conducted as outlined below:

Response to non-conformities: Issues are initially classified in a spreadsheet by the project leader according to their nature and relevant area, such as social, GIS, among others. The technical team is then assigned to draft responses to each query, compiling all relevant information to formulate the answers. Preliminary responses are reviewed internally by the designated responsible person, who ensures that each response is clear, accurate, and fully addresses the query. It is also verified that the responses align with the project documentation and records. After this internal review, the responses are submitted to the project leader for a final review, ensuring compliance with project requirements and the accuracy of the information provided.

Quality and Integrity management: The development of procedures for quality and integrity management is designed to ensure compliance with project requirements, verify adherence to established standards, minimize and correct process deviations, and ultimately reduce non-conformities. The procedure is supervised by the Quality and Integrity committee, an internal multidisciplinary team established by the project proponent and with responsibilities assigned to Future Carbon. Such process started to be implemented in September-2023 and more details can be detailed in the upcoming monitoring reports.

¹²⁵ Available at: <<http://www.obt.inpe.br/OBT/assuntos/programas/amazonia/prodes>>

- **Monitoring of land-use and land-cover change within the project area**

Forest cover change due to unplanned deforestation is monitored through periodic assessment of classified satellite imagery covering the project area. Emissions from deforestation are estimated by multiplying the detected area of forest loss by the average forest carbon stock per unit area.

The entire project area has been demonstrated to meet the forest definition at the beginning of the crediting period. For subsequent monitoring periods, changes in forest cover are assessed against the preceding classified forest cover map marking the beginning of the monitoring interval. The resulting classified image is compared with the preceding classified image (forest cover benchmark map marking the start of the monitoring interval) to detect forest cover change over the monitoring interval, and subsequently becomes the updated forest cover benchmark map for the next monitoring interval. Thus, the forest benchmark map is updated at each monitoring event.

Carbon stocks increase or decrease due to planned activities in the project area are also monitored through documents and periodic assessment of classified satellite imagery covering the project area. In planned deforestation, emissions are estimated by multiplying the area of forest loss by the average forest carbon stock per unit area.

The results of monitoring shall be reported by creating ex post tables of activity data per stratum; per initial forest class i; and per post-deforestation zone z, for the reference region, project area and leakage belt.

In addition, a map showing Cumulative Areas Credited within the project area shall be updated and presented to VCS verifiers at each verification event. The cumulative area cannot generate additional VCUs in future periods.

Other applied methodologies for monitoring of deforestation are listed below:

Monitoring bases

The landowner is responsible for the implementation of monitoring bases, if necessary, to guarantee the standing forest and carbon stock.

Satellite images and remote sensing monitoring

The land use and land use cover change will be analyzed through remote sensing methods, using data from INPE (PRODES – deforestation; Queimadas – fire monitoring; TerraClass – qualification of Amazon deforestation), satellite images (LANDSAT, Sentinel, CBRES).

All reliable data collected and documented will be used as a technical support tool for decision making in order to improve project outcomes, and to adapt the project according to the current needs and reality. These decisions will be made during periodic meetings to review the Action Plan. On these occasions, the design of the Monitoring Plan will be analyzed according to its efficiency in generating reliable feedback and all the necessary information. If any changes in

the Monitoring Plan or management actions are identified, a corrective action will be designed and implemented.

MAPBIOMAS METHODOLOGY FOR ANALYZING LAND USE COVER CHANGE

To map land use dynamics within the Reference Region, remote sensing satellite analysis was conducted using MapBiomas (collection 9.0) Land Use and Land Cover (LULC) maps, which are available in raster format on the program's website¹²⁶.

MapBiomas is a collaborative initiative under the Greenhouse Gases Emissions Estimation System promoted by the Climate Observatory that brings together NGOs, universities, and technology companies¹²⁷. The annual land cover and land use maps produced by MapBiomas are generated through pixel-by-pixel classification of Landsat images, utilizing advanced machine learning algorithms on the Google Earth Engine platform¹²⁸.

The process begins with generating annual Landsat mosaics, using specific temporal windows to enhance spectral contrast and improve discrimination of land cover and land use (LCLU) classes across various biomes and cross-cutting themes. Next, feature space attributes are derived from the Landsat bands to train a random forest classifier for each year. Training samples are collected annually within each biome and cross-cutting theme based on the availability of information and statistical requirements. The output is a yearly LCLU map for the entire territory, created from that year's training dataset. Exceptions include the classes Aquaculture, Mining, Irrigation, Rice, and Citrus, which are identified using the U-Net convolutional neural network (CNN) classifier.

Spatial-temporal filters are applied to the classified data for noise removal and temporal stabilization. Subsequently, the filtered LCLU maps for each biome and cross-cutting theme are hierarchically merged (integrated) based on a set of prevalence rules. Finally, spatial and temporal filters are reapplied to the integrated maps to produce the final Collection 9 product¹²⁹.

ACCURACY ASSESSMENT ANALYSIS OF MAPBIOMAS' LAND COVER MAPPING

Accuracy analysis is the main way of assessing the quality of mapping performed by Mapbiomas. In addition to telling the overall classification accuracy, the analysis also reveals the accuracy and error rate for each classified class. MapBiomas evaluated global and per-class classification accuracy for each year between 1985 and 2023.

Accuracy estimates were based on the evaluation of a pixel sample, which we call a reference database, consisting of ~ 75,000 samples. Statistical sampling techniques predetermined the number of pixels in the reference database. Each year, technicians trained in visual interpretation

¹²⁶ MapBiomas Collections available at: < <https://brasil.mapbiomas.org/en/colecoes-mapbiomas/> >.

¹²⁷ For more information on the history of LULC Map production and the process, visit the scientific article: Souza et al. (2020) – "Reconstructing Three Decades of Land Use and Land Cover Changes in Brazilian Biomes with Landsat Archive and Earth Engine" – Remote Sensing, Volume 12, Issue 17, 10.3390/rs12172735 available at: < <https://www.mdpi.com/2072-4292/12/17/2735> >.

¹²⁸ Methodology overview available at: <<https://brasil.mapbiomas.org/en/visao-geral-da-metodologia/>>.

¹²⁹ Mapbiomas General "Handbook". Algorithm Theoretical Basis Document (ATBD). Collection 9. Version 1. Available at: < <https://brasil.mapbiomas.org/wp-content/uploads/sites/4/2024/08/ATBD-Collection-9-v2.docx.pdf> >.

and inspection of Landsat images evaluated each pixel from the reference database. Accuracy was assessed using metrics that compare the mapped class with the class evaluated by the technicians in the reference database.

Each year, the accuracy analysis is done by cross-tabulating the sample frequencies of the mapped and real classes, in Figure 1. The frequencies n_{ij} represent the number of pixels in the sample classified as class i , and evaluated as class j . The line marginal totals, $n_{i,*}$, represent the number of samples mapped as class i , while the column marginal totals, $n_{*,j}$, represent the number of samples that were evaluated by the technicians as class j . In figure below is commonly called the error matrix or confusion matrix.

Figure 22. MapBiomass generic sample confusion matrix

Map\Real	Class 1	...	Class H	Total
Class 1	$n_{1,1}$	...	$n_{1,H}$	$n_{1,*}$
...	...	...	...	...
Class H	$n_{H,1}$	...	$n_{H,H}$	$n_{H,*}$
Total	$n_{*,1}$	...	$n_{*,H}$	$n_{*,*}$

From the results in Figure 1, the sample proportions in each cell of the table are estimated

by $\hat{p}_{ij} = \frac{n_{ij}}{n_{i,*}} \times \frac{N_i}{N}$. The matrix of values $\hat{p}_{ij}$ is used to estimate:

1. **User's Accuracies:** These are the estimates of the fractions of pixels, for each classified class, correctly classified. The user's accuracy is associated with the error of commission, which is the error of assigning a pixel to class i , when it belongs to some other class.
2. **Producer's Accuracies:** Are the sample fraction of pixels of each land cover/use class correctly assigned to their classes by the classifiers. The producer's accuracy is associated with the omission error, which occurs when we fail to map a class j pixel correctly.
3. **Global Accuracy (overall accuracy):** It is the estimate of the overall hit rate. The estimate is given by sum of the main diagonal of the proportion's matrix. The complement of the total accuracy, or the total error is still decomposed into area (or quantity) disagreement and allocation disagreement¹³⁰. Area disagreement measures the fraction of the error attributed to the amount of area allocated incorrectly to the classes by the mapping, while the mismatch allocation to the ratio of class-displacement errors.

¹³⁰ Pontius Jr, R. G., & Millones, M. (2011). Death to Kappa: birth of quantity disagreement and allocation disagreement for accuracy assessment. *International Journal of Remote Sensing*, 32(15), 4407-4429.

The matrix also provides estimates of the different types of errors. For example, we show estimates of true class area composition in each mapping class. Thus, in addition to the hit rate of the class mapped as forest, for example, we also estimate the fraction of these areas that could be pasture or other classes of cover and land use, for each year. We understand that this level of transparency informs users and maximizes the potential of use across multiple types of users¹³¹.

MONITORING PROCESS

The MapBiomass images of the monitored years and Historical Period of Reference are first reclassified according to the categories defined in Table 1 to correspond with the monitoring classes used in the analysis. These classes are: 1 - Forest, 2 - Water, 3 - Non-forest areas, and 4 - Deforestation, according to table 2. This reclassification aligns with the criteria for defining Land Use/Land Cover (LU/LC) classes as specified in Section "STEP 2: ANALYSIS OF HISTORICAL LAND-USE AND LAND-COVER CHANGE" of the VM0015 v1.1 methodology that defines that the minimum LU/LC classes should be "Forest Land" and "Non-Forest Land." Furthermore, the "Non-Forest Land" category aggregates different non-forest classes, as outlined in IPCC guidelines used for national GHG inventories.

It is worth mentioning that the forest definition adopted by MapBiomass aligns with the definition provided by the FAO. According to the FAO, an area is classified as a forest when it exhibits a tree canopy cover of more than 10%, an area greater than 0.5 hectares, and trees capable of reaching a minimum height of 5 meters when mature in situ. This alignment is detailed in Annex III of the technical documentation of MapBiomass Collection 9¹²⁹, referencing the forest classes indicated in the "Manual for Integrated Field Data Collection" published by the FAO in 2012^{132, 133}.

Table 25. MapBiomass reclassification

ID	MapBiomass Class	
3	Forest Formation	1
4	Savanna Formation	1
5	Mangrove	3
6	Floodable Forest	3
9	Forest Plantation	4
11	Wetlands	3
12	Grassland	3
14	Farming	4
15	Pasture	4

¹³¹ For detailed descriptions of the accuracy assessment formulas, processes and and access to the dashboard available for all collections, visit: <https://brasil.mapbiomas.org/en/analise-de-acuracia/>.

¹³² FAO. The National Forest Monitoring and Assessment – Manual for Integrated Field Data Collection. 2012. Available at: <<https://www.fao.org/4/ap152e/ap152e.pdf>>

¹³³ To access the correlation between the MapBiomass, IBGE, FAO and the National Greenhouse Gas Emissions Inventory classes of land use and land cover, visit: <<https://brasil.mapbiomas.org/wp-content/uploads/sites/4/2024/08/Legenda-Colecao-9-Descricao-Detalhada-PDF-EN.pdf>>

18	Agriculture	4
19	Temporary Crop	4
20	Sugar cane	4
21	Mosaic of Uses	4
23	Beach, Dune and Sand Spot	3
24	Urban Area	4
25	Other non Vegetated Areas	4
29	Rocky Outcrop	3
30	Mining	4
31	Aquaculture	2
32	Hipersaline Tidal Flat	3
33	River, Lake and Ocean	2
35	Palm Oil	4
36	Perennial Crop	4
39	Soybean	4
40	Rice	4
41	Mosaic of crops	4
46	Coffee	4
47	Citrus	4
48	Other Perennial Crops	4
49	Wooded Sandbank Vegetation	1
50	Herbaceous Sandbank Vegetation	3
62	Cotton (beta)	4

After reclassification, the accumulated deforestation for each year is calculated, considering the data for Historical Reference Period, the previous monitoring data and the monitored year (2023). The accumulated deforestation consists of a raster where the classes for water and non-forest are locked for the Historical Reference Period years. In contrast, deforestation and forest classes can be dynamic and subject to changes.

This analysis involves comparing the 2022 classification with the 2023 data to identify pixels classified as 1 - Forest in 2022 but assigned a different class in 2023. These pixels are then reclassified as 4 - Deforestation for 2023 to capture changes in land cover accurately.

Consequently, the deforestation identified in 2023 resulted from subtracting the forest class in 2023 from the forest class in 2022.

Table 26. Monitoring LULC change matrix

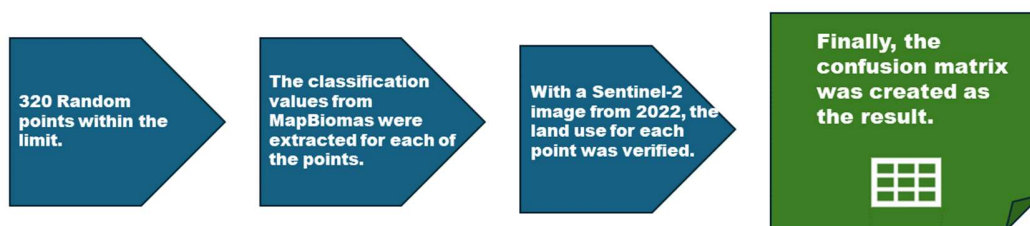
Projection	Classification	Description	Class
------------	----------------	-------------	-------

Non-Forest	Forest	Deforestation foreseen in the PDD was not carried out	Avoided deforestation
Forest	Forest	The forest was maintained as predicted	Forest
Non-Forest	Non-Forest	Deforestation where it had been predicted	Predicted deforestation
Forest	Non-Forest	Deforestation where it was not foreseen	Unplanned deforestation

ACCURACY ANALYSIS

The accuracy analysis was conducted for the Project Area (PA) and the Leakage Belt (LK). A total of 320 sample points were randomly selected within each boundary, and the accuracy of the classification was verified. Each sample points were checked using high-resolution Sentinel images and visual inspection tools to determine the land use at each selected point, according to the following diagram.

Figure 23. Accuracy analysis process



The result of this process is the confusion matrix, which provides a comparison between the classified data and the actual land use observed at the sample points. The confusion matrix allows for the evaluation of classification accuracy by showing how well the classified data matches the true land use conditions.

Table 27. Monitoring confusion matrix (2023)

		REFERENCE				
CLASSIFIED		Forest	Non forest	Total	User's accuracy	Overall accuracy
	Forest	450	0	450	100.00%	98.44%
	Non forest	10	180	190	94.74%	
	Total	460	180	640		

Producer's accuracy	97.83%	100.00%			
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The sample points, as well as the Sentinel image, were provided as evidence.

The LU/LC-change categories that could occur within the project area and leakage belt during the first baseline period, in both the baseline and project case, are identified in the potential LU/LC-change matrix and the list of LU/LC-change categories during the project crediting period are shown in the Tables below. It is shown that deforestation could occur in the baseline and project scenarios within both the PA and LK areas; the hectares show the quantities of deforestation during the crediting period associated with each identifier.

Table 28. Land-use and land-cover change matrix model

	Idcl	Initial LU/LC class	
		Forest	No forest
		I1/F1	0
Final Class	No forest	I1/F2	I2/F2

Table 29. Project Area Land Use and Land Cover Change Matrix – Monitoring period

Project Area					
ID _{cl}		Initial class (jan. 23)			Total (ha)
		Name	Forest	Deforestation	
			I1	I4	
LULC final class (dec. 23)	F1	Forest	52,032.33	0.00	52,032.33
	F4	Deforestation	49.46	0.00	49.46
Total (ha)			52,081.79	0.00	52,081.79

Table 30. Leakage Belt Land Use and Land Cover Change Matrix – Monitoring period

Leakage Belt					
ID _{cl}		Initial class (jan. 23)			Total (ha)
		Name	Forest	Deforestation	
			I1	I4	
LULC final class (dec. 23)	F1	Forest	24,367.31	0.00	24,367.31
	F4	Deforestation	513.67	0.00	513.67
Total (ha)			24,880.98	0.00	24,880.98

Security procedures

The project owner is responsible for the security procedures and reporting illegal activity to responsible authorities.

These actions are planned to avoid unplanned deforestation and carbon stock changes in the area. Related parameters shall be monitored and reassessed at every verification and revalidation point.

- **Monitoring of carbon stock changes and non-CO2 emissions from fires**

In addition to the mentioned above, the project owner is responsible for training monitoring, management, safety and health personnel. This may include periodic fire brigade training, including first aid, fire procedures, training of new monitoring personnel and those responsible for management during harvests

If forest fires occur, these non-CO2 emissions will be subject to monitoring and accounting, when significant.

- **Monitoring of impacts of natural disturbances and other catastrophic events**

The monitoring of natural impacts and other catastrophic events is responsibility of the project owner. The company must notify Future Carbon International LLC, Future Carbon Group or its controlled companies so that it can include the related impacts in the carbon project reports, updating the related parameters, including the buffer report. Where an event occurs that is likely to qualify as a loss event, the project proponent shall notify Verra within 30 days of discovering the likely loss event.

Decreases in carbon stocks and increases in GHG emissions (e.g. in case of forest fires) due to natural disturbances (such as hurricanes, earthquakes, flooding, drought, fires or storms) or man-made events, including those over which the project proponent has no control (such as acts of terrorism or war), are subject to monitoring, when significant. If the area (or a sub-set of it) affected by natural disturbances or man-made events generated VCUs in past verifications, the total net change in carbon stocks and GHG emissions in the area(s) that generated VCUs will be estimated, and an equivalent amount of VCUs will be cancelled from the VCS buffer. No VCUs can be issued for the project until all carbon stock losses and increases in GHG emissions have been offset.

- **Monitoring of Leakage**

Monitoring of the leakage belt and leakage management area will be carried out as in the project area and reference region.

The most recent VCS guidelines on this subject matter shall be applied. Furthermore, as the leakage belt was determined using Option 1 (Opportunity cost analysis), the boundary of the leakage belt will have to be reassessed at the end of each fixed baseline period using the same methodological approaches used in the previous period. The calculation procedure for estimating leakage emissions in the project scenario will be done by monitoring the following sources of leakage:

- **Carbon stock changes and GHG emissions associated with leakage prevention activities.**

The carbon stock decrease or increase in GHG emissions due to leakage prevention measures, which will probably take place inside the leakage management area, will be monitored through documents and field assessment. In areas undergoing carbon stock enhancement, the project conservatively assumes stable stocks and no biomass monitoring is conducted.

- Carbon stock decrease and increases in GHG emissions due to activity displacement leakage

Deforestation in the leakage belt area above the baseline may be considered activity displacement leakage. Activity data for the leakage belt area will be determined using the same methods applied to monitoring deforestation activity data in the project area. Leakage will be calculated by comparing the ex ante and the ex post assessment. However, where strong evidence can be collected that deforestation in the leakage belt is attributable to deforestation agents that are not linked to the project area, the detected deforestation will not be attributed to the project activity, thus not considered leakage.

- **Revision of the baseline**

The current baseline is valid for 6 years, i.e. through 23-October-2025. The baseline will be reassessed every 6 years, and it will be validated at the same time as the subsequent verification.

Technical description of the monitoring task

The baseline scenario will be monitored through the assessment of agents and drivers variables and satellite images to project expected deforestation. Information on agents, drivers and underlying causes of deforestation in the reference region will be collected at the end of each fixed baseline period, as these are essential for improving future deforestation projections and the design of the project activity. In addition, in the same frequency, the projected annual areas of baseline deforestation for the reference region will be revisited and eventually adjusted for the subsequent fixed baseline period.

The location of the projected baseline deforestation will be reassessed using the adjusted projections for annual areas of baseline deforestation and spatial data. All areas credited for avoided deforestation in past fixed baseline periods will be excluded from the revisited baseline projections as these areas cannot be credited again.

Baseline monitoring task will be done in accordance with the applied methodology, VM0015, version 1.1 or the most recent.

Data to be collected

Data will be collected to comply with the parameters used in VM0015 version 1.1, listed in Appendix 5, or the most recent.

Overview of data collection procedures

Data will be collected according to measurement methods and procedures described in section 3.1.1 and 3.1.2 above. All ex ante and ex post parameters will be reassessed at the moment of revision of the baseline.

Quality control and quality assurance procedures

QA/QC will be done according to best practices in remote sensing and as stated by VM0015 methodology.

Data archiving

All data sources and processing, classification and change detection procedures will be documented and stored in a dedicated long-term electronic archive maintained by the project owner. The project proponent will also keep a digital copy of all documents generated during the development of the VCS PD (first fixed baseline period) and the first monitoring period, as well as further monitoring reports in case it participates in the development of subsequent monitoring periods in the future.

Given the extended time frame and the pace of production of updated versions of software and new hardware for storing data, electronic files will be updated periodically or converted to a format accessible to future software applications, as needed.

All maps and records generated during project implementation will be stored and made available to VVBs at verification for inspection. In addition, any data collected from ground-truth points (including GPS coordinates, identified land-use class, and supporting photographic evidence) will be recorded and archived.

3.1.4 Dissemination of Monitoring Plan and Results (VCS, 3.18; CCB, CL4.2)

For the monitoring period, two consultations were held to disseminate the results of the period: one Remote Local Stakeholder Consultation was held online on February, 23 2024 and in loco on April 2024, with the aim of informing stakeholders about the results for 2023, as well as presenting the project's actions since its start. During the remote presentation, a form was made available in which participants could say whether they would like to receive the material presented, as well as any comments, doubts or suggestions regarding the project. At the on-site presentation, printed material was distributed with the results of the project, as well as a brief presentation of the project's Theory of Change. In addition, this Monitoring Report is available online only on the project's Verra platform, also in local language.¹³⁴¹³⁵

More information about this consultation is available at Section 5.3.2 of this document.

¹³⁴ Available at: <https://registry.verra.org/app/projectDetail/VCS/2878>

¹³⁵ It is important to note that the version made available is the pre-audit version, so there will be adjustments to some topics.

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions (VCS, 3.15)

The total average biomass stock per hectare (Mg ha^{-1}) was converted to tCO_2e using the following equations:

$$Cab_{icl} = ab \times CF \times 44 / 12$$

Where,

Cab_{icl}	Average carbon stock per hectare in the above-ground biomass carbon pool of initial forest class icl ; $\text{tCO}_2\text{e ha}^{-1}$
ab	Average biomass stock per hectare in the above-ground biomass pool of initial forest class icl ; Mg ha^{-1}
CF	Default value of carbon fraction in biomass
$44/12$	Ratio converting C to CO_2e

$$Cbb_{icl} = bb \times CF \times 44 / 12$$

Where,

Cbb_{icl}	Average carbon stock per hectare in the below-ground biomass carbon pool of initial forest class icl ; $\text{tCO}_2\text{e ha}^{-1}$
bb	Average biomass stock per hectare in the below-ground biomass pool of initial forest class icl ; Mg ha^{-1}
CF	Default value of carbon fraction in biomass
$44/12$	Ratio converting C to CO_2e

The total baseline carbon stock change in the project area at year t is calculated as follows:

$$\Delta CBSLPA_t = \Delta CabBSLPA_{icl,t} + \Delta CbbBSLPA_{icl,t}$$

Where,

$\Delta CBSLPA_t$	Total baseline carbon stock changes in the project area at year t ; tCO_2e
$\Delta CabBSLPA_{icl,t}$	Total baseline carbon stock change for the above-ground biomass pool in the project area for initial forest class at year t ; tCO_2e
$\Delta CbbBSLPA_{icl,t}$	Total baseline carbon stock change for the below-ground biomass pool in the project area for initial forest class at year t ; tCO_2e

$$\Delta CabBSLPA_{icl,t} = ABSLPA_{icl,t} \times \Delta Cab_{icl}$$

Where,

$\Delta CabBSLPA_{icl,t}$	Total baseline carbon stock change for the above-ground biomass pool in the project area for initial forest class at year t ; tCO ₂ e
$ABSLPA_{icl,t}$	Area of initial forest class icl deforested at time t within the project area in the baseline case; ha
ΔCab_{icl}	Average carbon stock change factor per hectare in the above-ground biomass carbon pool of initial forest class icl ; tCO ₂ e ha ⁻¹

$$\Delta CbbBSLPA_{icl,t} = ABSLPA_{icl,t} \times \Delta Cbb_{icl}$$

Where,

$\Delta CbbBSLPA_{icl,t}$	Total baseline carbon stock change for the below-ground biomass pool in the project area for initial forest class at year t ; tCO ₂ e
$ABSLPA_{icl,t}$	Area of initial forest class icl deforested at time t within the project area in the baseline case; ha
ΔCbb_{icl}	Average carbon stock change factor per hectare in the below-ground biomass carbon pool of category icl ; tCO ₂ e ha ⁻¹

Project carbon stocks were calculated as presented in section 3.1.

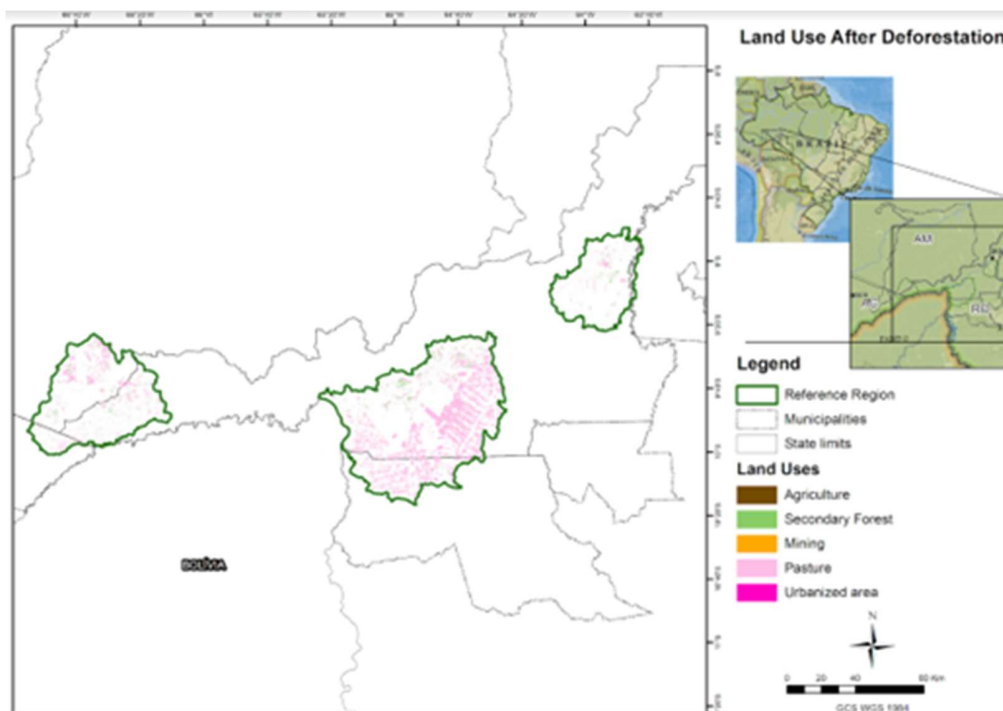
Average carbon stocks of post-deforestation classes

The average classification of post-deforestation land-uses within the reference region during the historical reference period (2009-2019) was conducted through MapBiomass, which is detailed below:

Land Use	Area (%)
Pasture	87.22
Secondary Forests	12.76
Agriculture	0.01
Mining	0
Urban Area	0

Therefore, most of the post-deforestation land uses within the reference region are composed by pasture lands, with more than 87%, as available in the following image:

Figure 24. Post-deforestation land use within reference region



In order to estimate the post-deforestation carbon stocks, the average carbon stocks of pasturelands, agriculture and other land uses were taken from the National GHG Emissions Communication of Brazil to the UNFCCC (2019)¹³⁶.

For secondary forests, a regional study was conducted. Most secondary forests in the Brazilian Amazon are young. In 2017, 65% of secondary forests was ≤ 10 years old. On average, 35% of annual land abandonment to secondary forests was re-cleared within 5 years, and 57% within 10 years¹³⁷. The half-life of secondary forests is 8 years, on average, which is also the same value found by other study that concludes that more than 50% of the secondary forests in the Amazon biome have less than 8 years old¹³⁸.

According to a study conducted in the Amazon Forest that analysed the carbon stocks of a secondary forest with 14 years old, the average carbon stock in above ground biomass is around 19 tC/ha¹³⁹. Below ground biomass was estimated through the root-to-shoot ratio from the applied methodology. Therefore, the average value for secondary forests is around 22.8 tC/ha.

¹³⁶ Available at: <https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene/publicacoes/comunicacoes-nacionais-do-brasil-a-unfccc/arquivos/3tcn_volume_3.pdf>

¹³⁷ Sâmia Nunes et al 2020 *Environ. Res. Lett.* **15** 034057. Available at: <<https://iopscience.iop.org/article/10.1088/1748-9326/ab76db>>

¹³⁸ Silva Junior, C.H.L., Heinrich, V.H.A., Freire, A.T.G. et al. Benchmark maps of 33 years of secondary forest age for Brazil. *Sci Data* **7**, 269 (2020). Available at: <<https://doi.org/10.1038/s41597-020-00600-4>>

¹³⁹ Pereira, Izaura Cristina Nunes. Estoque de biomassa e carbono florestal em unidades de paisagem na Amazônia: uma análise a partir da abordagem metodológica. Universidade Federal do Pará, Belém, 2013. Available at: <<https://ppgdstu.prosp.ufpa.br/ARQUIVOS/teses/TESES/2013/IZAURA%20CRISTINA%20NUNES%20PEREIRA.pdf>>

It was also considered the uncertainties involved in the mentioned studies, according to the adopted methodology. Thus, the post-deforestation carbon stock with after discounts due to uncertainty was applied. It is worth highlighting that, according to the adopted methodology, if uncertainty is higher than 10%, the lower boundary of the 90% confidence interval should be considered for final non-forest class in the leakage belt. In the other hand, the same error condition implies that the higher boundary of the 90% confidence interval should be considered for final non-forest class in the project area, as follows:

Land Use	Average post-deforestation carbon stock 90% CI			
	Estimated carbon stock (tCO ₂ e/ha)	Uncertainty (tCO ₂ e/ha)	Ctotfcl +90% (within PA)	Ctotfcl +90% (within LK)
Pasture	27.76	7.45	35.21	20.30
Secondary Forests	83.59	4.04	83.59	83.59
Agriculture	77.00	20.68	97.68	56.32
Mining	0.00	0.00	0.00	0.00
Urban Area	0.00	0.00	0.00	0.00

Therefore, the weighted average carbon stock was calculated through the data below.

Land Use	Area (%)	Ctotfcl +90% (within PA)	Ctotfcl +90% (within LK)
Pasture	87.22	35.21	20.30
Secondary Forests	12.76	83.59	83.59
Agriculture	0.01	97.68	56.32
Mining	0.00	0.00	0.00
Urban Area	0.00	0.00	0.00
Weighted average of post-deforestation carbon stocks		41.39	28.38

After converting the weighted average of post-deforestation carbon stock (in terms of tC/ha) using the conversion factor previously mentioned, the carbon stock in terms of tCO₂e/ha is available as follows:

Table 31. Average carbon stocks per hectare of post-deforestation LU/LC classes present in the reference region

Post deforestation class *fcl*

Name	Non forest
ID _{ref}	1
Average carbon stock per hectare $\pm 90\%$ CI	
C _{totref}	
tCO _{2e} /ha	
41.39	

Analysis of Baseline Approach in this Monitoring Period (2023)

To ensure that the appropriate baseline approach for the current monitoring period is being used, an analysis was carried out to compare the applicability of different approaches.

When comparing the real deforestation using the Time Function approach (ex-ante used in the JointPD&MR and 2ndMR) for the monitoring period (2023), it is possible to note that the projection would be around 95% higher than the real scenario, proving not to be the best approach to use, as demonstrated in table below:

Table 32. Comparison between ex-ante and ex-post deforestation within Reference Region with Time Function approach during the monitoring period (01-January-2023 to 31-December-2023)

When Historical and actual (ex-post) within region ex-post is than the following historical and actual reference current	Ex-ante deforestation using time function approach (ha)	E x- p o s t (h a)	comparing the Average approach deforestation (ex-the reference during 2023, the around 27% lower projection. The table shows the average projection deforestation in the region during the monitoring period:
	21,511.38	1 1 , 0 2 1 . 2 2	

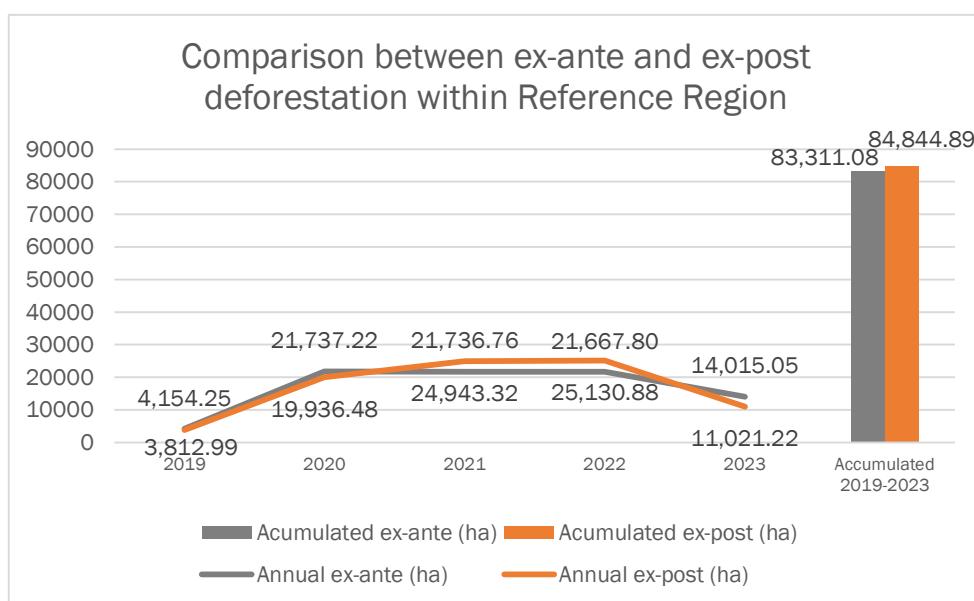
Table 33. Comparison between ex-ante and ex-post deforestation within Reference Region with Historical Average approach during the monitoring period (01-January-2023 to 31-December-2023)

Ex-ante deforestation using historical average approach (ha)	E x - p
--	------------------

It is		o s t (h a)	important to
Table	14,015.05	1	complement the
wider		1	above with a
between		,	comparison
post		0	ex-ante and ex-
		2	analysis in the
Region.		1	Reference
Figure		.	The following
		2	illustrates that the
		2	accumulated ex-

post is higher than ex-ante values. In addition, the relation between the accumulated is higher than 98%, what reinforces the projections are not inflated.

Figure 25. Ex-ante and ex-post analysis since project start date

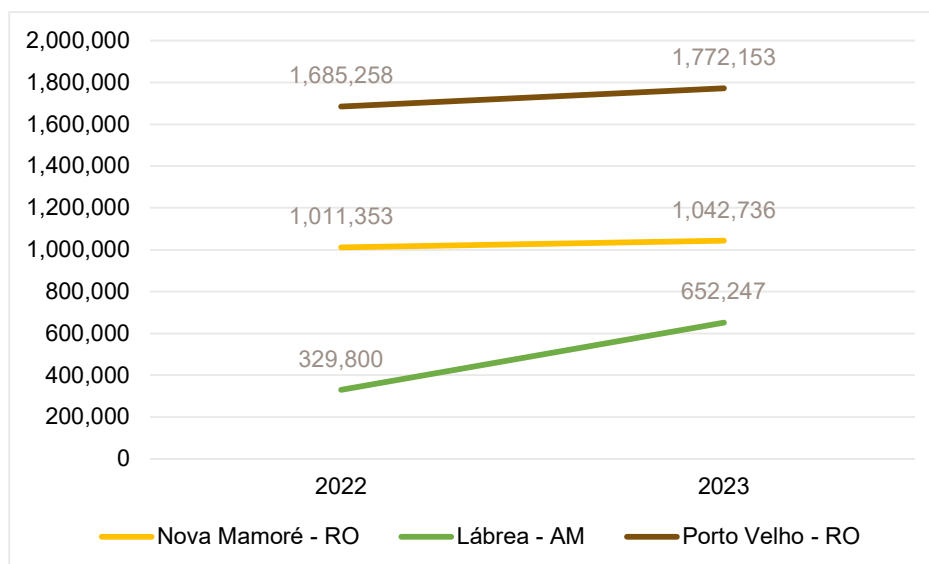


In addition, an updated analysis of the behavior of deforestation agents in the region was carried out in order to confirm the correct use of the approach.

The Figure below shows the increase in the cattle herd during 2023, where there was a gain of 440,725 heads, representing a 15% increase during the monitored period. The municipality

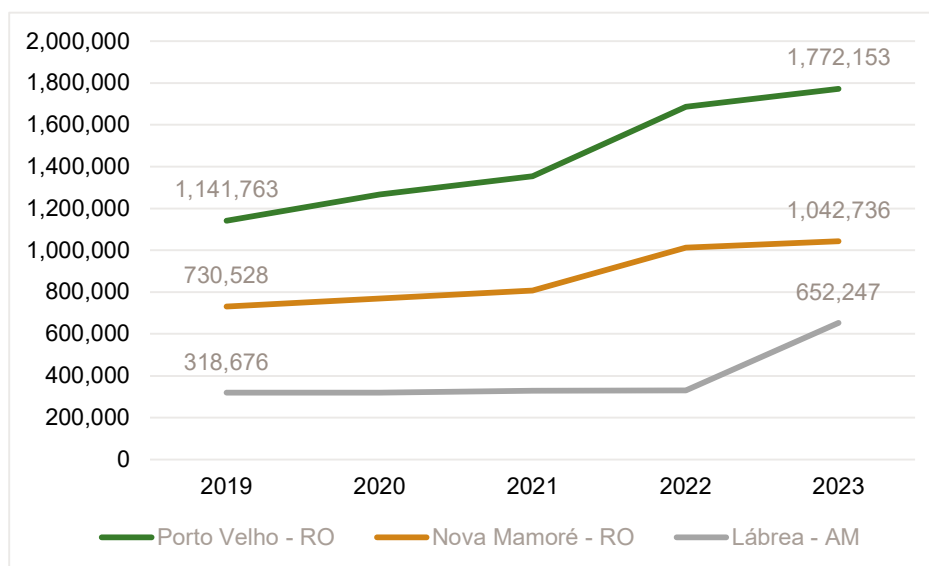
responsible for the largest cattle herd is Porto Velho, the 2nd largest producer in Brazil during the present monitoring period (2023)¹⁴⁰.

Figure 26. Cattle herd growth in the surrounding municipalities during 2023¹⁴¹



When analyzing the credit period, it can be observed the livestock growth is constant, except for some periods, as shown in the following Figure:

Figure 27. Cattle herd growth in the surrounding municipalities during the crediting period (2019-2023)¹⁴²



¹⁴⁰ IBGE – Instituto Brasileiro de Geografia e Estatística. Brazil. Available at <https://sidra.ibge.gov.br/tabela/3939>

¹⁴¹ IBGE – Instituto Brasileiro de Geografia e Estatística. Brazil. Available at: <https://cidades.ibge.gov.br/>

¹⁴² IBGE – Instituto Brasileiro de Geografia e Estatística. Brazil. Available at: <https://cidades.ibge.gov.br/>

This cattle ranching increase can be linked to several factors, such as the region's location near agricultural frontiers, the high consumption of the product by the international market and also the creation of tax incentives and policies favorable to the agricultural sector, especially in 2021, such as the Safra Plan¹⁴³. Such a program offers rural credit to producers, as well as other facilitators. Finally, the region has a history of occupation of the agricultural frontier and cattle ranching since the colonization process, as described in the registered Joint VCSPD section 3.4.

Although the analysis shows an increase in the largest agent of deforestation, actual deforestation in the Reference Region is around 128% lower compared to the last period monitored and showed a considerable discrepancy with the projection based on the approach previously used (Time Function), and it likely that this constant trend will continue in the future, thus indicating that the most appropriate approach to apply for the current monitoring period is the Historical Average, as shown in the tables above.

It is important to mention that the approach previously used was the most appropriate one applicable to previous periods (2019 to 2022), as demonstrated through the analyses included in the Joint VCSPD and the 2nd monitoring report. The shift in the deforestation dynamics observed in the region in 2023 can be attributed to the intensification of the Environmental enforcement carried out by agencies (such as IBAMA and SEDAM). This followed after the end of the Bolsonaro administration, a period marked by significant challenges to environmental conservation. These challenges included budget cuts, management changes within Agencies, and strong support for the agribusiness sector. According to the registered Joint VCSPD, the former government was identified as an underlying cause for the increase in deforestation. With the start of the new government in 2023, IBAMA not only renewed its efforts to combat deforestation but also resolved pending cases, ensuring they did not expire.¹⁴⁴ This strengthening of enforcement actions resulted in a reduction in the deforestation rate in the Amazon, which fell by 21.8% in 2023 compared to the same period in 2022¹⁴⁵. According to the Annual Deforestation Report of MapBiomas, the state of Rondônia was one of those that showed the greatest reduction in deforestation if compared to 2022, achieving a reduction of around 68% to 70%¹⁴⁶. The 56% decline¹⁴⁷ in deforested areas within the Reference Region reflects the general reduction in deforestation observed both at the State level and across the biome.

Additionally, as a consequence of the policies and actions during the 2018-2022 government, the intense deforestation in preceding years resulted in a significant loss of forested areas within the Reference Region.

¹⁴³ Available at: < <https://www.gov.br/agricultura/pt-br/assuntos/politica-agricola/todas-publicacoes-de-politica-agricola/plano-agricola-pecuario/plano-safra-2021-2022.pdf> >

¹⁴⁴ Available at: <https://climainfo.org.br/2025/01/19/ibama-tem-recorde-de-arrecadacao-com-multas-ambientais-em-2024/>

¹⁴⁵ Available at: <https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/noticias/2024/05/desmatamento-na-amazonia-cai-21-8-em-2023#:~:text=A%20taxa%20consolidada%20de%20desmatamento,anterior%2C%20a%20menor%20desde%202019.>

¹⁴⁶ Available at: https://alerta.mapbiomas.org/wp-content/uploads/sites/17/2024/10/RAD2023_COMPLETO_15-10-24_PORTUGUES.pdf

¹⁴⁷ Comparison between deforestation in Reference Region between 2022 and 2023 (25,130.88-11,021.22)/(25,130.88) = 56%

The table below reflects the decrease in deforestation in 2023 compared to previous years, when deforestation increased considerably.

Table 34. Annual Deforestation in Reference Region since the Project Start Date

Year	Annual Deforestation (ha)
October-2019 to December-2019	3,812.99
2020	19,936.48
2021	24,943.32
2022	25,130.88
2023	11,021.22

To illustrate the importance of the Rio Madeira Grouped REDD Project, an analysis was conducted to identify the contribution of the conserved area within the project in the context of the Reference Region. When analyzing the monitored period (2023), the area belonging to the project corresponds to approximately 11.79% of the forest area contained within the Reference Region (including private and public areas), as illustrated in the following table:

Table 35. Contribution of Project Area in the forest area present in Reference Region in the current monitoring period (01-January-2023 to 31-December-2023)

Forest in RR (ha)	Forest in Project Area (ha)	Contribution of the PA (%)
441,193.38	52,032.33	11.79

Additionally, analyzing the scope from the historical period, the contribution variation of the conserved area within the project in the context of the Reference Region between 2009 and 2023 was approximately 61.98%, as shown in the table and graphs below. This value represents the percentage change in the contribution of the Project Area (PA) to the forest area in the Reference Region (RR) between 2009 and 2023.

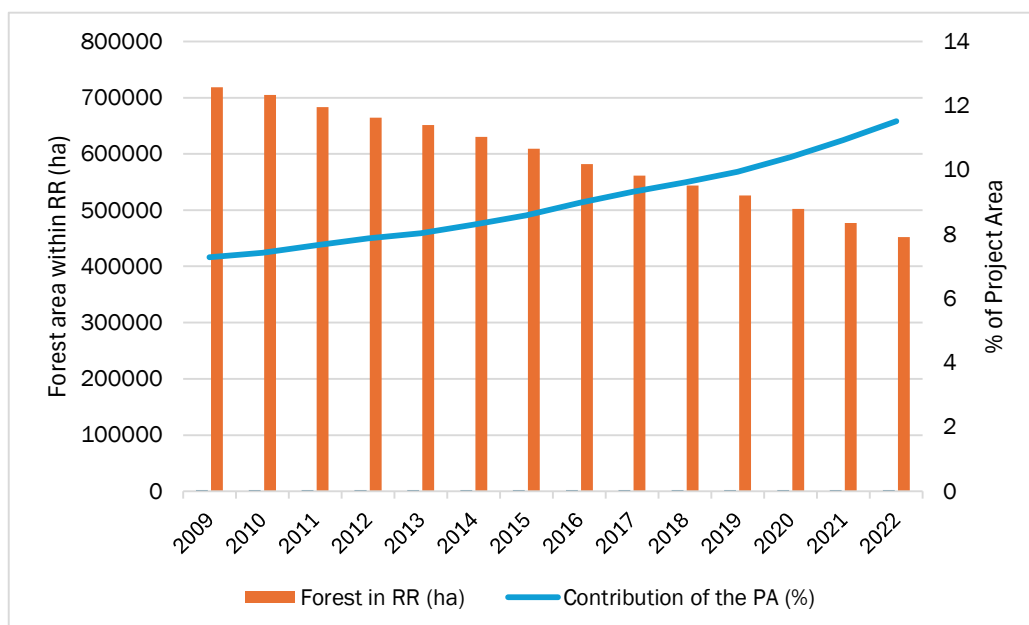
Table 36. Comparison between the participation of Project Area in the forest area present in Reference Region in Historical Reference Period and the current monitoring period (2009 to 2023)¹⁴⁸

Year	Forest in RR (ha)	Forest in Project Area (ha)	Contribution of the PA (%)
------	-------------------	-----------------------------	----------------------------

¹⁴⁸ The values can be consulted in the ER spreadsheet, tables "PSD" and "Table RR ex post"

2009	717,983.64	52,274.05	7.28
2010	704,812.50	52,274.05	7.42
2011	683,015.31	52,274.05	7.65
2012	664,267.59	52,274.05	7.87
2013	651,296.07	52,274.05	8.03
2014	629,801.55	52,274.05	8.30
2015	609,098.49	52,274.05	8.58
2016	581,876.46	52,274.05	8.98
2017	561,563.73	52,274.05	9.31
2018	543,885.66	52,274.05	9.61
2019	526,038.27	52,269.49	9.94
2020	502,288.80	52,216.60	10.40
2021	477,345.48	52,150.46	10.93
2022	452,214.60	52,081.79	11.52
2023	441,193.38	52,032.33	11.79

Figure 28. Contribution of Project Area (%) to forest areas within the Reference Region



Finally, based on the presented analysis and the justification shown in Section 2.2.5 (Project Deviation) it was observed that historical average approach is the most appropriate to represent deforestation dynamic in 2023. The methods and parameters used in the Historical Average Approach were detailed in Section 2.2.5 and the application of the average deforestation rate was presented in detail in the MR Calculation sheets (Equation 3 RR tab).

Thus, the baseline approach was changed (from time function to historical average) in the current monitoring period and is valid up to the next baseline reassessment. It reinforces that the project continues to assert its importance for forest conservation with conservativeness.

Calculation of baseline carbon stock changes

The resulting changes in carbon stock for initial forest classes for the reference region, project area, and leakage belt are as presented as follows:

Table 37. Ex post carbon stock change in the reference region

Carbon stock change in the above-ground biomass per initial forest class <i>icl</i>				Carbon stock change in the below-ground biomass per initial forest class <i>icl</i>				Carbon stock changes in above-ground biomass per post-deforestation zone <i>z</i>				Total net carbon stock change in the reference region	
Total carbon stock change in the above-ground biomass of initial forest class in the reference region		Total carbon stock change in the below-ground biomass of initial forest class in the reference region		Total carbon stock change of post deforestation zones in the reference region		Total net carbon stock change in the reference region							
ID _{cl}	1	$\Delta C_{abBSL} RR_{icl,t}$	$\Delta C_{abBSLRR} icl$	ID _{cl}	1	$\Delta C_{bbBSL} R_{icl,t}$	$\Delta C_{bbBSLRR} icl$	ID _{lz}	1	$\Delta C_{BSLRR_{z,t}}$	ΔC_{BSLRR_z}	ΔC_{BSLRR_t}	ΔC_{BSLRR}
Name	Forest	annual	cumulative	Name	Forest	annual	cumulative	Name	Non-forest	annual	cumulative	annual	cumulative
Project year	tCO _{2e}	tCO _{2e}	tCO _{2e}	Project year	tCO _{2e}	tCO _{2e}	tCO _{2e}	Project year	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	5,706,053	5,706,053	43,927,028	2023	1,054,225	1,054,225	2,919,003	2023	339,520	339,520	690,223	6,420,758	46,155,808

Table 38. Ex post carbon stock change in the project area

Carbon stock change in the above-ground biomass per initial forest class <i>icl</i>				Total carbon stock change in the above-ground biomass of initial forest class in the project area	
ID _{cl}	1	1	1	$\Delta C_{abBSLPA_{icl,t}}$	$\Delta C_{abBSLPA_{ic,l}}$
Name	Grupo Rovema	Grupo Tupá	Grupo Leite	annual	cumulative
Project Year	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	16,526	2,319	6,762	25,607	125,149

Carbon stock change in the below-ground biomass per initial forest class <i>icl</i>				Total carbon stock change in the below-ground biomass of initial forest class in the project area	
ID _{cl}	1	1	1	$\Delta C_{bbBSLPA_{icl,t}}$	$\Delta C_{bbBSLPA_{ic,l}}$
Name	Grupo Rovema	Grupo Tupá	Grupo Leite	annual	cumulative
Project Year	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	1,245	881	877	3,004	7,699

Carbon stock changes in above-ground biomass per post-deforestation zone <i>z</i>		Total carbon stock change of post deforestation zones in the project area		Total net carbon stock change in the project area	
ID _z	1	$\Delta C_{BSLPA_{z,t}}$	$\Delta C_{BSLPA_{z,l}}$	ΔC_{BSLPA_t}	ΔC_{BSLPA_l}
Name	Non-forest	annual	cumulative	annual	cumulative
Project Year	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	884	884	1,738	27,726	131,110

Table 39. Ex post carbon stock change in the leakage belt

Carbon stock change in the above-ground biomass per initial forest class <i>icl</i>		Total carbon stock change in the above-ground biomass of initial forest class in the leakage belt	
ID _{cl}	1	$\Delta C_{abBSLLK}_{cl,t}$	$\Delta C_{abBSLLK}_{cl}$
Name	Forest	annual	cumulative
Project year	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	265,944	265,944	1,904,493

Carbon stock change in the below-ground biomass per initial forest class <i>icl</i>		Total carbon stock change in the below-ground biomass of initial forest class in the leakage belt	
ID _{cl}	1	$\Delta C_{bbBSLLK}_{cl,t}$	$\Delta C_{bbBSLLK}_{cl}$
Name	Forest	annual	cumulative
Project year	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	45,707	45,707	119,553

Carbon stock changes in above-ground biomass per post-deforestation zone <i>z</i>		Total carbon stock change of post deforestation zones in the leakage belt	
ID _{lz}	1	$\Delta C_{totBSLLK}_{z,t}$	$\Delta C_{totBSLLK}_z$
Name	Non-forest	annual	cumulative
Project year	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	9,981	9,981	18,742

Total net carbon stock change in the leakage belt	
$\Delta C_{totBSLLK}_t$	$\Delta C_{totBSLLK}$
annual	cumulative
tCO _{2e}	tCO _{2e}
301,670	2,005,304

Baseline non-CO2 emissions from forest fires

As described in the baseline scenario, slash-and-burn deforestation to clear the area is carried out for cattle ranching, which is the main cause of deforestation within the project area.

Therefore, baseline deforestation in the project area involves fire and all above ground biomass is burnt. It is worth mentioning that the effect of fire on CO2 emissions is counted in the estimation of carbon stock changes; therefore, CO2 emissions from biomass burning were ignored to avoid double counting. However, non-CO2 emissions (CH4 and N2O) from forest fires (EBBBSLPAt) were quantified and included as baseline emissions, as follows.

$$EBB_{tot_{icl,t}} = EBB_{N_2O_{icl,t}} + EBB_{CH_4_{icl,t}}$$

Where,

$EBB_{tot_{icl,t}}$	Total GHG emission from biomass burning in forest class icl at year t; tCO ₂ e/ha
$EBB_{N_2O_{icl,t}}$	N ₂ O emission from biomass burning in forest class icl at year t; tCO ₂ e/ha
$EBB_{CH_4_{icl,t}}$	CH ₄ emission from biomass burning in forest class icl at year t; tCO ₂ e/ha

$$EBB_{N_2O_{icl,t}} = EBB_{CO_2_{icl,t}} * 12/44 * NCR * ER_{N_2O} * 44/28 * GWP_{N_2O}$$

Where,

$EBB_{CO_2_{icl,t}}$	Per hectare CO ₂ emission from biomass burning in slash and burn in forest class icl at year t; tCO ₂ e/ha
NCR	Nitrogen to Carbon Ratio (IPCC default value = 0.01); dimensionless
ER_{N_2O}	Emission ratio for N ₂ O (IPCC default value = 0.007)
GWP_{N_2O}	Global Warming Potential for N ₂ O (IPCC default value) ¹⁴⁹

$$EBB_{CH_4_{icl,t}} = EBB_{CO_2_{icl,t}} * 12/44 * ER_{CH_4} * 16/12 * GWP_{CH_4}$$

Where,

¹⁴⁹ Latest data from IPCC 2021 – Sixth Assessment Report. Available at: <https://www.ipcc.ch/report/ar6/wg1/chapter/chapter-7/>. Table 7.15, value for N₂O = 273.

$EBBCO_{2icl,t}$	Per hectare CO ₂ emission from biomass burning in slash and burn in forest class icl at year t; tCO ₂ e/ha
ER_{CH_4}	Emission ratio for CH ₄ (IPCC default value = 0.012)
GWP_{CH_4}	Global Warming Potential for CH ₄ (IPCC default value) ¹⁵⁰

$$EBBCO_{2icl,t} = F_{burnt,icl} * (C_{p,icl,t} * P_{burnt,p,icl} * CE_{p,icl})$$

Where,

$EBBCO_{2icl,t}$	Per hectare CO ₂ emission from biomass burning in the forest class icl at year t; tCO ₂ e/ha
$F_{burnt,icl}$	Proportion of forest area burned during the historical reference period in the forest class icl; %
$C_{p,icl,t}$	Average carbon stock per hectare in the carbon pool p burnt in the forest class icl at year t; tCO ₂ e/ha
$P_{burnt,p,icl}$	Average proportion of mass burnt in the carbon pool p in the forest class icl; %
$CE_{p,icl}$	Average combustion efficiency of the carbon pool p in the forest class icl; dimensionless (IPCC default of 0.5)
p	Carbon pool that could burn, above-ground biomass

For the F_{burnt} , it was considered default value from MCTI (Science, Technology and Innovation Ministry)¹⁵¹. According to the governmental publication, the combustion factor for the vegetation type Open Tropical Rainforest (Aa, Ab, As) is 45%.

The P_{burnt} estimated using the average biomass per hectare that has commercial value and could be removed prior to clear cutting and burning. Based on literature, an average value of 61.6 m³/ha was obtained, which would correspond to approximately 11% of the total biomass in 1 ha. In this way, the remaining is burned to clear the area, therefore, its new value is 88.6%.

¹⁵⁰ Latest data from IPCC 2021 – Sixth Assessment Report. Available at: <https://www.ipcc.ch/report/ar6/wg1/chapter/chapter-7/>. Table 7.15, value for CH₄ = 29.8.

¹⁵¹ Value of "Biomass combustion factors by phytophysiological group in the Amazon biome" for Open Tropical Rainforest available at the Third National Communication from Brazil to the United Nations Framework Convention on Climate Change Volume 3, Table A2.4, page 305 <<http://www.ccst.inpe.br/publicacao/terceira-comunicacao-nacional-do-brasil-a-convencao-quadro-das-nacoes-unidas-sobre-mudanca-do-clima-portugues/>>

However, due to the lack of literature estimates, a study from the Brazilian Amazon in the Cerrado vegetation was used for the comparison. This study reported that the total biomass consumed by fires varies from 72% to 84% (average 78%) in denser Cerrado types, which is a forest vegetation.

The most conservative value between these two estimates were used, i.e., Pburnt was estimated as 78%.

It is important to note that slash and burn practices are commonly used in the Amazon region to clear the area for other land uses thus, when burning an area, the main objective is to completely remove all the remaining biomass. Therefore, assuming that 78% of the biomass is combusted, there would still be 22% remaining biomass that shall be left to decompose, which also emits GHG to the atmosphere in this process.

Thus, the total actual non-CO₂ emissions from forest fire at year t in the project area at the baseline scenario (EBBBSLPA_t) were calculated as follows.

$$EBBBSLPA_t = ABSLPA_{icl,t} * EBBtot_{icl,t}$$

Where,

EBBBSLPA_t Total actual non-CO₂ emissions from forest fire at year t in the project area in the baseline scenario; tCO₂e/ha

ABSLPA_{icl,t} Annual area of deforestation of initial forest classes icl in the project area at year t; ha

EBBtot_{icl,t} Total GHG emission from biomass burning in forest class icl at year t; tCO₂e/ha

Values of all used parameters and baseline non-CO₂ emissions from forest fires are available at the following tables:

Table 40. Parameters used to calculate non-CO₂ emissions from forest fires

Initial Forest Class		Parameters								
		Fburnt _{icl}	Cab	Pburnt _{ab,icl}	CE _{ab,icl}	ECO2-ab	EBBCO2-tot	EBBN2O _{icl}	EBBCH4 _{icl}	EBBtot _{icl}
IDcl	Name	%	tCO ₂ e/ha	%	%	tCO ₂ e/ha	tCO ₂ e/ha	tCO ₂ e/ha	tCO ₂ e/ha	tCO ₂ e/ha
1	Open Tropical Rainforest (Forest)	45.00%	517.73	78%	50%	90.86	90.86	0.74	11.82	12.56

Table 41. Baseline non-CO₂ emissions from forest fires in the project

Project year t	Emissions of non-CO ₂ gasses from baseline forest fires						Total baseline non-CO ₂ emissions from forest fires in the project area	
	Grupo Rovema		Grupo Tupá		Grupo Leite		annual	cumulative
	ABSLPA _{icl,t}	EBBBSL _{tot,icl}	ABSLPA _{icl,t}	EBBBSL _{tot,icl}	ABSLPA _{icl,t}	EBBBSL _{tot,icl}	EBBBSLPA _t	EBBBSLPA
	ha	tCO _{2e} /ha	ha	tCO _{2e} /ha	ha	tCO _{2e} /ha	tCO _{2e}	tCO _{2e}
2023	1,214.34	12.56	354.43	12.56	52.19	12.56	20,358.53	79,418.54

3.2.2 Project Emissions (VCS, 3.15)

As detailed below, the instances within the Rio Madeira Grouped REDD Project may have a sustainable forest management plan implemented. This type of economic activity enables the harvesting of an economically feasible volume of forest products, however allowing the regeneration of the natural stock in accordance with the growth and recovery rates of the biome.

During this monitoring period, there were no sustainable management plans in operation in any of the instances¹⁵².

The ex post carbon stock decrease due to planned deforestation in the project area was calculated using the following equation:

$$\Delta\text{CPDdPA}_t = (\text{APDPA}_{icl,t} \times \Delta\text{C}_{tot,icl})$$

Where,

ΔCPDdPA_t Total decrease in carbon stock due to planned deforestation at year t in the project area; tCO_{2e}

$\text{APDPA}_{icl,t}$ Areas of planned deforestation in forest class icl at year t in the project area; ha

$\Delta\text{C}_{tot,icl}$ Average carbon stock change of all accounted carbon pools in forest class icl at time t; tCO_{2e}/ha

The ex post carbon stock decrease due to unplanned deforestation in the project area was calculated using the following equation:

$$\Delta\text{CUDdPA}_t = (\text{AUDPA}_{icl,t} \times \Delta\text{C}_{tot,icl})$$

Where,

¹⁵² For more information, please see table 25b in the ER spreadsheet

$\Delta CPUdPA_t$	Total ex post actual carbon stock change due to unavoidable unplanned deforestation at year t in the project area; tCO ₂ e
$AUDPA_{icl,t}$	Areas of unplanned deforestation in forest class icl at year t in the project area; ha
$\Delta Ctot_{icl}$	Average carbon stock change of all accounted carbon pools in forest class icl at time t; tCO ₂ e/ha

Therefore, the total carbon stock decreases due to planned and unplanned deforestation in the project area could be calculated, as depicted in the Table below.

Table 42. Ex post carbon stock decrease due to planned and unplanned deforestation in the project area

Project year t	Areas of planned deforestation x Carbon stock change (decrease) in the project area						Total carbon stock decrease due to planned deforestation		Areas of unplanned deforestation x Carbon stock change (decrease) in the project area						Total carbon stock decrease due to unplanned deforestation		Total carbon stock decrease due to planned and unplanned deforestation	
	Grupo Rovema		Grupo Tupá		Grupo Leite		annual	cumulative	Grupo Rovema		Grupo Tupá		Grupo Leite		annual	cumulative	annual	cumulative
	APDPAI cl,t	Ctoticl,t	APDPAI cl,t	Ctoticl,t	APDPAI cl,t	Ctoticl,t	ΔCPDdPA	ΔCPDdPA	AUDPA cl,t	Ctoticl,t	AUDPA cl,t	Ctoticl,t	AUDPA cl,t	Ctoticl,t	ΔCUDdPA	ΔCUDdPA	tCO2e	tCO2e
	ha	tCO2e/ ha	ha	tCO2e/ ha	ha	tCO2e/ ha	tCO2e	tCO2e	ha	tCO2e/ ha	ha	tCO2e/ ha	ha	tCO2e/ ha	tCO2e	tCO2e		
2023	0.00	641.99	0.00	641.99	0.00	641.99	0.00	51,073.47	31.92	641.99	4.48	641.99	13.06	641.99	31,752.65	155,184.67	31,752.65	206,258.15

Figure 29. Deforestation in Serra Verde farm (Instance 1) during the monitoring period (January 2023 to December 2023)

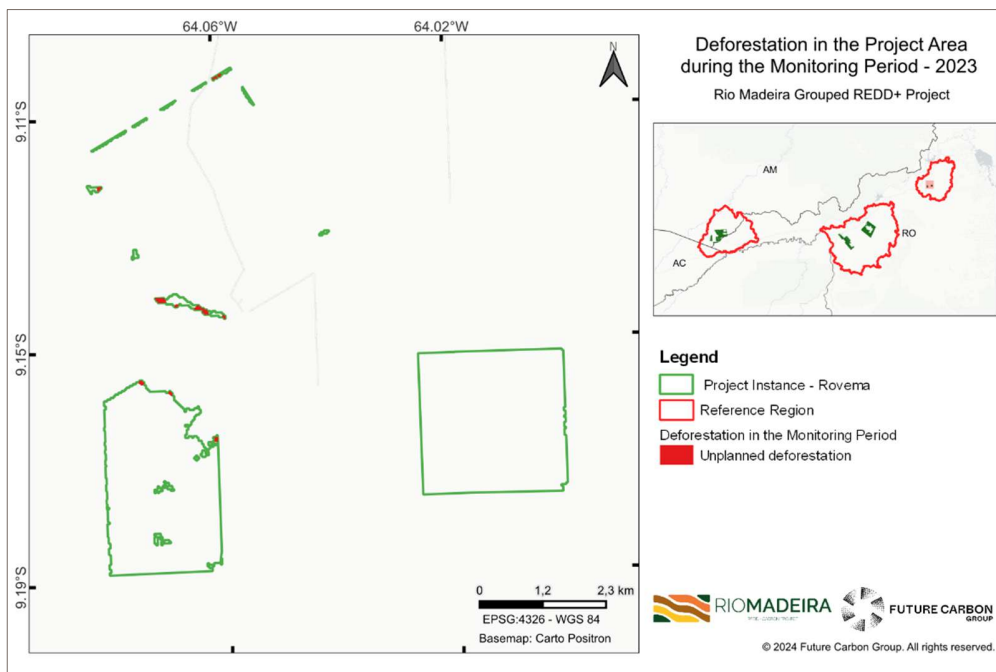


Figure 30. Deforestation in Rio Madeira farm (Instance 1) during the monitoring period (January 2023 to December 2023)

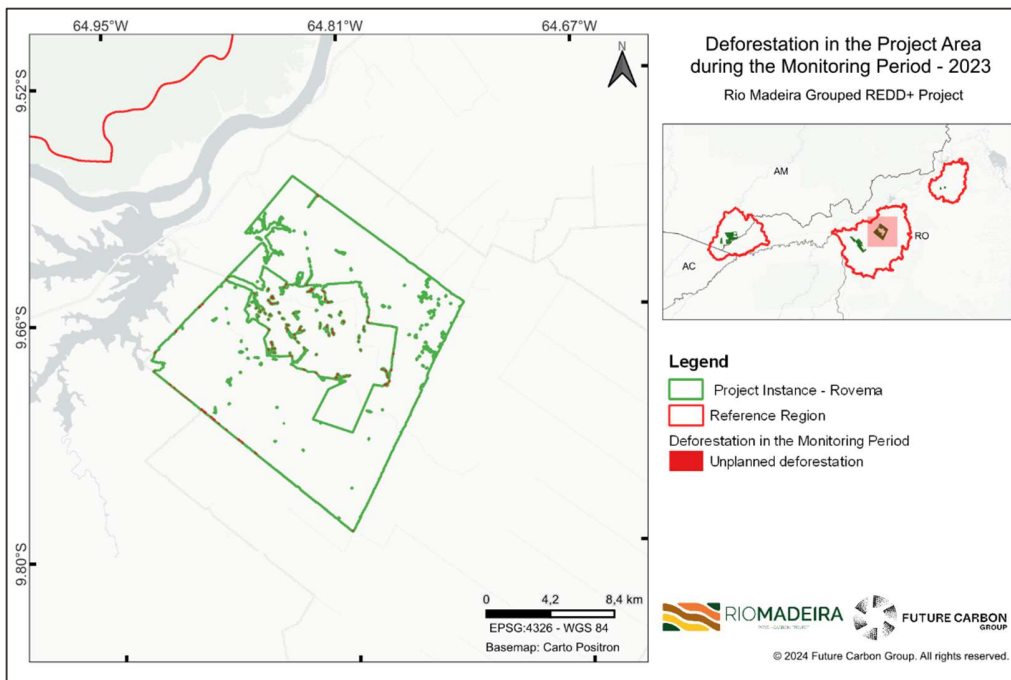


Figure 31. Deforestation in Santa Carmen farm (Instance 2) during the monitoring period (January 2023 to December 2023)

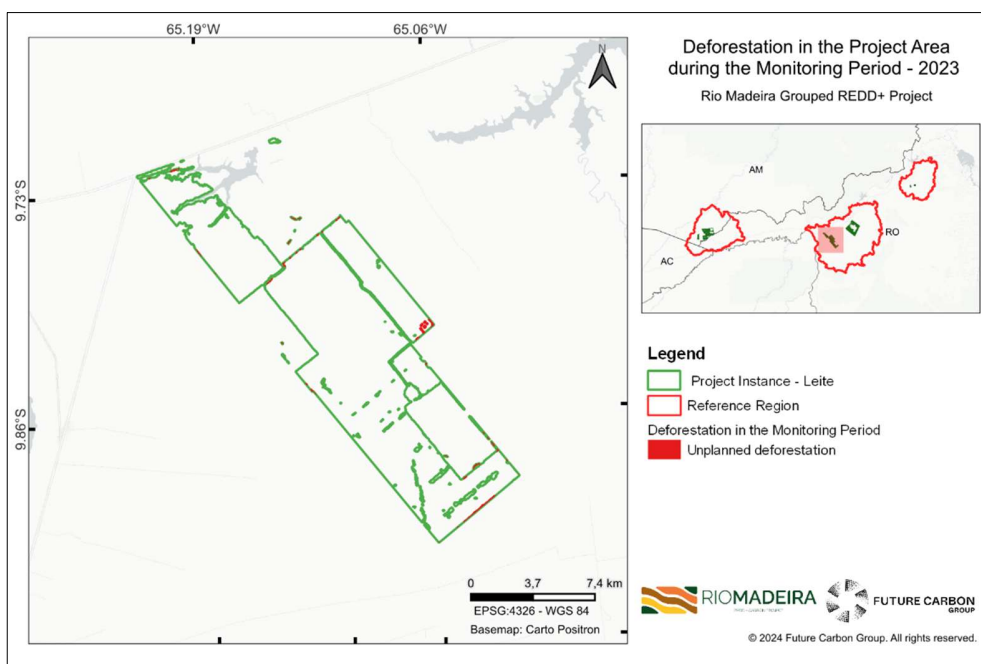
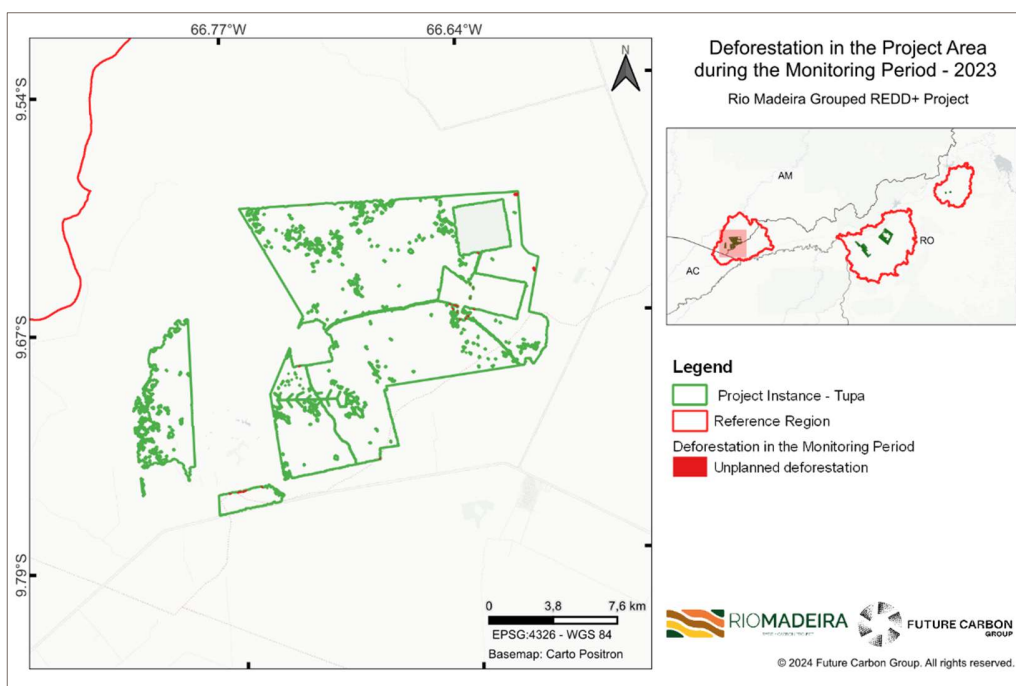


Figure 32. Deforestation in Nova Fronteira farm (Instance 3) during the monitoring period (January 2023 to December 2023)



Comparison between projection and classification of deforestation - 2023
Rio Madeira Grouped REDD+ Project

Legend

- Project Instance Rovema
- Reference Region
- Forest
- Avoided deforestation
- Unplanned deforestation
- Credited - 2020
- Credited - 2021
- Credited - 2022
- Non-forest 2020
- Non-forest 2021
- Non-forest 2022

0 3 6 km
 EPSG:4326 - WGS 84
 Basemap: Carto Positron

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The map displays the Rio Madeira Grouped REDD+ Project area, showing forest and deforestation data for 2020, 2021, and 2022. The map includes a legend, scale bar, and coordinate system.

Legend:

- Project Instance
- Reference Region
- Forest
- Avoided deforestation
- Unplanned deforestation
- Credited - 2020
- Credited - 2021
- Credited - 2022
- Non-forest 2020
- Non-forest 2021
- Non-forest 2022

Scale: 0 to 4 km

Coordinate System: EPSG:4326 - WGS 84

Basemap: Carto Positron

Map Labels: AM, AC, RO

Map Title: Comparisson between projection and classification of deforestation - 2023

Map Subtitle: Rio Madeira Grouped REDD+ Project

Map Footer: © 2024 Future Carbon Group. All rights reserved.

Figure 35. Cumulative deforestation in the project area since the project start date in Instance 2

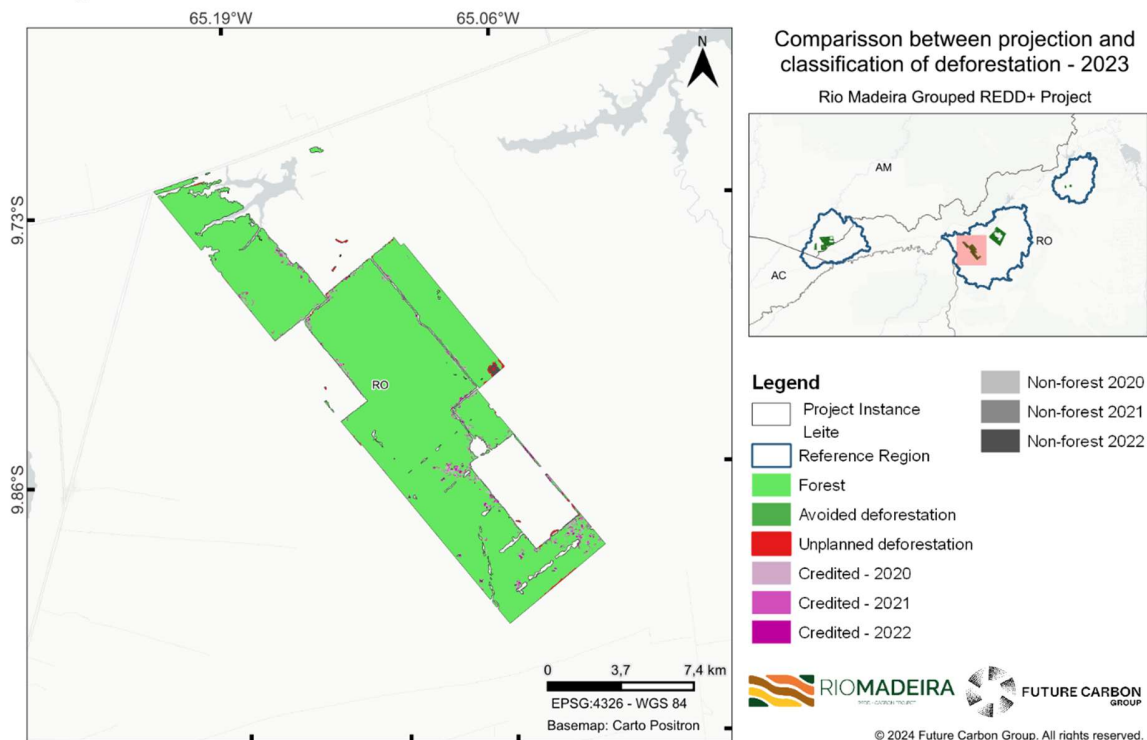
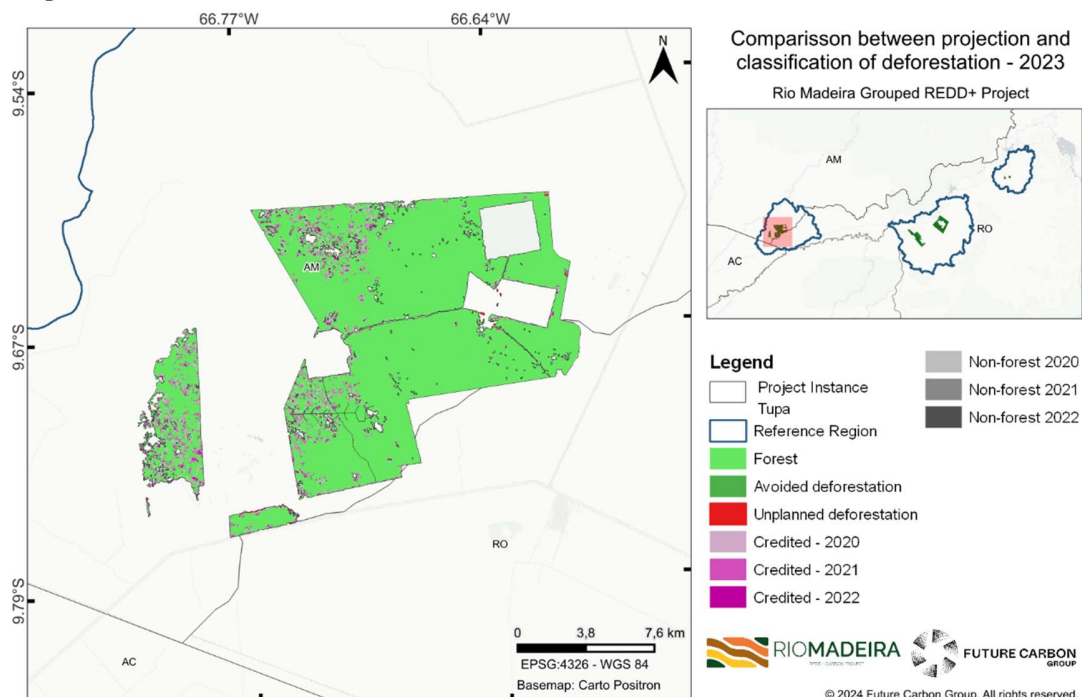


Figure 36. Cumulative deforestation in the project area since the project start date in Instance 3



In the project scenario, emissions due to planned logging activities results from timber harvesting and also from damages to vegetation during the directional tree felling, which generate forest residues (branches, remains of logs and other damaged trees during the tree felling).

According to Feldpausch et al (2005), the mean Coarse woody debris returned to the soil as necromass following logging and damage in: (1) tree felling gap formation (trees killed by tree-fall), (2) residual canopy from the felled tree, (3) road, (4) deck construction (whole trees plowed to the ground) and (5) skid maneuvering during logging, is about 6.9 Mg C/ha. According to section 4.3 (pg 212) from this same study, this represents 2.4 times the carbon taken off site in logs.

However, the MR already takes into account as planned deforestation the roads and decks constructions, which represent around 16% of the total damage¹⁵³. Therefore, the LDF is $2.4 * (1-0.159) = 2.0174$.

Thus, GHG emissions from logging activities include the volume of harvested timber plus the logging damage factor, as follows.

$$\Delta CLd_{icl} = (HI_{icl,t} + LDF) \times D_m \times CF \times 44 / 12$$

Where,

$\Delta CLd_{icl,t}$	Average carbon stock decrease due to logging activities in forest class <i>icl</i> at time <i>t</i> ; tCO ₂ e/ha
$HI_{icl,t}$	Harvesting intensity of timber in forest class <i>icl</i> at year <i>t</i> in the project area due to planned logging activities (i.e., sustainable forest management plan); m ³ /ha
LDF	Logging damage factor; m ³ /ha
D_m	Mean wood density; g/cm ³
CF	Default value of carbon fraction in biomass; tC t ⁻¹ d.m.
44/12	Ratio of molecular weight of CO ₂ to carbon; dimensionless

Harvested wood products were not accounted as carbon pool. Therefore, the *ex post* carbon stock decrease due to planned logging activities in the project area was calculated using the following equation:

$$\Delta CPLdPA_t = (APLPA_{icl,t} \times \Delta CLd_{icl,t}) - (APLPA_{icl,t} \times \Delta Cwpt)$$

Where,

¹⁵³ According to Feldpausch et al (2005), Table 6 shows mean damages divided into five groups, totaling 6.9 Mg/ha. However, if roads and log decks are excluded, 1.1Mg/ha should be discounted. Thus, 1.1/6.9 represent 16% of already discounted damage.

$\Delta CPLdPA_t$	Total decrease in carbon stock due to planned logging activities at year t in the project area; tCO ₂ e
$APLPA_{icl,t}$	Areas of planned logging activities in forest class icl at year t in the project area; ha
$\Delta CLd_{icl,t}$	Average carbon stock decrease due to logging activities in forest class icl at time t ; tCO ₂ e/ha
ΔCwp_t	Average carbon stock per hectare in the harvested wood products carbon pool at time t ; tCO ₂ e/ha

Thus, table below presents the *ex post* carbon stock decrease due to planned logging activities in the project area.

Table 43. Ex post actual carbon stock decrease due to planned logging activities in the project area

Project year t	Areas of planned logging activities x Carbon stock change (decrease) in the project area						Total carbon stock decrease due to planned logging activities	
	Grupo Rovema		Grupo Tupá		Grupo Leite		annual	cumulative
	$APLPA_{icl,t}$	$\Delta CLd_{icl,t}$	$APLPA_{icl,t}$	$\Delta CLd_{icl,t}$	$APLPA_{icl,t}$	$\Delta CLd_{icl,t}$	$\Delta CPLdPA_t$	$\Delta CPLdPA$
	ha	tCO ₂ e/ha	ha	tCO ₂ e/ha	ha	tCO ₂ e/ha	tCO ₂ e	tCO ₂ e
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	314,792.96

Fossil fuel emissions from sustainable forest management activities are likely to be less than 5% of the total GHG emissions reductions benefits generated by the present project. Considering that emissions from deforestation and forest degradation would be much higher than those associated with timber harvesting, the emissions from fossil fuel during transport and machinery use can be considered de-minimis. In addition, according to VCS AFOLU Requirements, fossil fuel emissions from transport and machinery use in REDD project activities can be considered de minimis.

Nevertheless, in order to estimate the fossil fuel emissions, it was counted all the invoices from diesel and other fossil fuel acquired from the instances during the monitored period. Then, it was estimated 5% of such volume was used for REDD project, including surveillance activities, fire break maintenance, among others. It is worth emphasizing all instances have heavy machinery for the traditional agribusiness activities (tractors, trucks, plows, harvester etc), therefore 5% is considered reasonable as informed by the landowners. Afterwards, the fuel volume was applied to the Brazilian GHG Protocol calculation tool¹⁵⁴ in order to estimate de fossil fuel emissions, which is summarized in the following table:

Table 44. Fossil fuel emissions during monitored period

Project year t	Fossil fuel emissions per instance	Total CO ₂ emissions from fossil fuel
---------------------	------------------------------------	--

¹⁵⁴ Available at <https://eaesp.fgv.br/centros/centro-estudos-sustentabilidade/projetos/programa-brasileiro-ghg-protocol>

	Grupo Rovema	Grupo Tupá	Grupo Leite	
	tCO ₂	tCO ₂	tCO ₂	tCO ₂
2023	68.09	7.45	38.01	113.55

Considering the total VCUs during the monitored period as shown in Section 3.2.4, the fossil fuel emissions during the monitored period can be considered de minimis since it represents than 5% of total VCUs.

No production of fuel wood or charcoal occurred within the project area during the monitoring period.

Thus, table below presents the total ex post carbon stock decrease due to planned activities in the project area.

Table 45. Total ex post carbon stock decrease due to planned activities in the project area

Project year <i>t</i>	Total carbon stock decrease due to planned deforestation		Total carbon stock decrease due to planned logging activities		Total carbon stock decrease due to planned fuel-wood and charcoal activities		Total carbon stock decrease due to planned activities	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCPDdPA_t	ΔCPDdPA	ΔCPLdPA_t	ΔCPLdPA	ΔCPFdPA_t	ΔCPFdPA	ΔCPAdPA_t	ΔCPAdPA
	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	0	51,073	0	314,793	0	0	0	365,866

Neither planned protection of secondary/degraded forests without harvest nor production of fuel-wood and charcoal are expected to occur within the project area under the project scenario. Thus, carbon stock increase due to growth without harvest or due to planned fuel-wood and charcoal activities were not monitored. However, if any of these activities is implemented in the future, a measurement of the carbon stock changes will be carried out.

According to the applied methodology, if the project activity generates a significant change in carbon stocks due to these activities, the carbon stock change shall be measured *ex post*. However, if the decrease is not significant, it shall not be accounted, and *ex post* monitoring is not required.

The calculation of the *ex post* net carbon stock change in the project area under the project scenario (ΔCPSPA_t) is described as follows.

$$\Delta\text{CPSPA}_t = \Delta\text{CPAdPA}_t + \Delta\text{CUDdPA}_t - \Delta\text{CPAiPA}_t$$

Where,

$\Delta CPSPA_t$	Sum of ex post actual carbon stock changes in the project area at year t; tCO ₂ e
$\Delta CPAdPA_t$	Total decrease in carbon stock due to all planned activities at year t in the project area; tCO ₂ e
$\Delta CUDdPA_t$	Total ex post actual carbon stock change due to unavoidable unplanned deforestation at year t in the project area; tCO ₂ e
$\Delta CPAiPA_t$	Total increase in carbon stock due to all planned activities at year t in the project area; tCO ₂ e

Ex post carbon stock change in the project area under the project scenario is shown below.

Table 46. Ex post net carbon stock change in the project area under the project scenario

Project year t	Total carbon stock decrease due to planned activities		Total carbon stock increase due to planned activities		Total carbon stock decrease due to unavoids unplanned deforestation		Total carbon stock change in the project case	
	Annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	$\Delta CPAdPA_t$	$\Delta CPAdPA$	$\Delta CPAiPA_t$	$\Delta CPAiPA$	$\Delta CUDdPA_t$	$\Delta CUDdPA$	$\Delta CPSPA_t$	$\Delta CPSPA$
	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
2023	0	365,866	0	8,513	31,753	155,185	31,753	512,538

No forest fire was used by the landowner for carrying out planned deforestation or timber harvesting activities. However, there were 28.99 ha of unplanned deforestation within the project area during the monitored period, which conversion of forest to non-forest could have involved fires.

The effect of fire on carbon emissions is counted in the estimation of carbon stock changes in the parameter $\Delta CUDdPA_t$; therefore CO₂ emissions from forest fires were ignored to avoid double counting. However, non-CO₂ emissions (CH₄ and N₂O) from forest fires must be counted in the project scenario, when they are significant.

It was conservatively assumed that all unplanned deforestation within the project area involved fire and all above ground biomass was burnt. Therefore, non-CO₂ emissions from forest fires were quantified and deducted from emission reductions, as follows:

$$EBB_{tot\,icl,t} = EBB_{N_2O\,icl,t} + EBB_{CH_4\,icl,t}$$

Where,

$EBB_{tot\,icl,t}$	Total GHG emission from biomass burning in forest class <i>icl</i> at year t; tCO ₂ e/ha
$EBB_{N_2O\,icl,t}$	N ₂ O emission from biomass burning in forest class <i>icl</i> at year t; tCO ₂ e/ha
$EBB_{CH_4\,icl,t}$	CH ₄ emission from biomass burning in forest class <i>icl</i> at year t; tCO ₂ e/ha

$$EBBN_2O_{icl,t} = EBBCO_{2icl,t} * 12/44 * NCR * ER_{N2O} * 44/28 * GWP_{N2O}$$

Where,

$EBBCO_{2icl,t}$	Per hectare CO ₂ emission from biomass burning in slash and burn in forest class <i>icl</i> at year <i>t</i> ; tCO ₂ e/ha
NCR	Nitrogen to Carbon Ratio (IPCC default value = 0.01); dimensionless
ER_{N2O}	Emission ratio for N ₂ O (IPCC default value = 0.007)
GWP_{N2O}	Global Warming Potential for N ₂ O ¹⁵⁵

$$EBBCH_{4icl,t} = EBBCO_{2icl,t} * 12/44 * ER_{CH4} * 16/12 * GWP_{CH4}$$

Where,

$EBBCO_{2icl,t}$	Per hectare CO ₂ emission from biomass burning in slash and burn in forest class <i>icl</i> at year <i>t</i> ; tCO ₂ e/ha
ER_{CH4}	Emission ratio for CH ₄ (IPCC default value = 0.012)
GWP_{CH4}	Global Warming Potential for CH ₄ ¹⁵⁶

$$EBBCO_{2icl,t} = F_{burnt,icl} * (C_{p,icl,t} * P_{burnt,p,icl} * CE_{p,icl})$$

Where,

$EBBCO_{2icl,t}$	Per hectare CO ₂ emission from biomass burning in the forest class <i>icl</i> at year <i>t</i> ; tCO ₂ e/ha
$F_{burnt,icl}$	Proportion of forest area burned during the historical reference period in the forest class <i>icl</i> ; %
$C_{p,icl,t}$	Average carbon stock per hectare in the carbon pool <i>p</i> burnt in the forest class <i>icl</i> at year <i>t</i> ; tCO ₂ e/ha
$P_{burnt,p,icl}$	Average proportion of mass burnt in the carbon pool <i>p</i> in the forest class <i>icl</i> ; % (conservatively assumed as 100%)
$CE_{p,icl}$	Average combustion efficiency of the carbon pool <i>p</i> in the forest class <i>icl</i> ; dimensionless (IPCC default of 0.5 was used)
<i>p</i>	Carbon pool that could burn, in the project case, above-ground biomass

¹⁵⁵ According to the VCS Standard, the six Kyoto Protocol greenhouse gases and ozone-depleting substances shall be converted using 100 year global warming potentials derived from the IPCC's Fifth Assessment Report. GWP for N₂O = 265.

¹⁵⁶ According to the VCS Standard, the six Kyoto Protocol greenhouse gases and ozone-depleting substances shall be converted using 100 year global warming potentials derived from the IPCC's Fifth Assessment Report. GWP for CH₄ = 28.

Thus, the total actual non-CO₂ emissions from forest fire at year t in the project area ($EBBPSPA_t$) were calculated as follows.

$$EBBPSPA_t = ABSLPA_{icl,t} * EBBtot_{icl,t}$$

Where,

$EBBPSPA_t$ Total actual non-CO₂ emissions from forest fire at year t in the project area; tCO₂e/ha

$ABSLPA_{icl,t}$ Annual area of deforestation of initial forest classes icl in the project area at year t ; ha

$EBBtot_{icl,t}$ Total GHG emission from biomass burning in forest class icl at year t ; tCO₂e/ha

Table 47. Total ex post emissions of GHG due to forest fires in the project area

Project year t	Areas of unplanned deforestation x Carbon stock change (decrease) in the project area						Total carbon stock decrease due to unplanned deforestation	
	Grupo Rovema		Grupo Tupá		Grupo Leite		annual	cumulative
	$AUDPA_{icl,t}$	$EBBPSPA_{icl,t}$	$AUDPA_{icl,t}$	$EBBPSPA_{icl,t}$	$AUDPA_{icl,t}$	$EBBPSPA_{icl,t}$	$EBBPSPA_t$	$EBBPSPA$
	ha	tCO ₂ e/ha	ha	tCO ₂ e/ha	ha	tCO ₂ e/ha	tCO ₂ e	tCO ₂ e
2023	31.92	12.56	4.48	12.56	13.06	12.56	621.20	2,894.56

Total ex post project emissions for the project area

The ex post carbon stock changes and non-CO₂ emissions in the Project area during the monitoring period is summarized in Table below.

Table 48. Total ex post actual net carbon stock changes and emissions of GHG gases in the project area

Project year <i>t</i>	Total ex post carbon stock decrease due to planned activities		Total ex post carbon stock increase due to planned activities		Total ex post carbon stock decrease due to unavoided unplanned deforestation		Total ex post carbon stock change		Total ex post estimated actual non-CO ₂ emissions from forest fires in the project area	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCPAdPA_t	ΔCPAdPA	ΔCPAiPA_t	ΔCPAiPA	ΔCUDdPA_t	ΔCUDdPA	ΔCPSPA_t	ΔCPSPA	EBBPSPA_t	EBBPSPA
	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
2023	0.00	365,866.44	0.00	7,914.18	31,752.65	155,184.67	31,752.65	513,136.93	621.20	2,894.56

3.2.3 Leakage Emissions (VCS, 2.5, 3.2, 3.6, 3.15, 4.3)

According to the applied methodology, two sources of leakage are considered: a) decrease in carbon stocks and increase in GHG emissions associated with leakage prevention measures; and b) decrease in carbon stocks and increase in GHG emissions associated with activity displacement leakage.

Ex post estimation of decrease in carbon stocks and increase in GHG emissions due to leakage prevention measures

To reduce the risk of activity displacement leakage, baseline deforestation agents could participate in activities within the project area and leakage management area that together will replace baseline income, product generation and livelihood of the agents as much as possible, so that deforestation will be reduced, and the risk of displacement minimized. As such, a reduction in carbon stocks and/or an increase in GHG emissions may occur compared to the baseline case. If this decrease in carbon stock or increase in GHG emission is significant, it must be accounted, and ex post monitoring will be required.

In order to calculate the net carbon stock changes that the planned leakage prevention measures are expected to occasion during the monitoring period, the projected carbon stocks shall be estimated in the leakage management area under the baseline case and project scenario.

$$\Delta CLPMLK_t = \Delta CPSLK_t - \Delta CBSLLK_t$$

Where,

$\Delta CLPMLK_t$ Carbon stock decrease due to leakage prevention measures at year t ; tCO₂e

$\Delta CBSLLK_t$ Annual carbon stock changes in leakage management areas in the baseline case at year t ; tCO₂e

$\Delta CPSLK_t$ Annual carbon stock change in leakage management areas in the project case; tCO₂e

If the net sum of carbon stock changes within a monitoring period is more than zero, leakage prevention measures are not causing any carbon stock decrease. The net increase shall conservatively be ignored in the calculation of net GHG emission reductions of the project activity. Nevertheless, if the net sum is negative, it must be accounted if significant.

According to the planned interventions carried out by the Rio Madeira Grouped REDD+ Project in the baseline case, no decrease in carbon stocks due to activities implemented in the leakage management area were identified, thus $\Delta CBSLLK = 0$.

During the current monitoring period, there were no carbon stock changes within the leakage management area due to deforestation of regenerated forests, since there has been no deforestation but regeneration.

Therefore, the ex post carbon stock change in leakage management areas in the project case (ΔCPSLK_t) was calculated as follows. The annual values are detailed in the Table below.

$$\Delta\text{CPSLK}_t = \text{APSLK}_{fcl,t} * \Delta\text{Ctot}_{icl}$$

Where,

ΔCPSLK_t Annual carbon stock change in leakage management areas in the project case; tCO₂e

$\text{APSLK}_{fcl,t}$ Annual area of class fcl with decreasing carbon stock in leakage management areas in the project case at year t; ha

ΔCtot_{icl} Average carbon stock change of all accounted carbon pools in forest class icl at time t; tCO₂e/ha

Table 49. Ex post carbon stock change in leakage management areas in the project case

Project year	Carbon stock changes in leakage management area in the project case			
	ID _{fcl}	1	annual	cumulative
	APSLK _{fcl,t}	Ctot _{fcl,t}	ΔCPSLK_t	ΔCPSLK
	ha	tCO ₂ e/ha	tCO ₂ e	tCO ₂ e
2023	0.00	36.37	0.00	10.12

The table below shows that the net sum of the changes in the carbon stock within the leakage management area during the current monitoring period is zero, i.e. the leakage prevention measures are not causing the carbon stock to decrease and therefore there are no leakage emissions.

Table 50. Ex post net carbon stock change in leakage management areas

Project year	Total carbon stock change in the baseline case		Total carbon stock change in the project case		Net carbon stock change due to leakage prevention measures	
	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCBSLLK_t	ΔCBSLLK	ΔCPSLK_t	ΔCPSLK	ΔCLPMLK_t	ΔCLPMLK
	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	0.00	0.00	0.00	10.12	0.00	10.12

Furthermore, leakage prevention measures carried out by the present project during the current monitoring period did not include agricultural intensification, fertilization, fodder production and/or other measures to enhance cropland and grazing land areas.

Therefore, the total ex post estimated carbon stock changes and increases in GHG emissions due to leakage prevention measures during this monitoring period is calculated as follows.

$$\text{ELPMLK}_t = \text{EgLK}_t + \Delta\text{CLPMLK}_t$$

Where,

ELPMLK_t Annual total increase in GHG emissions due to leakage prevention measures at year t; tCO_{2e}

Table 51. Ex post total emissions above the baseline from leakage prevention activities

Project year	Carbon stock decrease due to leakage prevention measures		Total ex ante GHG emissions from increased grazing activities		Total ex ante increase in GHG emissions due to leakage prevention measures	
	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCLPMLK_t	ΔCLPMLK	EgLK_t	EgLK	ELPMLK_t	ELPMLK
	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	0.00	10.12	0.00	0.00	0.00	10.12

Ex post decrease in carbon stocks and increase in GHG emissions due to activity displacement leakage

Activities that cause deforestation within the project area in the baseline case could be displaced outside the project boundary due to the implementation of the AUD project activity. A greater decrease in carbon stocks within the leakage belt during the project scenario than those predicted ex ante would indicate displacement of deforestation activities due to the project.

It is important to note that activity data for the leakage belt area was determined using the same methods applied to monitoring deforestation activity data in the project area. Leakage due to displacement activity was monitored by mapping forest cover change in the leakage belt.

As defined in the VCS Methodology VM0015 v1.1, if carbon stocks in the leakage belt area decrease more during project implementation than projected in the baseline case, this will be an indication that leakage due to displacement of baseline activities has occurred. Where strong evidence can be collected that deforestation in the leakage belt is attributable to deforestation agents that are not linked to the project area, the detected deforestation may not be attributed to the project activity and considered leakage.

From this perspective, it is possible to state that land-grabbing is a relevant phenom in the region that causes deforestation. Land-grabber is an illegal activity with the intention to have the land rights and make huge amounts of money selling areas that belong to the state or private owners¹⁵⁷. Utilizes aggressive methods based on encroachment, illegal settlements, wood and cattle stealing, fire outbreaks, among other illegal methods to steal private or public lands as they are occupied. In some extreme cases, it is possible to have gun fights, facilities destruction, and tortures.

Once the land grabbers stablish in the intended area to be robbed, the usual practice is cattle ranching in order to create a productive environment and avoid different versions of the land succession rather than illegal practice¹⁵⁸. When such episodes involve private areas, many times the landowners prefer to give up their lands and preserve their families and lives.

Generally, it is more likely to attack areas where the land titles are not fully legalized in notary and public authorities. Nevertheless, since the criminals are not always aware of the legal status of the land, the practice can also occur in fully legal properties.

Although the practice is undoubtedly illegal, there is no governmental efforts to stop it. Instead, there are political intentions to attenuate legal penalties for those who invade public lands in Brazil¹⁵⁹. The region where the project activity instances are located is known for this illegal practice, where several episodes were publicly announced recently^{160 161 162 163}.

Regarding leakage emissions due to activity displacement, it is calculated as the difference between the ex ante and the ex post assessments.

¹⁵⁷ Available at <https://theintercept.com/2022/12/01/profissionais-colocam-estado-a-servico-da-grilagem-de-terras-publicas-na-amazonia/>.

¹⁵⁸ Available at http://www.bibliotecaflorestal.ufv.br/bitstream/handle/123456789/4031/Livro_A-grilagem-de-terras-publicas-na-Amazonia-Brasileira_MMA.pdf?sequence=1&isAllowed=y.

¹⁵⁹ Available at <https://www.greenpeace.org/brasil/blog/pl-da-grilagem-legaliza-o-desmatamento-e-o-roubo-de-terras-publicas-no-brasil/>

¹⁶⁰ Available at <https://g1.globo.com/jornal-nacional/noticia/2022/08/18/grileiros-aproveitam-tempo-seco-para-abrir-novas-areas-na-floresta-ja-desmatada-no-sul-do-amazonas.ghtml>

¹⁶¹ Available at <https://oeco.org.br/noticias/organizacao-criminosa-envolvida-com-grilagem-de-terras-em-rondonia-e-alvo-de-acao-policial/>

¹⁶² Available at <https://www.tudorondonia.com/noticias/policia-federal-deflagra-operacao-de-combate-a-grilagem-de-terras-publicas-federais,89592.shtml>

¹⁶³ Available at <https://www12.senado.leg.br/noticias/materias/2022/11/29/marcos-rogerio-denuncia-invasao-da-fazenda-norbrasil-em-rondonia>

Furthermore, the monitoring of increases in GHG emissions within leakage belt (EADLK_t) was also carried out. However, as could be observed in the table above, no increase in GHG emissions within the leakage belt happened, thus non-CO2 emissions from biomass burning in the leakage belt were not associated with the project activity.

Figure 37. Cumulative deforestation in the Leakage Belt of Instance 1 since the project start date

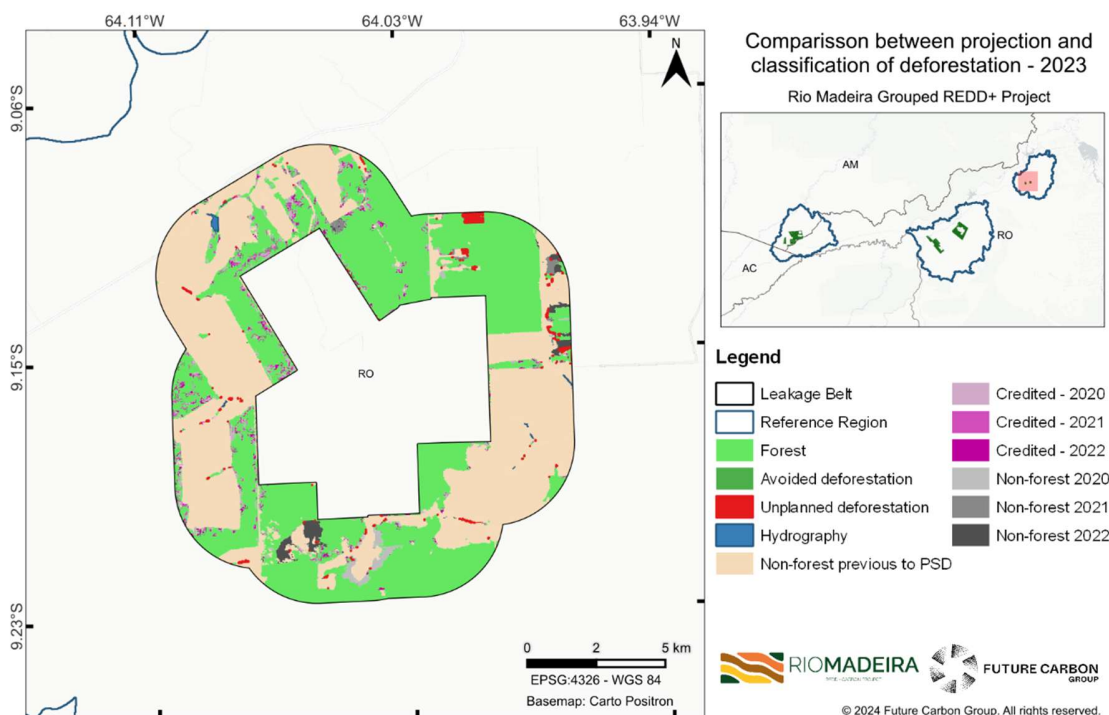


Figure 38. Cumulative deforestation in the Leakage Belt of Instance 2 since the project start date

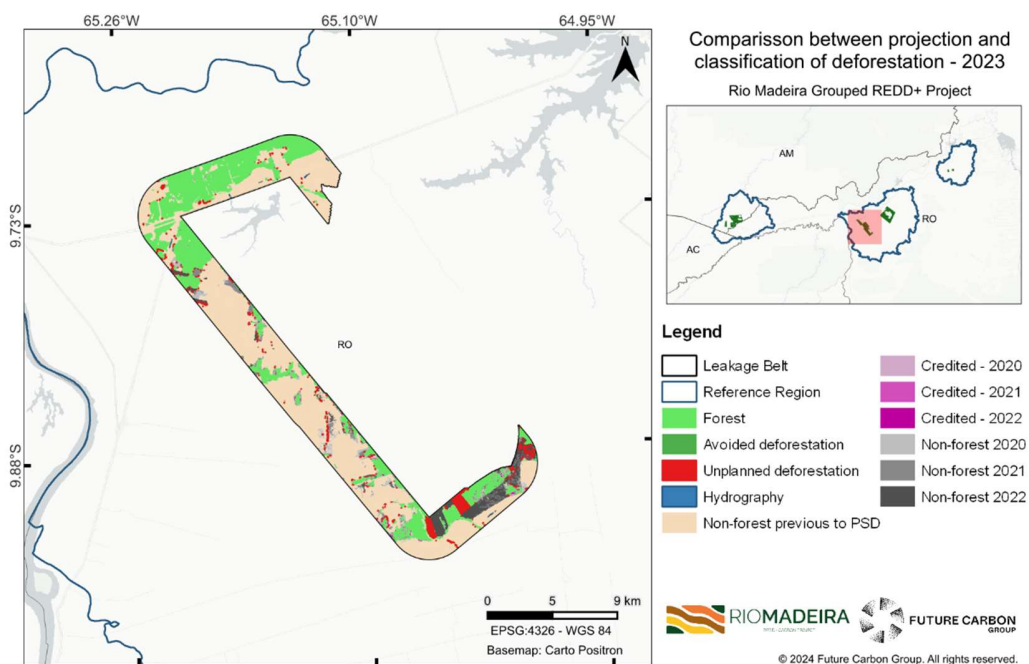
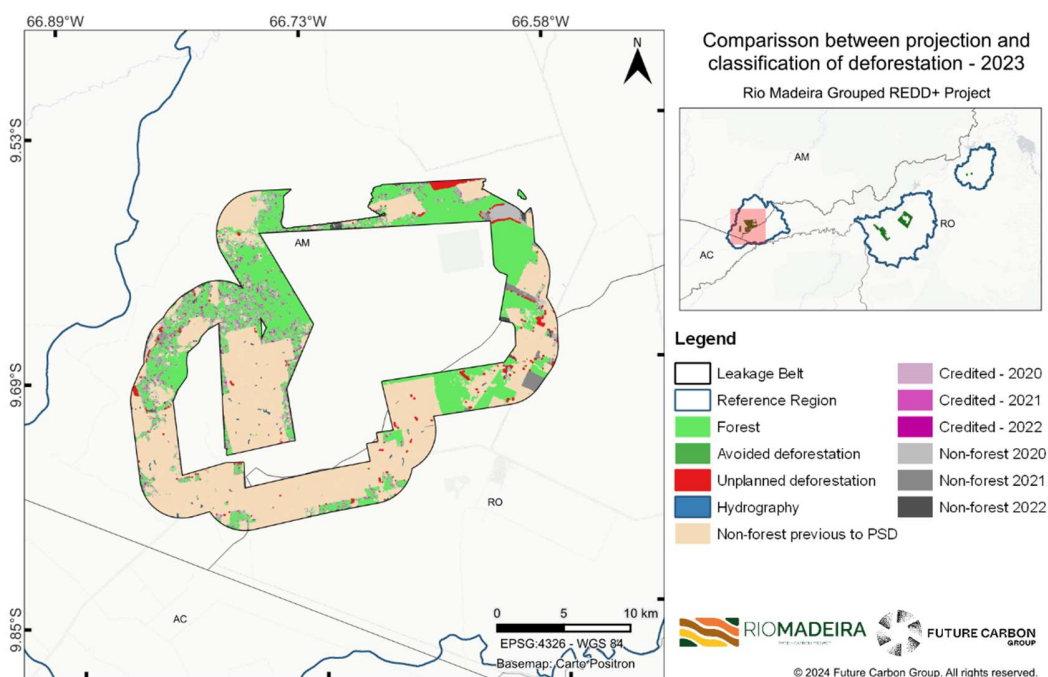


Figure 39. Cumulative deforestation in the Leakage Belt of Instance 3 since the project start date



Ex post estimation of total leakage

The result of all sources of leakage is calculated as follows:

$$\Delta CLK_t = \Delta CLPMLK_t + \Delta CADLK_t$$

Where:

ΔCLK_t Total decrease in carbon stocks within the leakage belt at year t ; tCO_{2e}

$\Delta CLPMLK_t$ Carbon stock decrease due to leakage prevention measures at year t ; tCO_{2e}

$\Delta CADLK_t$ Total decrease in carbon stocks due to displaced deforestation at year t ; tCO_{2e}

$$ELK_t = EgLK_t + EADLK_t$$

Where:

ELK_t Sum of *ex post* leakage emissions at year t ; tCO_{2e}

$EgLK_t$ Emissions from grazing animals in leakage management areas at year t ; tCO_{2e}

$EADLK_t$ Total *ex post* increase in GHG emissions due to displaced forest fires at year t ; tCO_{2e}

The results of all *ex post* estimations of leakage are summarized in the table below.

Table 52. Ex post total leakage

Project year	Total ex post GHG emissions from increased grazing activities		Total ex post increase in GHG emissions due to displaced forest fires		Total ex post decrease in carbon stocks due to displaced deforestation		Carbon stock decrease due to leakage prevention measures		Total net carbon stock change due to leakage		Total net increase in emissions due to leakage	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	$EgLK_t$	$EgLK$	$EADLK_t$	$EADLK$	$\Delta CADLK_t$	$\Delta CADLK$	$\Delta CLPMLK_t$	$\Delta CLPMLK$	ΔCLK_t	ΔCLK	ELK_t	ELK
	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}
2023	0.00	0.00	0.00	6,059.00	0.00	270,995.67	0.00	10.12	0.00	271,005.79	0.00	6,059.00

3.2.4 GHG Emission Reductions and Carbon Dioxide Removals (VCS, 3.15, 4.1)

State the non-permanence risk rating (%)	12
Has the non-permanence risk report been attached as either an appendix or a separate document?	☒ Yes ☐ No
For ARR and IFM projects with harvesting, state, in tCO _{2e} , the Long-term Average (LTA).	Not applicable
Has the LTA been updated based on monitored data, if applicable?	☐ Yes ☒ No

State, in tCO ₂ e, the expected total GHG benefit to date.	593,782
If a loss occurred (including a loss event or reversal), state the amount of tCO ₂ e lost:	Not applicable

Table 53. Net GHG emissions reductions and removals in the Rio Madeira Grouped REDD+ Project

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Buffer pool allocation (tCO ₂ e)	Reductions VCUs (tCO ₂ e)	Removals VCUs (tCO ₂ e)
01-Jan-2023 to 31-Dec-2023	918,816	32,374	0.00	104,004	782,437	0.00

Table 54. Ex-ante GHG emission reductions and carbon dioxide removals

Vintage period	Ex-ante estimated reductions/removals ¹⁶⁴	Achieved reductions/removals	Percent difference	Explanation for the difference
01-Jan-2023 to 31-Dec-2023	593,782	886,441	49.29	The difference can be explained by the project Effectiveness Index, that achieved around 97% in this monitoring period. The actions implemented (surveillance activities, Rural Patrol Program, training with Brazil nut collectors, and internet antenna installation) contributed to a reduction in deforestation within the project's boundaries and, consequently, to the generation of more carbon credits than estimated. In addition, no SFMP were carried out during the current monitoring period¹⁶⁵, so there was no loss of carbon stock for this item. While the predicted total carbon stock

¹⁶⁴ Since the baseline approach was updated, the ex-ante values for 2023 are derived from historical average approach, available at section 2.2.5 (Project Description deviations). Moreover, the MR calculation sheet has a tab called "Ex ante and ex post ERs balance" to show calculation track of this table.

¹⁶⁵ For more information, please see table 25b in the ER spreadsheet

				decrease due to planned logging activities was 44,082 tCO ₂ e the actual was zero. And finally, another factor that can be considered is that there was no leakage. While the predicted total net carbon stock change due to leakage during the monitoring period was 157,588.84 tCO ₂ e the actual was also zero.
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3.3 Optional Criterion: Climate Change Adaptation Benefits

Not applicable. Currently, the Rio Madeira Grouped REDD+ Project is not seeking validation at the Gold level for climate change adaptation benefits.

3.3.1 Activities and/or processes implemented for Adaptation (CCB, GL1.3)

Not applicable.

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CCB, CM2.1)

From the beginning of the development of the project until the end of the first verification period, impacts classified as benefits for the community groups present were identified on the groups below:

Community group	Women who live on project farms (Santa Carmem, Rio Madeira and Nova Fronteira farms)
Impact	- Promote new skills and technical training so that women can carry out activities that can supplement their income. - Empowerment of women, encouraging entrepreneurship, financial independence and women's entry into the job market.
Type of benefit/cost/risk	The impact n° 1 (above) it's a predicted and direct impact, as the results will be directly associated with technical training activities. Impact n° 2 is also predicted, but it is indirect. It is expected that through technical training, women will feel more empowered and able to have financial independence, if they so desire. Both impacts are benefits.

	All costs related to courses and technical training will be covered by the project, so women will not have any costs. Regarding the risks, at this time, no possible risk of these trainings for women has been identified. However, the project will monitor all activities, as well as collect feedback from participants, in order to mitigate any risks that may arise.
Change in well-being	During this period, the women who live on the farms were properly informed and updated about the Rio Madeira project. Talks and presentations were held solely with the aim of informing, integrating, and bringing this group closer to the activities and objectives planned for the project. No practical activities were carried out; instead, these meetings focused on providing information and creating a space for dialogue. This allowed questions to be answered and gave these women a sense of belonging, engagement, and the opportunity to be heard by the project. Additionally, these conversations facilitated the mapping of local demands and provided a deeper understanding of this group's context.

Community group	Young people, educators and other school staff from the schools benefited
Specific stakeholder	EMEIF Flor do Cupuaçu School
Impact	1. Increase connectivity and access to educational content. 2. Strengthen educational capacities and practices.
Type of benefit/cost/risk	Benefits: access to educational content and increased access to professional education. Costs: all costs will be covered by the project, so the school will not bear any costs. Risks: so far no risks have been identified. As the project progresses, feedback, questions and possible suggestions will be monitored.
Change in well-being	On October 2023, a Starlink internet antenna was installed at the Flor do Cupuaçu school, sponsored by instance 1 (Rovema Group). The installation of a better internet network at the school improved the progress of the school's administrative processes and was the first step in the project to increase access to educational content for the school's students, teachers and non-students over the next few years.

Community group	Brazil nut extractors
Impact	1. Access to rest facilities that guarantee well-being during the harvest period.

	2. More trained and qualified extractivists
Type of benefit/cost/risk	Benefit: All of the impacts predicted above are predicted and direct. Costs: All costs related to courses and technical training will be covered by the project, so the nut extractivists will not have any costs. Risks: At this time, no possible risk related with the implementation of the planned activities has been identified. However, the project will monitor all activities, as well as collect feedback from participants, in order to mitigate any risks that may arise.
Change in well-being	In October and December 2023 EMBRAPA¹⁶⁶ Acre held training sessions to increase and improve the productivity and quality of non-timber forest products. The two trainings covered best agricultural practices for the management and production of Brazil nuts. Brazil nuts make up an important part of this group's income during the harvest period. The training sessions on best practices helped to improve the knowledge they already have about good Brazil nut management techniques, through access to information and specialized technical knowledge.

Community group	Small farmers
Specific stakeholders	Morrinhos Resettlement and Santa Rita Resettlement
Impact	The expected impacts are: i. Adoption of better agricultural and livestock practices. ii. Increased productivity over time. iii. Income diversification.
Type of benefit/cost/risk	The impacts are predicted and direct and will be beneficial to small producers. Regarding costs, all training and technical assistance costs will be financed by the Rio Madeira project. Incentives for the initial acquisition of inputs and agricultural products may occur during the project implementation phase, but it is expected that small producers will eventually have financial autonomy to continue with their own resources. Regarding risks, no risks were identified in relation to the participation of producers in training and technical qualification activities.
Change in well-being	As described in section 4.1.1 of the PD CCB, the small farmers from the resettlements close to the Project have difficulties in agricultural

¹⁶⁶ EMBRAPA (Brazilian Agricultural Research Corporation). The Brazilian Agricultural Research Corporation (EMBRAPA) is a public company, linked to the Ministry of Agriculture and Livestock (MAPA), which was created in 1973 to develop the technological basis for a genuinely tropical model of agriculture and livestock farming. Available at: <https://www.embrapa.br/sobre-a-embrapa#:~:text=A%20Empresa%20Brasileira%20de%20Pesquisa,agricultura%20e%20pecu%C3%A1ria%20genuinamente%20tropical.>

	production for various reasons, so it is expected that through technical training, some of these problems can be solved. In addition, professional training on other topics will be proposed aiming at income diversification. During this monitoring period, no activities were implemented with small farmers, so there were no results in changes in the well-being of this group.
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Community group	Employees and their families who live on the farms (Santa Carmém, Rio Madeira e Nova Fronteira farms).
Impact	The expected impacts are: i. Increase in health and safety working aspects; ii. Training for fire brigade formation iii. Increased awareness of environmental education topics
Type of benefit/cost/risk	Benefits: Impacts (i) and (ii) are predicted and direct, while impact (iii) is predicted but indirect. Costs: All costs related to courses and technical training will be covered by the project, so the employees will not have any costs. Risks: At this time, no possible risk has been identified. However, the project will monitor all activities, as well as collect feedback from participants, in order to mitigate any risks that may arise.
Change in well-being	It's expected that employees will be more qualified and engaged in project activities. During this monitoring period, no activities were implemented with employees and their families, so there were no results in changes in the well-being of this group.

It is important to highlight that the project's benefits and impacts were designed by the project team following participatory meetings involving stakeholders, where demands were raised and identified from the community's perspective. As described in Section 2.3.9, during visits conducted in June 2023 and October 2023, stakeholders had the opportunity to present their demands and needs based on their realities and perspectives on the project's positive and negative aspects. Spaces were provided for them to discuss local areas of concern and need.

Furthermore, the outcomes of these discussions were recorded and documented to ensure process transparency and to provide communities and stakeholders with access to information on the identified impacts and responses to the demands raised.

4.1.2 Negative Community Impact Mitigation (VCS, 3.19; CCB, CM2.2)

The Rio Madeira project did not have negative impacts on the communities during this monitoring period. All actions and needs were mapped through conversations with the communities, where questions were addressed and suggestions were heard clearly and objectively. The project proponent concluded that the socio-environmental diagnostic assessment did not identify any potential negative impacts on the community, climate, and biodiversity related to the implementation of project activities. No risks related to HCV (HCV 5) were identified, as one of the main focuses of the project's activities is the protection of forests and their ecosystem services, with the entire area being constantly monitored.

4.1.3 Net Positive Community Well-Being (VCS 3.19; CCB, CM2.3, GL1.4)

Based on the comparison between both scenarios, with and without the existence of the project, we can conclude that the groups that were benefited during this monitoring period are in a better situation than in the scenario without the project.

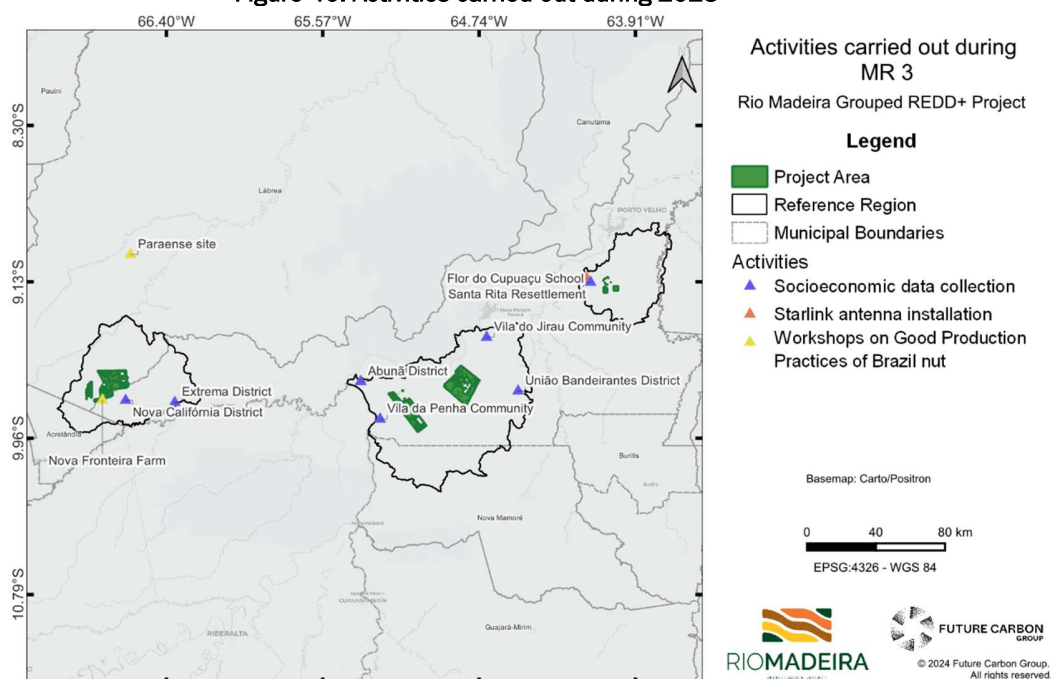
The actual net impacts of the project on the well-being of the groups that benefited from the project activities carried out during this monitoring period are shown in the table and graphic below.

Table 55. Net Positive Community Well-Being

Community Group	Without-project land use scenario	Well-being impacts
Women who live on project farms (Santa Carmém, Rio Madeira e Nova Fronteira farms)	Low or no involvement of women in activities; Low or no access to free courses and technical training aimed at financial independence or entry into the job market..	Involvement and proximity of the women to the project's activities and objectives through initial conversations and discussions during on-site visits in October 2023. During this period, it was also possible to map out possible areas of interest for professional training and various courses. In total, 5 women were interviewed.
Flor do Cupuaçu School	Low or inefficient connectivity in the school environment; Low or no provision of technical training courses for young people and adults in areas of study of interest to the local population; Low dialogue or difficulty in establishing partnerships with bodies or institutions that can offer specific courses and training;	Providing connectivity by installing a Starlink internet antenna inside the school premises. Access to quality internet has an impact on 122 students and 23 members of staff who work at the school. Proximity to the school's students and teachers as well as a better understanding of their educational demands and interests. During a visit in October 2023, it was possible to map 10 courses of interest to young people and adults in the region.

		Mapping of possible educational partnerships with local or national institutions began. Two institutions were approached during the period: EMBRAPA Acre and Senar Rondônia.
Brazil nut extractors	Low or no access to quality technical training and education on good management practices for Brazil nuts and similar products; The non-formalization of extractive partnerships for the exploitation of Brazil nuts within the farms of instance 3 (Tupá Group); Few contacts or difficulties in establishing partnerships with bodies or institutions that can offer specific courses and training. Low or no possibility of generating an extra source of income.	Access to two training courses on good management practices for non-timber forest products, in collaboration with EMBRAPA Acre, attended by a total of 26 participants, including nut collectors and non-extractivists. Start mapping possible educational partnerships with local or national institutions. Two institutions were approached during the period: EMBRAPA Acre and Senar Rondônia.

Figure 40. Activities carried out during 2023



As the Rio Madeira project is a grouped project, it is expected that the number of new community groups involved growth, increasing the bond, proximity and greater understanding of the demands and realities of the communities and groups in the region where the project operates.

It is important to note that the communities outside the project zone did not receive any negative or positive impacts from the project, given that the project's premise is to only serve the community groups and stakeholders that are within the project zone and within the boundaries of the reference region, as described in section "2.1.5 Project Zone Map" of the "CCB Project description" document.

4.1.4 Protection of High Conservation Values (CCB, CM2.4)

In the socio-environmental context of the Rio Madeira Grouped REDD+ Project, one aspect of High Conservation Value (HCV) was considered relevant to the communities, identified groups, forest conservation and biodiversity: HCV 5.

During the monitoring period, the area designated as HCV5 in the project, called the "Brazil Nut Collection Area", remained without any negative impact identified for the associated group. In 2023, the extractive partnership of Brazil nuts with instance 3 (Tupá Group) remained unchanged from the previous period (no modifications or additions to the agreement signed in 2022). In addition, courses and training were offered in collaboration with EMBRAPA Acre, focusing on best management practices for non-timber forest products, with an emphasis on Brazil nuts.

Figure 41. High Conservation Values for Community

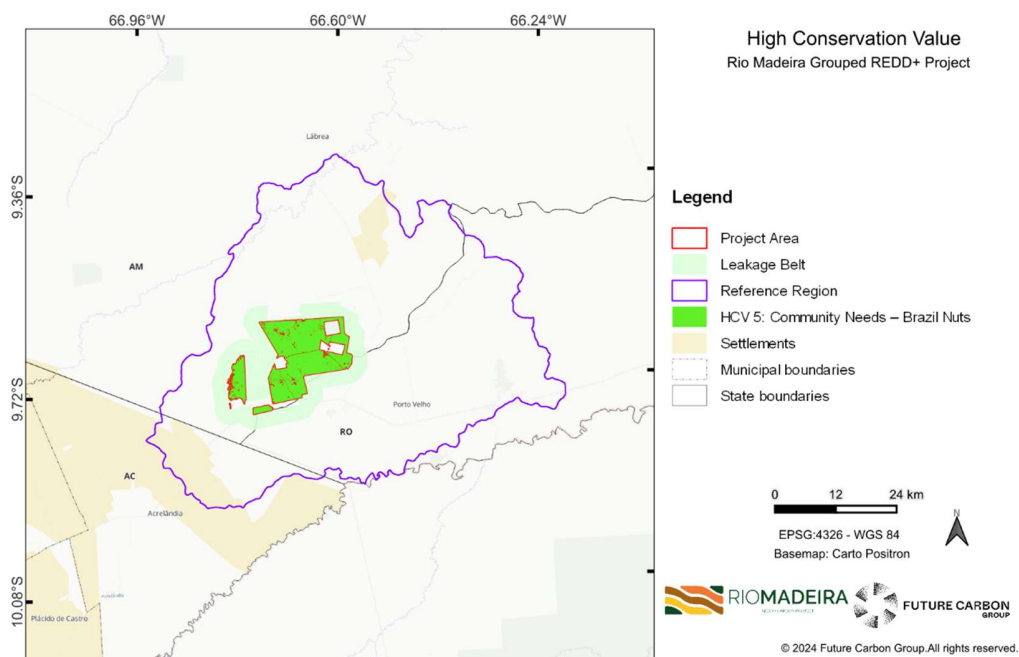


Figure 42. Embrapa Workshop 10-20-2023



It is important to note that the forest areas that make up the farms of Instance 3 (Tupá Group) are extremely important for generating alternative income for Brazil nut collectors through the extraction of non-timber forest products, such as Brazil nuts (*Bertholletia excelsa*) and açaí (*Euterpe oleracea*).

Figure 43. Embrapa Training 12-01-2023



4.2 Other Stakeholder Impacts

4.2.1 Mitigation of Negative Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.2)

Not applicable. As explained in the PD CCB section 4.3.1, no identified stakeholder was classified as "Other Stakeholder". The project only identified stakeholders classified as "Interested Stakeholder" and "Community Group".

4.2.2 Net Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.3)

Not applicable, as no identified stakeholder was classified as "Other Stakeholder".

4.3 Community Impact Monitoring

4.3.1 Community Monitoring Plan (CCB, CM4.1, CM4.2, GL1.4, GL2.2, GL2.3, GL2.5)

During this period of monitoring, some community groups and stakeholders obtained results from activities carried out by the Rio Madeira project.

The tables below show the results of the community impact monitoring during 2023:

Table 56. Community Monitoring Plan

Variable	Communities	Activity	Indicator	P e r i o d	R e s u l t s
Continuous Engagement	Multiple stakeholders were engaged. The full list is in <i>Table 15</i> . <i>Number of participants per meeting, by stakeholder.</i>	Meetings were held to present and update on the progress of the project and to answer any questions, as well as to map out demands. More details about each meeting can be found in section 2.3.4.	a. Number of communications made per year and per type for stakeholders.	2023	a. . T h r o u g h . s i

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				s e c t i o n 2 . 3 . 4 .
Quality Training and Education	Brazil Nut Extractivists	Access to 2 training courses and courses on good management practices for non-timber forest products.	a. Number of education or training activities conducted by theme per year b. Total number of people trained per year, per gender.	a . T w o t r a i n i n g 2 0 2 3 s e s s i o n s w e r e c o

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¹⁶⁷ A total of 26 participants attended the two trainings, including 18 extractivists who are partners of the project and the remaining participants from the general public.

				h e 1 8 , 3 w e r e w o m e n)
Quality Infrastructure	Flor do Cupuaçu School	Installation of 1 (one) Starlink antenna at the school.	a. Satisfaction rate of beneficiaries b. Number of improvements and repairs carried out per year	a . N o s a t i s f a c t i o n s u r v e y w 2 0 2 3

				a s c o n d u c t e d w i t h i n t h e m o n i t o r i n g p e r i o d . b .
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				One infrastructure improvement was executed
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Continuous communication and engagement of stakeholders: During this period, three in-person meetings were held, engaging 19 stakeholder groups in total. Talks and presentations were held with the aim of informing, integrating and bringing this group closer to the activities and objectives planned for the project. During these talks it was possible to answer questions and create a space for these groups to come together and feel a sense of belonging, engagement and a sense of being heard by the project. As well as being informative, these conversations made it possible to map local demands and gain a better understanding of this group's scenario. More details about each meeting held can be found in section 2.3.4.

Figure 44. Women of Santa Carmem Farm



Quality Training and Education: two training courses on non-timber forest products were held for Brazil Nut Collectors, in collaboration with Embrapa Acre. The training sessions were held on two occasions: 01-12-2023 at the headquarters of Fazenda Nova Fronteira, which lasted 8 hours, and on 20-10-2023 at Sitio Paraense (next to Fazenda Nova Fronteira), which lasted 4.5 hours. The two trainings were attended by 26 people, including participants from other institutions who also attended both courses.

The content covered in the first training sessions was: work safety, Brazil nut quality, how to map the tress, forest inventory techniques, variables collected in the field (diameter, circumference, height), geographical location using GPS, types of maps, prevention of Brazil nut contamination, pre-drying and personal protective equipment. Some practical activities were also applied:

Activity 1: Map interpretation.

Activity 2: Inventory of Brazil nut trees using a GPS drone.

Activity 3: Brazil nut collection and post-collection practices.

In the second training session the content covered was: General aspects of legislation in the forest, Data records at the forest stage, Measures to prevent and reduce aflatoxin contamination of Brazil nuts, Preventive measures in transportation, Preventive measures in collection, Preventive measures in primary storage, Preventive measures in breaking the Brazil nut, Preventive measures in primary transportation, Preventive measures in drying, Preventive measures in secondary storage, Importance of the Brazil nut tree, Good Production Practices, Worker safety, Brazil nuts quality, Production planning, Cutting vines, Cleaning trails, Cleaning heap areas, Safety when collecting Brazil nuts, Preparing materials, Selection and washing of nuts, Pre-drying of nuts and Practical method for producing Brazil nut seedlings adapted for agro-extractivists.

Adaptation and improvement of infrastructures: On October 2023, a Starlink internet antenna sponsored by instance 1 (Rovema Group) was installed at the Flor do Cupuaçu school. Access to quality internet has an impact 122 students and 23 staff members who work at the school.

Figure 45. Installation Starlink Antenna



The installation of a better internet network at the school improved the progress of the school's administrative processes and was the first step in the project to increase access to educational content for the school's pupils, teachers and non-students over the next few years.

Throughout the life of the project, based on the demands identified by the stakeholders, new activities and demands can be identified, mapped and implemented.

4.3.2 Monitoring Plan Dissemination (CCB, CM4.3)

The Monitoring Plan, as well as the results obtained by monitoring the REDD+ Rio Madeira Project, were made available through Verra Registry website (<https://registry.verra.org/app/projectDetail/VCS/2878>). The summary documents related to the monitoring plan, its results and other relevant information were made available to communities and other interested parties through meetings, lectures and by physical (printed) means during the monitoring period.

4.4 Optional Criterion: Exceptional Community Benefits

Not applicable. The Rio Madeira Project is not seeking to achieve Gold Level for exceptional community benefits.

4.4.1 Short-term and Long-term Community Benefits (CCB, GL2.2)

Not applicable. The Rio Madeira Project is not seeking to achieve Gold Level for exceptional community benefits.

4.4.2 Marginalized and/or Vulnerable Community Groups (CCB, GL2.4)

Not applicable. The Rio Madeira Project is not seeking to achieve the Gold Level for exceptional community benefits in this monitoring period.

Community Group	Not applicable
Net positive impacts	Not applicable
Benefit access	Not applicable
Negative impacts	Not applicable

4.4.3 Net Impacts on Women (CCB, GL2.5)

Not applicable. The Rio Madeira Project is not seeking to achieve Gold Level for exceptional community benefits.

4.4.4 Benefit Sharing Mechanisms (CCB, GL2.6)

Not applicable. The Rio Madeira Project is not seeking to achieve Gold Level for exceptional community benefits.

4.4.5 Governance and Implementation Structures (CCB, GL2.8)

Not applicable. The Rio Madeira Project is not seeking to achieve Gold Level for exceptional community benefits.

4.4.6 Smallholders/Community Members Capacity Development (CCB, GL2.9)

Not applicable. The Rio Madeira Project is not seeking to achieve Gold Level for exceptional community benefits.

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

5.1.1 Biodiversity Changes (VCS, 3.19; CCB, B2.1)

The project region contains a relatively high fauna and flora diversity, including 2 birds species classified as near threatened or vulnerable by the International Union for Conservation of Nature (IUCN, 2023). However, the Rio Madeira Grouped REDD+ project provides a robust protection against deforestation, offering protection to biodiversity within the PA. This proactive approach safeguards the biodiversity High Conservation Values (HCV) by preventing changes in land use, which represents the most significant impact on the project region. Regarding biodiversity elements, the project's activities have promoted positive impacts.

The documented changes in biodiversity herein represent the progress achieved through the direct or indirect implementation of activities linked to biodiversity conservation during the current monitoring period in the project zone under the with-project scenario.

The information used to estimate and/or document changes in biodiversity comes from both secondary and primary sources, detailed as follows. In August 2023, a biodiversity diagnostic was conducted specifically within the Project Area (PA) of the project properties. The report emphasized the identification of 223 species.

- **Flora:** literature review and primary data from the commercial forest inventories carried out at two properties that conform the PA.
- **Mammals, birds, amphibians, and reptiles:** A biodiversity inventory carried out in the project area in 2023, coupled with a comparison with scientific literature.
- **Fish and arthropods (insects and arachnids):** derived from a literature review.

Change in Biodiversity	HCV 1
Monitored Change	Creation of a primary data and monitoring plan for fauna (see Section 5.3.1) in the Project Area – Actual, positive and indirect change. During this monitoring period, while no quantitative change could yet be assessed, a significant step was achieved through the

	establishment of baseline biodiversity data and a monitoring plan, supported by the biodiversity inventory conducted. The inventory reports a total of 203 fauna species, comprising 162 bird species, 22 mammals, and 19 amphibians and reptiles. Among these species, 2 bird species hold particular significance as they are considered near threatened or vulnerable by the International Union for Conservation of Nature (IUCN, 2023 the Eastern Red-necked Araçari (<i>Pteroglossus bitorquatus</i>) labeled as (NT) and the Rondonia Antworbler (<i>Hypocnemis ochrogyna</i>) categorized as (VU). These findings provide valuable indicators for the upcoming monitoring system of the Rio Madeira Project.
Justification of Change	The positive conservation impact of this primary data collection rests on a key assumption: robust baseline data are essential for informed and adaptive management; they allow the project team to detect changes over time, identify threats early, and set meaningful conservation targets. Without such data, conservation actions risk being misdirected, inefficient, or even counterproductive, as they would not be grounded in a clear understanding of the local biodiversity context. The inventory of local wild fauna in the project region was conducted between July 24 and August 1, 2023, employing an active search method, following marked trails and strategically placing camera traps in selected areas. The protection of the project area plays a crucial role in biodiversity conservation, it facilitates the unrestricted movement of diverse species and ensures the preservation of numerous associated fauna, among them the jaguar (<i>Panthera onca</i>), an umbrella species at the top of the local food chain pyramid. Additionally, this protection brings positive impacts on the hydrological regime by preventing changes in land use. The primary contribution of the project lies in the regular patrol surveillance aimed at avoiding and controlling illegal activities within the project area. The implemented protective measures in the project area aim to mitigate biodiversity threats arising from deforestation, currently identified as the primary drivers of biodiversity loss in the region ¹⁶⁸, ¹⁶⁹. The project's commitment to conservation strategies, particularly through monitoring and patrolling surveillance, significantly contributes to addressing these challenges and fostering a more sustainable coexistence between human activities and the natural environment.

168 Aldrich, Stephen P., et al. "Land-cover and land-use change in the Brazilian Amazon: Smallholders, ranchers, and frontier stratification." *Economic Geography* 82.3 (2006): 265-288. Available at: <<https://doi.org/10.1111/j.1944-8287.2006.tb00311.x>>.
169 Ometto, J. P., Aguiar, A. P. D., & Martinelli, L. A. (2011). Amazon deforestation in Brazil: effects, drivers and challenges. *Carbon Management*, 2 (5), 575-585. Available at: < <https://doi.org/10.4155/cmt.11.48>>.

Change in Biodiversity	HCV 1
Monitored Change	Appearance of the species result from the camera trap monitoring – Actual, positive and indirect change. In the first monitoring campaign for medium and large mammals, 22 species were recorded, employing both active search and camera trap methods. Among the species documented through primary methods, five are included in the national and IUCN red list of threatened species: the Rondon's marmoset (<i>Mico rondoni</i> classified as Vulnerable), the Peruvian spider monkey (<i>Ateles chamek</i> classified as Endangered), the jaguar (<i>Panthera onca</i> classified as Near Threatened by IUCN and Vulnerable by the national assessment), the collared peccary (<i>Tayassu pecari</i> classified as Vulnerable), and the tapir (<i>Tapirus terrestris</i> classified as Vulnerable), along with the red brocket deer (<i>Mazama americana</i>), classified as data deficient on the IUCN red list of threatened fauna. Out of the mammal species recorded in the first campaign, seven are endemic to the Amazon biome.
Justification of Change	The factors contributing to the change in the wildlife community are influenced by the environmental characteristics and dependencies of the recorded species. A significant majority of the registered species (72.7%) demonstrate a low tolerance to environmental alterations and are reliant on forest formations, with 16 species classified as dependent. Additionally, 13.6% are semi-dependent, 4.5% are non-dependent, and 6% are associated with aquatic environments. The maintenance of areas with forest cover serves as primordial habitats or pathways connecting adjacent plots within the project area plots, forming biological microcorridors. The presence of endemic species sensitive to environmental changes indicates the establishment of a robust wildlife community, as evidenced by the presence of top predators such as the jaguar (<i>Panthera onca</i>) and ocelot (<i>Leopardus pardalis</i>). Furthermore, the biodiversity inventory reveals the existence of species with significant roles in seed dispersal, such as agoutis (<i>Dasyprocta fuliginosa</i>), pacas (<i>Cuniculus paca</i>), tapirs (<i>Tapirus terrestris</i>), and primates like the Peruvian spider monkey (<i>Ateles chamek</i>), brown titi monkey (<i>Plecturocebus brunneus</i>), and large-headed capuchin monkey (<i>Sapajus macrocephalus</i>). The presence of these mammals, particularly those of medium to large size, plays a crucial role in the recovery processes of altered areas by facilitating the dispersion of seeds from

	various plant species (Bascompte & Jordano, 2007 ¹⁷⁰ ; Stoner et al., 2007 ¹⁷¹).
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Change in Biodiversity	Forest cover in the PA and landscape along the PZ
Monitored Change	During the monitored period, a predicted positive change involved the anticipated reduction in both unavoidable and unplanned deforestation, achieved by the reduction of 1,571.5 hectares in both unavoidable and unplanned deforestation in the project area (49.46 ha) and in the leakage belt (513.67 ha), when measured against predicted in the baseline scenario.
Justification of Change	The primary factor contributing to the change is the reduction in deforested areas within the project area and leakage belt. This reduction implies direct changes, specifically the conservation and maintenance of the integrity of the forest cover and existing ecological processes that include carbon sequestration, reduction of soil erosion, and indirect contributions to positive impacts on water quality conservation, biodiversity maintenance, pollination, and climate regulation. The deforestation assessment of the Rio Madeira Project is based on remote satellite imagery over a specific timeframe as a method for monitoring and reporting changes in forest coverage and other activities influenced by the implemented measures. The combination of deforestation mitigation measures and monitoring through remote sensing technologies supports the quantification and documentation of the positive changes.

Change in Biodiversity	HCV 1
Monitored Change	Presence of bird species identified as conservation targets in the project area – Actual, positive, indirect change. In September 2023, a qualitative species assessment was conducted to determine the species' richness using a photographic registration method in the project area belonging to Instance 3. A total of 34 bird species were recorded, with 14 of them previously identified during the biodiversity inventory conducted between July 24 and August 1, 2023, through primary field data collection. The remaining 16 species were not recorded in the transects but were identified solely through secondary data for the study region. Among these 16 species, two are classified as

¹⁷⁰ BASCOMPTE, J. Jordano, P. Plant-animal mutualistic networks: the architecture of biodiversity. Annual Review of Ecology, Evolution, and Systematics. 2007; 38:567–93. Available at: <<https://www.annualreviews.org/doi/abs/10.1146/annurev.ecolsys.38.091206.095818>>. Accessed on: February 01, 2024.

¹⁷¹ STONER, Kathryn E. et al. The role of mammals in creating and modifying seedshadows in tropical forests and some possible consequences of their elimination. *Biotropica*, v. 39, n. 3, p. 316-327, 2007. Available at: <<https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1744-7429.2007.00292.x>>.

vulnerable (VU) according to the IUCN Red List of 2021: the blue-headed macaw (*Primolius couloni*) and the yellow-headed amazon (*Pionites leucogaster*).



Blue-headed macaw
(*Primolius couloni*)



Yellow-headed amazon
(*Pionites leucogaster*)

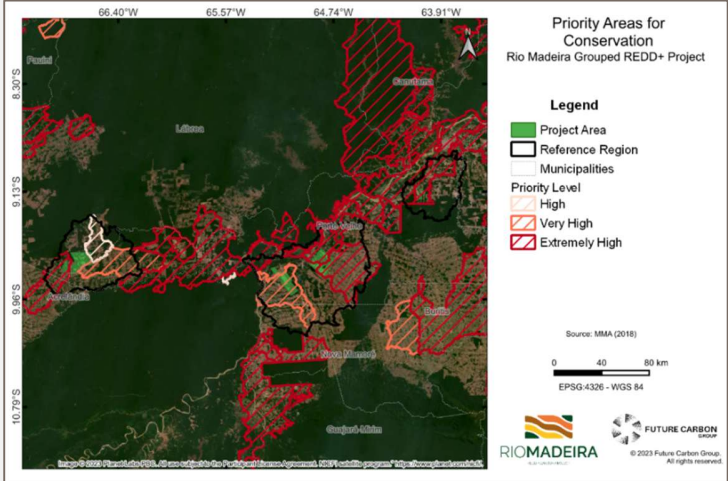
Of the 34 listed species, 4 are entirely new, having neither been identified nor recorded through secondary or primary data in the biodiversity inventory, as illustrated in the table below.

Table 57. Birds identified only through photographic records

Family	Scientific Name	Common Name	Category
Galbulidae	<i>Galbalcyrhynchus purusianus</i>	Purus jacamar	LC
Picidae	<i>Picumnus subtilis</i>	Fine-barred piculet	LC
Thamnophilidae	<i>Myrmoborus lophotes</i>	White-lined antbird	LC
Tyrannidae	<i>Myiozetetes granadensis</i>	Grey-capped flycatcher	LC

It is essential to clarify that the Registered Bird Photo Report is not a formal project activity. Instead, it consists of records made in the project's area, specifically in the Nova Fronteira farm (Instance 3).

	These records were conducted by professional birdwatchers, leading to the identification of species that happened to be coincidentally recorded in the fauna inventory.
Justification of Change	Therefore, if the biodiversity inventory initially registered 162 species based on primary field data, with the identification of an additional 20 species through photographic registration, the total number of bird species identified in the project area has reached 182.

Change in Biodiversity	Priority Areas for Biodiversity Conservation (MMA) Conservation of Priority Areas defined by the Ministry of the Environment (MMA) – Actual, positive, indirect change. The properties that compose the Project Area (PA) overlap with the Priority Areas for the Conservation, Sustainable Use, and Benefit Sharing of Biodiversity designated by the Brazilian Ministry of the Environment (MMA). It constitutes a unique conservation strategy that encompasses the diversity of landscapes, ecosystems, and biodiversity across all major biomes, including the Coastal and Marine Zone (MMA, 2024)¹⁷². Figure 46. Priority Areas for Conservation according to MMA  The rules for identifying such Priority Areas and Actions were formally established by Decree No. 5092 on May 21, 2004, within the scope of MMA's responsibilities¹⁷³. The conservation of the project area contributes to the protection of targets fauna, flora species, and ecosystems present in the landscapes, ecosystems, and biodiversity of the Amazon Biome by preventing changes in land use. A significant contribution of the Rio Madeira project to the conservation of the Amazon Biome is the maintenance of the
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¹⁷² MMA, 2024. Áreas Prioritárias para a Conservação, Utilização Sustentável e Repartição dos Benefícios da Biodiversidade Brasileira. Available at: <<https://www.gov.br/mma/pt-br/assuntos/ecossistemas/conservacao-1/areas-prioritarias>>..

¹⁷³ BRASIL, 2004. Available at: <https://www.planalto.gov.br/ccivil_03/_Ato2004-2006/2004/Decreto/D5092.htm>..

	protected areas within the project area. These actions are very important considering that only 28% of the Amazon biome is covered under any conservation category (MMA, 2023) ¹⁷⁴ .
Justification of Change	The conservation activities involved monitoring forest integrity to prevent unplanned deforestation in the project area, such as invasions and any form of degradation. Overall, protecting the project area helps mitigate threats to biodiversity arising from land-use dynamics, which are currently the primary drivers of deforestation in the Brazilian Amazon Forest (Aldrich et al., 2006 ¹⁷⁵ ; Ometto, J. P., Aguiar, A. P. D., & Martinelli, L. A., 2011) ¹⁷⁶ .

5.1.2 Mitigation Actions (VCS, 3.19; CCB, B2.3)

No adverse effects on biodiversity were detected during this monitoring period. Although the project does not involve activities likely to cause negative impacts on biodiversity, it has implemented precautionary measures established in the Project Description (PD) to address potential risks in a broader sense. These measures include the ongoing monitoring of biodiversity and forest cover, which function as safeguards to detect possible emerging threats and inform adaptive management, thereby supporting the long-term conservation goals and the maintenance of HCV attributes, the forest governance strengthening and domestic animals population control. During this monitoring period, no mitigation actions have yet been implemented to address the potential adverse effects of domestic animals on wildlife. However, no significant impacts are expected from this risk, which will be addressed later in the project. The following mitigation actions were implemented during the monitoring period:

Actions implemented to mitigate the negative impacts on biodiversity	Description
Biodiversity Monitoring	Biodiversity Inventory and Data Creation Data creation is a transversal activity and was achieved through the biodiversity inventory carried out in August 2023. This allowed to collect baseline information, which at the same time sets the foundation to know what can be protected and allows to see which precautions could be needed, if any. Biodiversity Monitoring Plan Design The development of a biodiversity monitoring plan was the second key activity, which determined the variables to be measured, the frequency of monitoring, and the expected start years. This dynamic plan was designed to evolve with increasing knowledge about the Project Area (PA) and the project's maturity.

¹⁷⁴ MMA, 2023. Painel Unidades de Conservação Brasileiras. Available at: <<https://cnuc.mma.gov.br/powerbi>>..

¹⁷⁵ Aldrich, Stephen P., et al. "Land-cover and land-use change in the Brazilian Amazon: Smallholders, ranchers, and frontier stratification." *Economic Geography* 82.3 (2006): 265-288. Available at: <<https://doi.org/10.1111/j.1944-8287.2006.tb00311.x>>.

¹⁷⁶ Ometto, J. P., Aguiar, A. P. D., & Martinelli, L. A. (2011). Amazon deforestation in Brazil: effects, drivers and challenges. *Carbon Management*, 2 (5), 575-585. Available at: < <https://doi.org/10.4155/cmt.11.48>>..

	The biodiversity monitoring plan is structured in “basic variables” and “scientific variables”. It was defined four basic variables to be monitored: 1) forest cover, 2) local protection patrols, 3) Illegal events registered, 4) wildlife species; and two scientific variables: 5) birds, mammals and herpetofauna diversity and 6) Flora diversity. Scientific variables are to be collected every 5 years. More details on indicators, measurement method, monitoring frequency and results of the current monitoring period can be found in Section 5.3.1 of this document. Non-Invasive Monitoring Techniques During the biodiversity inventory, the monitoring of target species employed the non-invasive camera trapping method to study and document the diversity and ecological patterns of the project area without causing disturbance to the wildlife. Figure 47. The cameras traps being strategically placed in specific locations 
Forest Cover Monitoring	Remote Sensing Forest Cover Monitoring The reference conditions to monitor the impact on biodiversity in the project area, as proposed in the Biodiversity Monitoring Plan (refer to CCB PD section 5.4.1), are directly associated to the levels of deforestation. Consequently, the monitoring of biodiversity is updated with the monitoring of deforestation, conducted through Remote Sensing Forest Cover. Detailed monitoring results are presented in Section 3 (Climate). Surveillance Forest Monitoring Constant monitoring patrols were actively carried out to effectively control and monitor against illegal activities, including logging, fires, and poaching (hunting and fishing). Signs is employed as an additional measure for clear communication and to reinforce explicit prohibitions against hunting, prominently displayed on the properties. Monitoring patrols also oversee High Conservation Values (HCV) areas and fauna.
Forest Governance Strengthening	Forest governance is strengthened to clearly define allowed uses of natural resources within the project area. Cooperation agreements established to promote sustainable resource management, fostering collaboration between nut collectors and the Tupá Group.

	Additionally, during this monitoring period, project proponents and property owners agreed to a contractual addendum aimed at reducing the intensity of forestry activities within the project area. Evidence will be made available for audit.
Management of domestic animals	No activities were conducted during this monitoring period.

These implemented measures demonstrate the project's commitment to minimizing potential negative impacts on biodiversity and High Conservation Value attributes.

5.1.3 Net Positive Biodiversity Impacts (VCS, 3.19; CCB, B2.2, GL1.4)

As outlined in the Project Document (CCB PD) and supported by expected outcomes and impacts detailed in the project activities through a theory of change (refer to section 2.1.8 of the CCB PD), the conservation of forest covers and habitats, both with the implementation of two technical workshops and an educational campaign, is aimed at preventing deforestation and mitigating threats to biodiversity. The conservation of these elements in turn provides a good indicator of the overall status of the biodiversity impacts.

In the without-project land use scenario, the project area would face significant challenges affected by the increasing rate of deforestation, mainly due to a tendency of increase in cattle raising, illegal timber harvesting, and unsustainable land-use practices, all economically attractive activities in the region as illustrated in the CCB PD 2.2 section. During this monitoring period, it was projected a total of 1,620.96 hectares of land would have been lost to deforestation within project area and 695.11 in leakage belt in 2023, if the project had not been implemented. This deforestation would have impacted the populations of the 223 fauna species registered in the project area, affecting not only the deforested area but the entire project zone. Additionally, the biodiversity High Conservation Value (HCV) 1 – Species Diversity identified in the project area would have been adversely affected, leading to a cascade of ecological processes.

Species and habitat^{177, 178}	Ten species listed as threatened occur within the project areas and their surroundings, according to the national list of threatened species and the IUCN Red List. These species are: • <i>Hypocnemis ochrogyna</i> (VU) • <i>Pteroglossus bitorquatus</i> (NT)¹⁷⁹ • <i>Ateles chamek</i> (EN) • <i>Mico rondoni</i> (VU) • <i>Plecturocebus brunneus</i> (VU) • <i>Panthera onca</i> (VU nationally) • <i>Tapirus terrestris</i> (VU) • <i>Tayassu peccari</i> (VU) • <i>Primolius coultoni</i> (VU)
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¹⁷⁷ IUCN 2024. The IUCN Red List of Threatened Species. Version 2024-1. ISSN 2307-8235..

¹⁷⁸ National List. [P_mma_148_2022_altera_anexos_P_mma_443_444_445_2014_atualiza_especies_ameacadas_extincao.pdf](#)

¹⁷⁹ Although *Pteroglossus bitorquatus* is classified as Near Threatened in the most recent assessment, in 2016 it was classified as Endangered, and therefore it is relevant to mention this species as a potential threatened species.

	• <i>Pionites leucogaster</i> (VU) All threatened species in and adjacent to project area are dependent on forest habitat. As described above, forest habitat was protected, rather than deforested, when comparing with the without project scenario. Therefore, habitats for rare, threatened or endangered species were not adversely impacted by project activities.
Areas needed for habitat connectivity	During the monitoring period, the project effectively preserved a large continuum of forested areas, ensuring that habitat connectivity remained intact. The forest cover protection prevented fragmentation and maintained the ecological functions of the landscape, supporting biodiversity and the natural movement of species across the project zone. Therefore, no areas needed for habitat connectivity were adversely effected by the project.

Therefore, the activities undertaken during this period have contributed to improved conditions for biodiversity, particularly in terms of conserving endemic and threatened species and ecosystem services. Any reduction in deforestation inherently benefits the entire biodiversity of the area.

In addition to the positive changes highlighted in section 5.1.1, the following table provides a comparative analysis between the without-project and project scenarios in terms of biodiversity conservation.

Figure 48. Location of Trap Cameras for Data Collection in Fauna Inventory

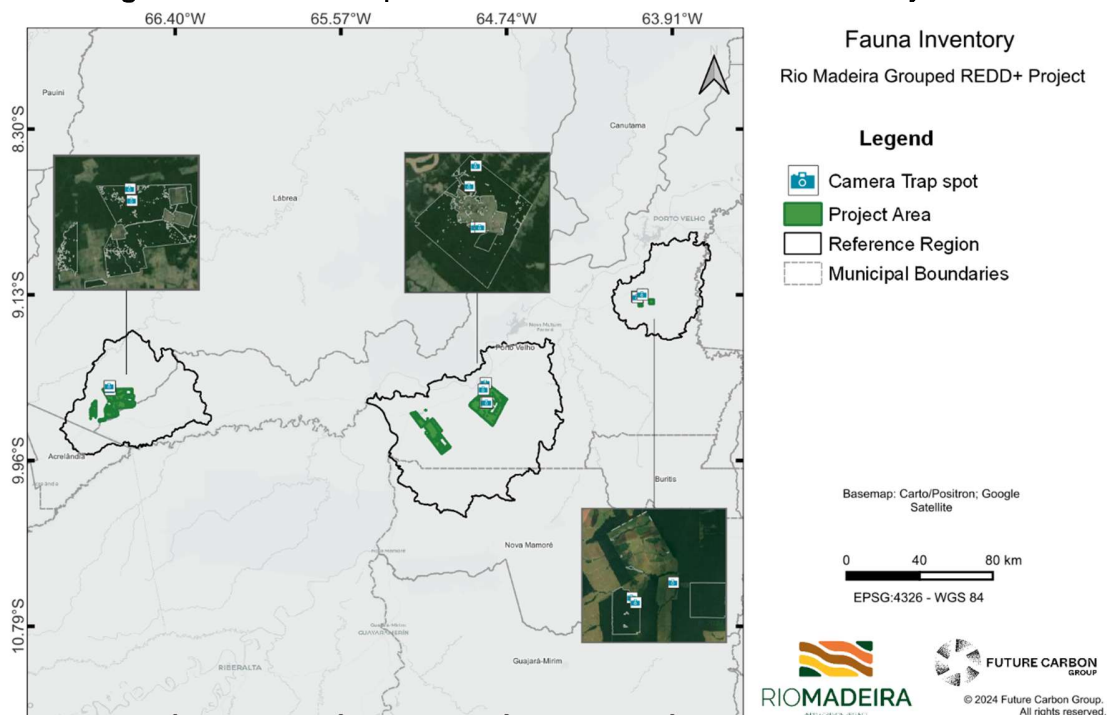


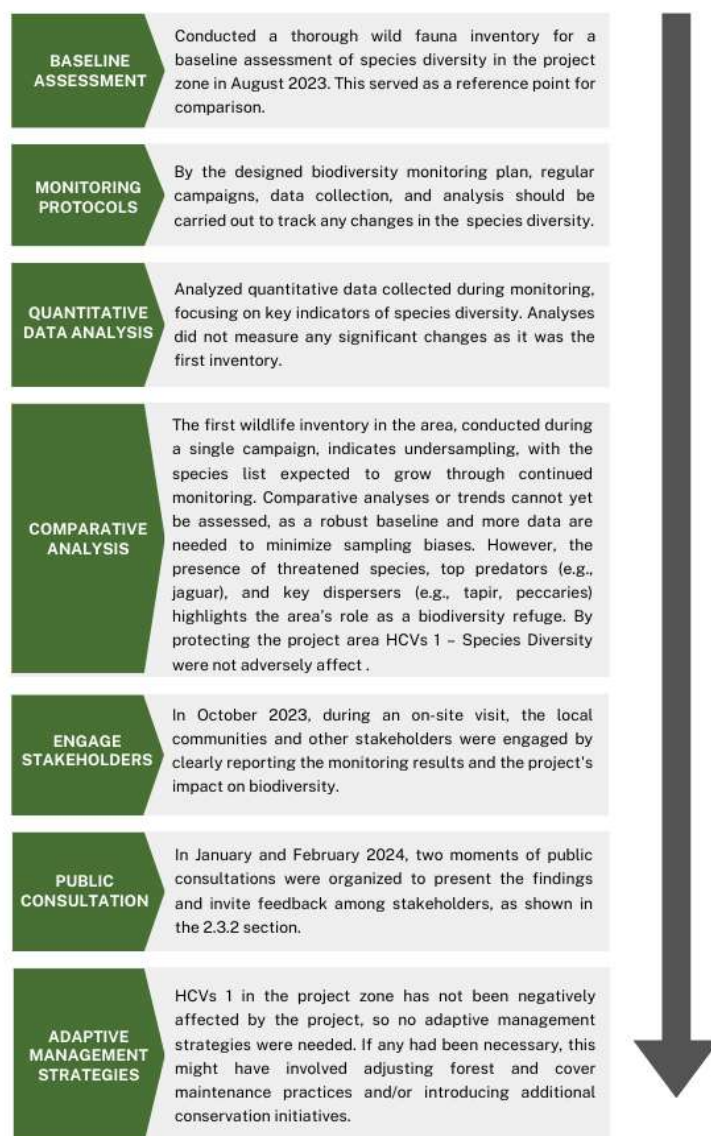
Table 58. Comparative analysis between scenarios without the project and with the project regarding biodiversity conservation

Actions implemented to mitigate the negative impacts on biodiversity	Description
Invasion followed by deforestation in the project area	The conservation activities involved monitoring forest integrity to prevent unplanned deforestation in the project area, such as invasions and any form of degradation.
Absence of a primary data and monitoring plan for fauna in the Project Area.	Establishment of baseline information (data and monitoring plan) facilitated by the biodiversity inventory.
Lack of knowledge on environmental topics	Development of two workshops on issues related to conservation with local organizations also contribute to the positive impact to avoid negative changes in the composition of the biodiversity.

5.1.4 High Conservation Values Protected (CCB, B2.4)

Given the net positive biodiversity impacts and measures described in the preceding sections, the Steps undertaken to protect the High Conservation Values (HCVs) 1 – Species Diversity and demonstrate that no HCVs related to biodiversity in the project zone had been negatively affected by the project are as follows:

Figure 49. Implemented measures to maintain HCVs 1



Other measures implemented to maintain HCVs 1 – Species Diversity include patrols conducted to avoid invasions and awareness workshops on biodiversity and good Brazil nut management practices. So, it can be inferred that the project is actively working to protect HCVs 1 related to biodiversity in the project zone.

The actions described above demonstrate a commitment to avoiding deforestation, maintaining forest cover, adopting sustainable practices, and ensuring the overall well-being of the ecosystems and habitats within the project zone.

5.1.5 Species Used (VCS, 3.19; CCB, B2.5, 2.6)

During this monitoring period, no species were introduced in any project activities into any area affected by the project, neither native nor non-native. In the case of introduction of species in future activities, all required information will be provided and possible adverse effects mitigated.

Species introduced	Classification	Justification for use	Adverse effects and mitigation
NA	NA	NA	NA

5.1.6 Invasive Species (VCS, 3.19; CCB, B2.5)

The project did not introduce or plan to use any invasive species in project activities, however, invasive species were detected adjacent to the project area and potentially within it. The table below lists species detected and measures to prevent its impacts.

Existing invasive species	Mitigation measures to prevent spread or continued existence of invasive species
Domestic cat (<i>Felis catus</i>)	Both domestic species were observed as pets within the project's internal communities, including farm employees and their families. However, no individuals of these species were recorded within the project areas. Nonetheless, adhering to the precautionary principle, the following actions have been planned: A domestic animal control program will be implemented to mitigate potential impacts on biodiversity and prevent their establishment as invasive species. As an initial step, a baseline survey will be conducted to quantify the population of cats and dogs on the farms and evaluate their potential risks to wildlife. The program will prioritize periodic neutering and vaccination of the animals as needed, alongside environmental education initiatives to encourage responsible pet ownership. If deemed necessary and feasible, these measures may also be extended to neighboring communities. If the assessment does not indicate significant risks associated with the presence of domestic animals to wildlife, only environmental education activities will be carried out. The risk can be reassessed periodically, as needed, and specific interventions may be planned if new threats are identified.

5.1.7 GMO Exclusion (CCB, B2.7)

As stated in the CCB PD, no GMOs were used in the project activities. This item is not applicable.

5.1.8 Inputs Justification (VCS, 3.19; CCB, B2.8)

No inputs activities are planned for this project.

The project proponent wants to disclose that although not being part of the project and happening outside of the project area, there is agriculture and cattle ranching taking place in

some of the properties that contain the project area. They occur either encompassed within some of the polygons or right next to them. In this sense, some products for these activities may be present (e.g., fertilisers, cattle food) and their use follows Brazilian Federal regulations. Nevertheless, for not being part of the project itself, these are not considered in the template table.

It is important to highlight that the three instances that are part of the project use high-precision agricultural technologies, reducing the risk of environmental impacts. Furthermore, to minimize any potential adverse impacts on the environment and communities, mitigation measures have been implemented. These measures include the following:

- **Safe Handling and Storage Protocols:** Specialized professionals are responsible for ensuring that safe handling and storage protocols for pesticides and biological control agents are followed, ensuring that these inputs are managed with care and in accordance with industry standards. The professionals who handle these products are properly trained.
- **Precision Application Equipment:** High-precision application equipment is utilized by trained personnel in the rural properties surrounding the project area. This technology helps to reduce the risk of contamination and ensures that inputs are applied only in the intended areas, minimizing drift or runoff into the project area.
- **Technical Responsibility Documentation (ART¹⁸⁰):** For all activities related to the use of fertilizers, chemical pesticides, biological control agents, and other inputs in the areas adjacent to the project, an “Anotação de Responsabilidade Técnica” (ART) will be provided. This legal document identifies the responsible technical professionals, such as agricultural technicians, who oversee the safe and precise application of these substances.
- **Planning:** All applications are planned before all inputs are purchased. Furthermore, applications are scheduled, respecting the application interval of each product as well as the recommended dose for each active ingredient.
- **Application Method:** None of the 3 instances carry out aerial spraying of any agricultural pesticide. The 3 instances use self-propelled sprayers, whose main characteristics are

¹⁸⁰ Portuguese abbreviation for “Anotação de Responsabilidade Técnica”.

high operational capacity, operator safety and comfort, high technology in electronic controllers and machine automation, thus ensuring control and precision in spraying.

These mitigation measures are essential to ensure that any potential negative effects from external inputs, originating from neighbouring agricultural or ranching activities, are controlled and minimized. By adhering to strict safety protocols and involving qualified professionals, the project remains committed to safeguarding both the environment and local communities.

5.2 Offsite Biodiversity Impacts

5.2.1 Negative Offsite Biodiversity Impacts (CCB, B3.1) and Mitigation Actions (CCB, B3.2)

Rio Madeira Grouped REDD+ Project focuses on reducing deforestation to ensure that environmental ecosystem services continue over time, and the emission of greenhouse gases from deforestation and degradation is avoided. Additionally, the project aims to improve the biodiversity conditions of the species within and surrounding the project area.

As stated in the CBB PD, the main project objective is forest conservation. Until the reporting monitoring period, there are no negative offsite biodiversity impacts caused by project activities implemented. On the contrary, the protection and prevention of forest cover loss through monitoring forest integrity of the project area to ensure connectivity in the landscape between the surrounding areas have a positive effect on both in-site and offsite biodiversity.

As indicated in section 5.1, the activities in this monitoring period have focused on data creation, design of the structure for monitoring (monitoring plan), biodiversity inventory, and remote forest cover monitoring inside the project area and in the project zone. Training courses on good Brazil nut management practices were also conducted. None of these activities pose any risk or create any negative impact on offsite biodiversity; therefore, no mitigation measures are required, and none were implemented during this period.

In the worst-case scenario, one potentially negative impact that would result in changed conditions for biodiversity would be leakage. However, the results of the monitoring show that no leakage occurred during this monitoring period. The main activities to be implemented to prevent leakage in the LMA focus primarily on land-use stabilization through technical training and rural assistance, enabling communities and farmers to apply good management practices and increase productivity per area, reducing the pressure for new agricultural areas. Environmental activities will also be carried out to raise awareness among communities about climate change and the relationship between human beings and nature. Both efforts benefit biodiversity outside of the project zone, which, in turn, benefits the local communities.

5.2.2 Net Offsite Biodiversity Benefits (VCS, 3.19; CCB, B3.3)

As outlined in the preceding sections, no negative unmitigated impacts on biodiversity outside the project zone are anticipated, as detailed in section 5.1.1 and section 5.1.3. The project activities have solely resulted in positive impacts on biodiversity within the project zone, which is the greatest benefit inside the project area. Throughout the project activities conducted in this monitoring period, particularly in the creation of a primary data and monitoring plan for fauna in the project area and enhancing community knowledge on the importance of biodiversity conservation through the training workshops on good manufacturing practices for non-timber forest products, it is expected that these efforts might generate positive impacts outside the project zone as well. The net positive impacts of the project on biodiversity are further discussed in section 5.1.1 and section 5.1.

5.3 Biodiversity Impact Monitoring

5.3.1 Biodiversity Monitoring Plan (CCB, B4.1, B4.2, GL1.4, GL3.4)

The complete Biodiversity Monitoring Plan for this project is detailed in section 5.4.1 of the CCB PD. Since validation, there have been no alterations made to the monitoring plan. The plan encompasses four core biodiversity variables to be periodically monitored, along with three additional variables requiring more frequent monitoring, all within the boundaries of the three properties instances. These variables aim to assess landscape, biological community, and property-level dynamics.

Three out of the seven variables were initiated in 2023: forest cover and wildlife, and Birds, mammals, and herpetofauna diversity, which includes HCV wildlife, marking the inception of data collection. The table below presents the results, which have been adapted from the original CCB PD table to ensure clarity and formatting consistency. For further details, reference can be made to CCB PD section 5.4.

During this monitoring period, the variables outlined in the table have been carefully measured and evaluated. One variable expected to begin in 2023 has successfully met their intended start year, supported by substantial evidence validating its results. Additionally, both variables have started ahead of schedule.

Table 59. Biodiversity Monitoring Plan

Nr	Biodiversity Variable	Measurement Type Sampling Method	Frequency	Indicator	Potential start*	Potential start met	Measured Results (01-Jan-2023 to 31-Dec-2023)	Evidence
Basic variables to be monitored								
1	Forest Cover	Remote sensing	Annually (according to MR period)	Area (ha) undisturbed out of the total PA, disaggregated by property. Absolute and Relative	2023	Yes	Instance 1: 20,132.01 ha Instance 2: 13,133.65 ha Instance 3: 18,766.67 ha Total PA undisturbed: 52,032.33 ha (99.52%)	3rd MR Calculation Spreadsheet
2	Protection Patrols	Local patrols	Monthly	Nr of patrols Km patrolled. Inside the PAs and at the boundaries.	2024	Not Applicable - N/A	N/A	N/A
3	Illegal Events identified (cut fences, evidence of burning, fresh stumps)	Local patrols	Monthly	Nr of illegal events disaggregated by type	2024	N/A	N/A	N/A
4	Wildlife Species	Camera-trap campaigns	Semi-annual (minimum 30 camera-days)	Total species photographed/registered IUCN (HCV) species out of total	2023	Yes	22 medium and large mammals species were registered. 5 are included in the national and IUCN red list of threatened species.	CCB PDD and biodiversity inventory
Scientific variables to be monitored at a maximum every 5 years								

5	Birds, mammals and herpetofauna diversity, includes HCV wildlife	- Wildlife surveys -McKinnon lists, -Transect counts, -Active search	5 years, twice in each year	Nr of wildlife species Nr of mammals Nr of birds Nr of amphibians and reptiles Nr HCV 1 species present compared to baseline	2023	Yes	223 wildlife species 22 mammals 182 birds 19 amphibians and reptiles 10 HCV fauna species in the baseline	CCB PDD and biodiversity inventory
6	Tree diversity (includes HCV trees) Ecosystem (forest type) diversity	-Forest inventories; -Sample plots	5 years, twice in each year	Total number of tree species # HCV 1 species present compared to baseline	2025	N/A	N/A	N/A
Other activities to be implemented								
7	Invasive Species	Vaccination and neutering campaigns for domestic and feral cats and dogs present on farms	Annually	Nr of animals neutered by species; Nr of animals vaccinated by species	2025	N/A	N/A	N/A

5.3.2 Biodiversity Monitoring Plan Dissemination (CCB, B4.3)

During the monitoring period, the Rio Madeira Grouped REDD+ Project disseminated monitoring results to demonstrate the delivery of net positive climate, community and biodiversity benefits. This dissemination process was carried out through various formal and informal channels and media, which played a crucial role in facilitating communication, decision-making and knowledge sharing among organisations, communities and stakeholders at large.

These communication channels included oral interactions, written reports, electronic correspondence, visual presentations, social media platforms and others. The choice of channel depended on factors such as the nature of the information, the audience and the purpose of the communication.

- **On-Site Meetings:**

Between October 3rd to 6th, 2023, the socio-environmental team conducted on-site meetings as part of the stakeholder consultation. These meetings were scheduled in advance with small groups to ensure the active participation of local stakeholders and were aimed to present the monitoring results¹⁸¹ to workers from the properties comprising the project area: Santa Carmem Farm, Rio Madeira Farm, and Nova Fronteira Farm.

The meetings also included relevant stakeholders from the project zone, including EMEF Marechal Rondon, EMEF Flor do Cupuaçu, RECA, EMBRAPA Acre, Nova Califórnia District, Morrinhos, and Santa Rita Settlements.

Oral communication was the primary method used to engage local stakeholders, ensuring the full sharing of all relevant information related to project implementation. In addition, graphic materials such as folders were distributed to the participants to increase understanding and transparency, as illustrated in Figure 50.

¹⁸¹ Some species found within the project area that are endangered or at risk of extinction were presented.

Figure 50. Rio Madeira Grouped REDD+ Project Folder.

As Certificações do Projeto

Você Sabia?

Em agosto de 2023, a Future Carbon Group iniciou estudos nas fazendas **Serra Verde, Rio Madeira e Santa Carmen**, na região do **Projeto Rio Madeira**. Esses estudos revelaram a descoberta de espécies raras e ameaçadas de extinção na Amazônia. Em 2024, a organização planeja disponibilizar um relatório completo dessas descobertas para compartilhar com as comunidades locais e partes interessadas, visando aumentar a **conscientização sobre a riqueza ambiental da região e promover a conservação**.

Auditoria

O projeto REDD+ Agrupado Rio Madeira será auditado no **primeiro semestre de 2024** por uma empresa externa, com o intuito de garantir a imparcialidade na avaliação do projeto. O **objetivo principal do projeto é reduzir as emissões de Gases do Efeito Estufa (GEE)** ao evitar o desmatamento e queimadas florestais, enquanto também se concentra na preservação da biodiversidade. Durante a auditoria, serão avaliados o cumprimento de acordos sociais, de **biodiversidade e climáticos**, além de identificar riscos e melhorar os processos de envolvimento comunitário e prevenção de desmatamento. Essas auditorias externas são realizadas anualmente para garantir a qualidade contínua do projeto.

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RIOMADEIRA
REDD + CARBON PROJECT

Sobre o Projeto

Sobre o Rio Madeira

Esse é um dos maiores rios do mundo, comparável em números aos míticos Amazonas, Mississipi ou Congo. Sua área de influência ocupa 1,3 mi de km² em 3 países (Bolívia, Brasil e Peru) e compreende 1/5 da área da Bacia Hidrográfica Amazônica (a maior do planeta). A fusão de águas, bacias e ecossistemas faz do Madeira um rio estratégico para o equilíbrio do sistema hidrológico que garante a espetacular biodiversidade dessa parte do território da América do Sul.

O Projeto REDD+ Agrupado Rio Madeira teve início em **23 de Outubro de 2019** e está localizado nos municípios de **Porto Velho (Rondônia)** e **Lábrea (sul do estado do Amazonas)**, na região Norte do Brasil, cercada por diversos rios e orlas que estão em contato direto com o Rio Madeira.

As instâncias de atividade do projeto possuem **área de 52.274,05 ha**, que pertence a três proprietários privados: dois no município de Porto Velho, (**Grupo ROVEMA** e **Grupo Leite**) e um no município de Lábrea (**Grupo Tupá**), os quais são compostos por **100% de floresta amazônica**.

Objetivo do Projeto

O principal objetivo do **Projeto REDD+ Agrupado Rio Madeira** é **evitar desmatamento (AUD)** de uma região dos municípios de Porto Velho e Lábrea. Espera-se que o projeto **evite cerca de 52.274,05 ha de desmatamento** - equivalente a **28.081,180 tCO₂e** em reduções de emissões, ao longo dos **30 anos do projeto**.

O que é Crédito de Carbono?

O Crédito de Carbono é uma moeda verde, que representa 1 tonelada de Gás de Efeito Estufa (GEE) não emitido para a atmosfera, que pode ser comercializada no mercado.

Benefícios Socioambientais

O projeto REDD+ Rio Madeira prevê a **geração de cobenefícios para a comunidade e biodiversidade nas regiões** onde o projeto será desenvolvido, baseando-se nas principais necessidades locais.

O projeto possui compromissos de preservação da fauna e flora, desempenhando um papel importante na conservação do habitat de diversas espécies, tais como a onça-pintada, anta e jaguatirica. Além disso, ao longo do projeto, serão desenvolvidas atividades de capacitação técnica, educação ambiental e fortalecimento socioeconômico.

A total of 73 participants attended the stakeholder consultation over the five days, including community leaders, school teachers, Brazil nut collectors and farm workers from the three instances. It's important to note that the participant count excludes members of the project management team (PMT).

- **Remote Meeting:**

For the stakeholder consultation process, an invitation letter (see figure 43 below) was initially sent via email on January 24th 2024 to stakeholders with involvement in the project region (e.g., community leaders, public bodies, educational and research institutions, and non-governmental organizations), requesting their participation in the remote stakeholder consultation.

Subsequently, the same invitation letter was resent to those stakeholders who had not yet confirmed their participation via email. Additionally, a reminder email was dispatched to all invited stakeholders one day prior to the scheduled consultation. The objective was to ensure comprehensive dissemination of information and awareness regarding the Rio Madeira REDD+ Project results ahead of the CCB verification process. Only 9 stakeholders confirmed receipt of the emails.

Figure 51. Letter of invitation to the local stakeholder consultation



São Paulo, 24 de janeiro de 2024.

CONVITE ÀS PARTES INTERESSADAS

Assunto: Apresentação dos Resultados do 3º Período de Monitoramento do Projeto REDD+ Agrupado Rio Madeira
Prezados (as),

Convidamos para participar da consulta pública do **Projeto REDD+ Agrupado Rio Madeira**, com o intuito de apresentar os resultados do projeto referentes ao período de monitoramento compreendido entre 01 de janeiro de 2023 a 31 de dezembro de 2023.

O **Projeto REDD+ Agrupado Rio Madeira** tem como objetivo a conservação de 52.274,05 hectares de Floresta Amazônica, distribuídos em quatro fazendas que pertencem a três grupos privados, localizadas nos municípios de Porto Velho (Rondônia) e Lábrea (Amazonas) através da redução de emissões potenciais de gases de efeito estufa (GEE) resultantes do desmatamento não planejado e, dessa forma, gerar créditos de carbono durante o período de trinta anos de vigência do projeto (2019-2049).

O evento deste convite tem como propósito apresentar uma visão do progresso do projeto, assim como dos resultados alcançados até o momento presente, visando a participação das partes interessadas, transparência e escuta ativa para melhorias contínuas das atividades do projeto, atendendo aos requisitos metodológicos para a verificação do projeto.

Assim, a Future Carbon entra em contato com as partes interessadas para convidá-las a participar de uma videoconferência no dia **23 de fevereiro de 2024, às 11 horas (horário de Brasília)** a ser realizada por meio da plataforma Microsoft Teams, que poderá ser acessada no mesmo dia e horário através do link abaixo.



Consulta às partes interessadas – Projeto REDD+ Agrupado Rio Madeira

Sexta-feira, 23 de fevereiro de 2024 - 11h às 12h (horário de Brasília)

Link da Videochamada: <https://11nk.dev/iNkm8>

ID da Reunião: 254 258 938 321

Senha: DohYvY

Maiores detalhes técnicos sobre os resultados do projeto estarão descritos no 3º relatório de monitoramento, o qual será submetido a um período de 30 dias para recebimento de comentários públicos. Esse momento tem como objetivo coletar críticas e sugestões sobre o projeto. Caso queira receber uma cópia do relatório de monitoramento após a finalização do mesmo, favor manifestarem o interesse respondendo esse e-mail.

Convidamos-lhes a acusar o recebimento deste convite e para quaisquer informações e solicitações, entrar em contato via:

 **E-mail:** faleconosco@futurecarbon.com.br

 **WhatsApp:** (11) 9 4183-7277

 **Correio:** Rua Princesa Isabel, nº 1.399 – Brooklin Paulista, CEP 04601-003 – São Paulo/SP, Brasil.

Atenciosamente,
Equipe Forest - Future Carbon Group

The Remote Stakeholder Consultation took place on February 23th, 2023, via video conference, hosted by the management team located in São Paulo, State of São Paulo. A detailed presentation PowerPoint (see in the figure presentation was shared with the attendees, summarizing the project progress, including information on monitoring results compared to the previous year, demonstrating that the project is delivering net positive climate, community, and biodiversity benefits, and gathering feedback on the project's implementation.

Figure 52. Screenshots of the PowerPoint Presentation used in the Remote Consultation



Figure 53. Screenshots of the PowerPoint Presentation used in the Remote Consultation



Of the 51 stakeholders invited to the remote consultation, 6 were present, including: Centro de Pesquisas de Populações Tradicionais - CPPT Cuniã, Empresa Brasileira de Pesquisa Agropecuária Rondônia, Fundação Universidade Federal de Rondônia (UNIR), Instituto de Desenvolvimento Agropecuário e Florestal Sustentável do Amazonas (IDAM/AM) and World Wide Fund for Nature (WWF Brasil).

The attendance list for the stakeholder consultation, as well as the recording of the presentation meeting, will be kept in digital format and made available to the audit team.

▪ **Electronic Communication:**

Furthermore, the biodiversity monitoring plan and corresponding MR carried out will be publicly presented for verification on Verra's website after being presented in the stakeholder consultation, accessible through the following link: <https://registry.verra.org/app/projectDetail/CCB/2878>. All stakeholders were informed of the open period for public comments and feedback (CCB PD) on the Rio Madeira REDD+ Project and comments could be submitted via direct message or through the project's dedicated page on the Verra Registry from 07 December 2023 to 06 January 2024, also the biodiversity monitoring results, as illustrated in the figure below. A summary of the third monitoring report for VCS & CCB Verification, also in Portuguese, was open for public comments from April 4, 2024, to May 4, 2024¹⁸², on the Verra website. No comments were received.

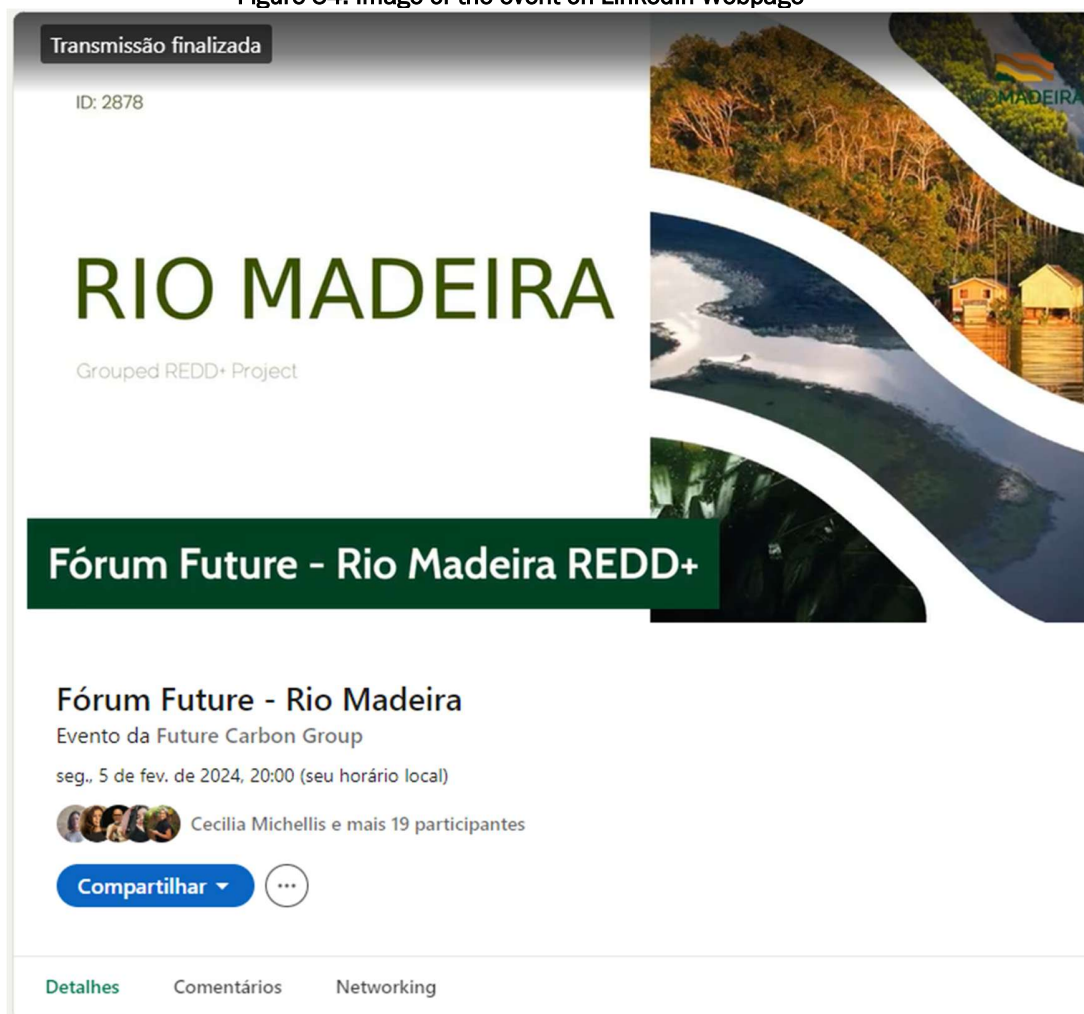
The results of the monitoring carried out in accordance with the monitoring plan have been disseminated and made publicly available through face-to-face and remote consultations. In addition, the document related to the third monitoring period, which presents the results of the monitored period, is available online on the Verra platform, in Portuguese. These results were also shared with communities and other stakeholders through summaries.

▪ **Events and Forums:**

On February 5th, the Future Forum took place, an initiative aimed at expanding society's participation and promoting transparency in projects conducted by the Future Carbon Group. During the event, the Rio Madeira Grouped REDD+ project was introduced. The forum was open to the public and attracted the participation of a total of 10 individuals interested in learning about and discussing issues related to the project. It's worth noting that the total count excludes project team members, hence the difference in participant numbers as compared to those indicated in the image. This occasion provided a valuable opportunity for the exchange of ideas, lively debates, and clarification of doubts about the project. The event can be accessed via the following link: [\[https://www.linkedin.com/events/f-rumfuture-riomadeira7160276647651205120/comments/\]](https://www.linkedin.com/events/f-rumfuture-riomadeira7160276647651205120/comments/), as illustrated below.

¹⁸² Available at : < https://www.linkedin.com/posts/futureclimategroup_est%C3%A1-aberta-a-consulta-p%C3%ABblica-do-3%C2%BA-per%C3%ADodo-activity-7182106953517514753-zp_u?utm_source=share&utm_medium=member_desktop >

Figure 54. Image of the event on LinkedIn Webpage



5.4 Optional Criterion: Exceptional Biodiversity Benefits

Not applicable.

5.4.1 Trigger Species Population Trends (CCB, GL3.2, GL3.3)

Not applicable. At that moment, the Rio Madeira Grouped REDD+ project is not applying to Gold Level for exceptional biodiversity benefits. However, it is anticipated that, for all species present in the project area, including trigger species, it is expected that, the increased land protection and monitoring, will lead to an increase in all species protected.

APPENDIX 1: PROJECT RISKS TABLE

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Natural and human induced risks to stakeholders' wellbeing	No risk identified.	No risk identified.	During this monitoring period, no natural or human risks were identified (other than those already mentioned in this table) that impacted on the well-being of stakeholders.
Risks to stakeholder participation	Short Term Risk Lack of stakeholder's engagement.	During the current monitoring period, communication channels were still being underutilized by community members to express concerns and suggestions for improvements.	During this monitoring period, continuous communication mechanisms were established and carried out with the stakeholders in order to inform them of the progress and objective of the project and also as a way of mapping social, economic and cultural diversity among the stakeholders and the differences and interactions between them, as well as allowing them to raise concerns about possible negative impacts during the implementation of the project and to bring forward suggestions. The methods used involved 3 on-site consultations carried out by the Future Carbon team and 1 on site visit carried out by the company Ambiens, hired by Future Carbon to carry out a more in-depth and detailed socio-economic diagnosis of the region. These visits are detailed in section 2.3.9 of this document. In addition to the visits, the project's official communication channel was also implemented and disseminated to stakeholders, where complaints, compliments and suggestions that

Working conditions			may arise during the planning and implementation of the project can be sent, including in relation to the sharing of benefits, information, updates, communications and all other stakeholder engagement requirements. The official project channels are email: riomadeira@futurecarbon.com.br. and whatsapp: +55 (11)94183-7277. During this period, the official communication channels have not received any concerns from stakeholders.
	Forest Surveillance Monitoring	Falls, getting lost in isolated areas, exposure to venomous animals such as snakes and spiders, conflicts with deforestation agents etc.	Safety management will establish safety practices that are in place, including risk assessment, training, and proper use of PPEs.
	Biodiversity Monitoring		
	Fire Fighting	Burns, dehydration, asphyxiation, exposure to extreme heat, firebreaks.	As detailed in section 2.5.2, the Project Proponent is in compliance with the mandatory applicable occupational health and safety laws and regulations established by the federal and state governments, and appropriate evidence was provided to the VVB during the verification. During the monitoring period, no specific and exclusive training was provided for the teams and employees involved in patrol and monitoring activities. Instance 01 has a service provision contract with AA MULTISERVIS LTDA, which is responsible for providing trained and qualified teams to perform patrol functions. The other instances use the farm's own employees, who perform other general services on the farm, that is, patrolling and monitoring the farms is not their only responsibility.

			Instance 02 provided training for its employees on "Safety at Work". Instance 03 provided training on Regulatory Standard No. 6183, which aims to guide and train professionals on the types of existing protective equipment and their functions, as well as their correct use, storage and maintenance.
Safety of women and girls	No risk identified	No risk identified	All project activities comply with national and local laws (see Section 2.5.1). As detailed in the section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which ensure the rights and safety of women and girls. Moreover, the legal team conducts an annual analysis of business partners' conduct by reviewing labor and judicial certificates.
Safety of minority and marginalized groups, including children	No risk identified	No risk identified	All project activities comply with national and local laws (see Section 2.5.1). As detailed in section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which ensure the rights and safety of minority and marginalized groups. Moreover, the legal team conducts an annual analysis of business partners' conduct by reviewing labor and judicial certificates.

¹⁸³ NR6: [nr-06-atualizada-2022-1.pdf](#)

Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	Risks of occupational farming activities.	Risk of exposure of farm employees to chemicals used in production areas.	Although it is not a risk associated with project activities, since the PA borders the production areas of the three instances, the project will monitor the arrangements implemented by each farm to guarantee the safety of its employees. The mitigation actions implemented by the owners involve training employees and providing safety equipment. The main documents that prove these measures are implemented are: Rural Work Risk Management Program (PGRTR¹⁸⁴), Risk Management Program (PGR¹⁸⁵), Preliminary Risk Analysis (PRA¹⁸⁶). Although the name can vary, such programs aim to identify, control, train workers and track occupational health and safety risks. Information about the documents that were shared with the VVB for this monitoring period is described in section 2.3.17.
Discrimination	No risk identified	No risk identified	All project activities comply with national and local laws (see Section 2.5.1). As detailed in section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which reject any form of discrimination.
Sexual harassment	No risk identified	No risk identified	All project activities comply with national and local laws (see Section 2.5.1). As detailed in section 2.4.5, Future Carbon Group has a common Code

184 In Portuguese: Programa de Gerenciamento de Riscos de Trabalhadores Rurais (PGRTR)

185 In Portuguese: Programa de Gerenciamento de Riscos (PGR)

186 In Portuguese: Análise Preliminar de Risco (APR)

			of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which reject any criminal activity, including sexual harassment.
Equal pay for equal work	No risk identified.	No risk identified.	All project activities comply with national and local laws (see Section 2.5.1). As detailed in the section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which reject any criminal activity, including Equal pay for equal work
Gender equity in labor and work	No risk identified.	No risk identified.	All project activities comply with national and local laws (see Section 2.5.1). As detailed in the section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which reject any criminal activity, including Gender equity in labor and work
Forced labor¹⁸⁷	No risk identified.	No risk identified.	All project activities comply with national and local laws (see Section 2.5.1). As detailed in the section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws,

¹⁸⁷ The identified risks and commensurate mitigation or preventative measure(s) for forced labor, child labor, and human trafficking, must be inclusive of staff and contracted workers employed by third parties.

			which reject any criminal activity, including forced labor
Child labor	No risk identified.	No risk identified.	All project activities comply with national and local laws (see Section 2.5.1). As detailed in section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs. The Code is based on strict ethical principles and respect for the laws, which reject any criminal activity, including child labor.
Human trafficking	No risk identified.	No risk identified.	All project activities comply with national and local laws (see Section 2.5.1). As detailed in the section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which reject any criminal activity, including human trafficking.
Recognition of, respect of, and promotion of the rights to IPs, LCs and customary rights holders	No risk identified.	No risk identified.	All project activities comply with national and local laws (see Section 2.5.1). As detailed in section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which reject any criminal activity, including Recognition of, respect of, and promotion of the rights to IPs, LCs and customary rights holders
Preserving and protecting cultural heritage	No risk identified.	No risk identified.	All project activities comply with national and local laws (see Section 2.5.1). As detailed in section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs. The Code is based on

			strict ethical principles and respect for the laws, which reject any criminal activity, including Preserving and protecting cultural heritage.
Protecting and preserving property rights, customary rights, or protecting legal or customary tenure/access rights to territories, property, and resources, including collective and/or conflicting rights	No risk identified.	No risk identified.	All project activities comply with national and local laws (see Section 2.5.1). As detailed in the section 2.4.5, Future Carbon Group has a common Code of Conduct that is used by the entire Economic Group to which it belongs, the Code is based on strict ethical principles and respect for the laws, which reject any criminal activity, including Protecting and preserving property rights, customary rights, or protecting legal or customary tenure/access rights to territories, property, and resources, including collective and/or conflicting rights
Impacts on biodiversity and ecosystems	Medium /Long-Term Risk Reduction of available Brazil nut trees.	Without an effective system for monitoring and controlling deforestation, the area occupied by Brazil nut trees is at risk of diminution in a medium and long-term horizon	Implementing comprehensive monitoring and mitigation strategies is essential to safeguard the Brazil nut trees against both anthropogenic and natural challenges. As explained previously, during this period, monitoring of the project areas has been conducted by the project proponent and outsourced to a third party with sufficient capacity to carry out the monitoring tasks. The plan for monitoring and combating deforestation and forest fires includes the following activities: • Satellite Monitoring System: Satellite monitoring already takes place monthly in instance 2. In addition, for the next monitoring period (2024) the project

			areas will be monitored using weekly Planet¹⁸⁸ images by the Future team. • Ground Patrol: Led by teams hired by the Instances. • Rural Patrol: All instances joined Rural Patrol, whose main objective is public safety in the state's rural of private properties areas. • Fire brigade: Training will be carried out with farm employees on techniques for fighting and preventing forest fires. Currently, the risk of conflict between extractivists due to the possible reduction of Brazil nut tree areas is considered low. This is due to the effectiveness of the protection measures implemented by the project so far, which have proven successful in reducing deforestation within the project area. These measures include continuous monitoring and ground patrols to ensure the integrity of forest areas. In addition, the inventory planned in partnership with EMBRAPA will provide critical data on the productive potential of farms in Instance 03. This inventory will allow a detailed assessment of sustainable production capacities and will contribute to more effective resource management. With this data, we will be able to not only optimize the allocation of collection areas among existing groups, but also plan the introduction of new collectors strategically,
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¹⁸⁸ Available at: <https://www.planet.com>

			ensuring long-term sustainability and minimizing potential conflicts. Therefore, the project's activities aim to reduce CO2 emissions resulting from deforestation, promote environmental conservation and improve the social conditions of extractivists and external communities close to the project area, as well as carrying out monitoring activities and identifying local biodiversity.
Soil degradation and soil erosion	No risk identified.	No risk identified.	The project activities do not include actions that could cause or aggravate soil erosion and degradation processes.
Water consumption and stress	No risk identified.	No risk identified.	Project activities are not associated with actions that may cause or aggravate water stress or water consumption.
Habitats (and areas needed for habitat connectivity) for rare, threatened, and endangered species	Medium/Long Term Risk Loss of forest habitats.	Deforestation and degradation of forest habitat may adversely impact rare, threatened and endangered species, which could impact these local populations in the medium and long term.	As described in section 5.1.1, during the fauna inventory carried out in 2023, some endemic and endangered species were identified in the project area. Therefore, illegal deforestation within the project area may impact on the availability and quality of habitat for these species. Therefore, the mitigation plan for this risk is the plan to combat and prevent illegal deforestation mentioned in Appendix 2: Rio Madeira Grouped REDD+ Project Action Plan During this monitoring period the Rio Madeira Grouped REDD+ Project achieved the reduction of 1,571.5 hectares deforestation in the project area, which fall in Priority Areas for Biodiversity Conservation (see section 5.1.1 for more details).

Areas needed for habitat connectivity	No risk identified.	No risk identified.	No areas necessary for habitat connectivity have been identified so far. The development of a biodiversity monitoring plan was the second key activity, which determined the variables to be measured, the frequency of monitoring, and the expected start years. This dynamic plan was designed to evolve with increasing knowledge about the Project Area (PA) and the project's maturity. The biodiversity monitoring plan is structured in “basic variables” and “scientific variables”. It was defined four basic variables to be monitored: 1) forest cover, 2) local protection patrols, 3) Illegal events registered, 4) wildlife species; and two scientific variables: 5) birds, mammals and herpetofauna diversity and 6) Flora diversity. Scientific variables are to be collected every 5 years. More details on indicators, measurement method, monitoring frequency and results of the current monitoring period can be found in Section 5.3.1 of this document.
Invasive species	Long-term Risk Presence of domestic cats and dogs adjacent to project areas.	Free-ranging domestic cats may adversely impact wildlife by predation. Without intervention, these domestic animal populations may continue to grow, causing long-term impacts on wild animals.	During this monitoring period, this potential threat to biodiversity of the project area was detected and will be further investigated. The first step for addressing this risk will be conducting a survey on the number of free-ranging animals in the project properties. Then, if perceived a threat scenario, a population control program will be implemented by neutering and vaccination of domestic animals in the farms. Lectures about the potential impacts of pets on wildlife and responsible ownership may be conducted as well.

	Short-term risk Little acceptance among employees and residents of the project farms to carry out castrations of domestic animals.	This refers to the possible resistance and non-acceptance of dog and cat owners to neuter their animals, as they have misconceptions about the impacts of neutering on their animals. This resistance can harm the population control of these animals, and consequently, increase the risks of zoonosis and predation of wild animals.	Before neutering and vaccinating domestic animals, baseline assessment and educational campaigns will be carried out on the importance of neutering, and the positive and negative impacts of this process on animals, the environment and human health. It is expected that educational campaigns will raise awareness among animal owners and increase the participation rate in neutering and vaccination campaigns. During this monitoring period, no specific activities addressing this risk have been carried out yet. The focus has been on conducting a general biodiversity assessment. Surveying domestic animals, including owner acceptance of sterilization and vaccination, will be conducted further on project implementation. Awareness-raising actions on this topic have not yet been implemented.
Ecosystem conversion	No risk identified.	No risk identified.	No risks of ecosystem conversion have been identified to the moment.
Conflicts with new Stakeholders	Short-term Risk Inclusion of new Brazil nut extractivists as partners	The inclusion of new nut extractivists as partners of Instance 03 may generate conflicts with current extractivists, as well as generate dissatisfaction among extractivists who want to participate in the partnership.	It's crucial to emphasize that the Rio Madeira Grouped REDD+ Project operates as a private initiative, with the farms in Instance 03 (Tupá) being privately owned properties. Consequently, the partnership contracts established with the 10 Brazil nut collector groups residing in the region were formed on a voluntary basis. This agreement allows the collectors to harvest the Brazil nut trees on the farms, as long as they follow good management practices and report any signs of deforestation, fires or invasions of the forest The project aims to include new extractivists in the partnership over time, therefore, the following

			mitigation measures were adopted to avoid possible conflicts: 1.Responsible Inclusion: New extractivists will be gradually included based on expressed interest and the sustainable capacity of the forest. 2.Suitability Assessment: Before inclusion, a regional assessment is conducted Tupá Group to verify the suitability of candidates, ensuring alignment with the project's values. The process of verifying individuals interested in joining the nut collector partnership involves a qualitative community assessment. There are no rigid criteria or standardized questions, nor is there a document review. The main goal of this assessment is to assess whether the candidate has good relations within the community. Farm staff, who are also residents of the district, use their understanding of local social dynamics to provide an assessment based on their perceptions and experiences with the candidate, ensuring that new participants are well-regarded in the region. 3.Adherence to Best Practices: All extractivists, current and potential, are required to adhere to the terms of good management practices, ensuring the sustainability of collection activities and the conservation of the forest. 4.Partnership with EMBRAPA: In collaboration with EMBRAPA¹⁸⁹, an inventory of Brazil nut trees was started in November 2024 to determine the productive capacity of the area. This inventory will
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¹⁸⁹ The technical cooperation partnership with EMBRAPA was formalized in July 2024 and will be valid until July 2025, with the possibility of extension. This partnership exclusively covers the farms of Instance 03 (Tupá Group), given the geographical proximity to the EMBRAPA office in the state of Acre and the existing partnership with the nut extractivists/collectors.

			provide critical data on the potential and productive capacity of farms, enabling informed resource management without compromising forest integrity and ecological balance. 5.Optimization of Harvesting Routes: With the data provided by EMBRAPA's inventory, the harvesting routes of current collectors will be optimized. This will help maximize efficiency and minimize environmental impacts, ensuring that the carrying capacity of the forest is not exceeded. 6.Mapping of Exploration Zones: The boundaries of the areas explored by each group of partner extractivists are not completely defined. However, the extractivists claim that there is no overlap between the explored areas, as they are distributed across the farms of Instance 03 and use the access roads as geographic references. Each group of collectors may have areas of different sizes and/or productivity. Currently, what determines the limits of exploration is the collection capacity of the groups themselves, that is, it is not determined by the landowner of the farms. Given that this is highly manual and physically demanding work, extractivists face physical limitations regarding the extent of the areas they can cover. As a result, each group presents variations in the volume collected. In order to improve the understanding and management of these areas, detailed mapping of each exploration area is planned. This mapping will be carried out in partnership with EMBRAPA, which will provide a technique to monitor the extractivists in the field during the 2024/2025 harvest season. This zoning will not only facilitate the mapping
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			process and ensure more precise management of forest resources, but will also allow the identification of unexplored areas that could accommodate new collecting partners, thus promoting more efficient and sustainable use of available resources. 7. Continuous Communication: Current and potential partner extractivists have access to the communication channels established by the project, so that they can communicate any concerns. In the event that a new collector joins the group, he or she will be introduced to all current partners and will be informed about the Rio Madeira project and the communication channels. During this monitoring period, no new extractivists were included in the partnership.
Natural Risks - Adaptability	Medium/Long-term Risk of low adaptive capacity of small producers.	Socioeconomic limitations of small producers (access to credit, technology, information) may restrict their ability to implement more costly adaptive measures. This risk may lead to partial adoption or abandonment of practices promoted by the project in the face of new climate pressures, impacting the permanence of the desired social benefits.	During this monitoring period, no training was provided for small producers, meaning that no new agricultural practices or techniques were introduced.
Biodiversity - Permanence	Long-term Risk Lack of continuous monitoring of the population of endangered and endemic species of local fauna.	Risk that monitoring studies are not carried out continuously, compromising the conservation of threatened and endemic species in the long term.	As described in the section 5.1 Net Positive Biodiversity Impacts, during this monitoring period a fauna diagnosis was carried out in the project areas, as well as photographic records of birds in Instance 03. As mentioned in PD CCB section 2.1.12, one of the mitigation measures for the risk of non-continuity in conservation actions for

			endangered species involves sharing data collected in the project area in public databases, aiming to make this data accessible to researchers and managers of conservation units, aiming to facilitate the development of scientific research and conservation management plans. During the monitoring period, fauna data from the project areas are shared only as Appendix 5 to this Monitoring Report (MR) and are not yet available in public databases. This is because the data must first be adjusted and formatted to meet the requirements of external databases, which involves a detailed mapping of these standards.
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APPENDIX 2: COMMERCIALLY SENSITIVE INFORMATION

For the Rio Madeira Grouped REDD+ Project, some relevant information required by the VCS and/or co-benefit Standards are considered commercially sensitive information and cannot be made public by the project proponent. This information can be accessed by the third-party audit team during the validation process, attached to this MR document, but is not included in the public version. Below is a list of commercially sensitive documents that was available to the VVB team:

- Financial Performance Worksheet (budget) and other related documents;
- Agreements and contracts signed between the parties involved;
- Legal status and property right documents;
- Documents detailing Project Proponent financial health; and
- VCUs trade agreement.
- Service provision contract carried out by Ambiens

APPENDIX 3: QUESTIONS AND ANSWERS FROM THE CCB PD PUBLIC COMMENT PERIOD

Comment 1

Institution: NBS Brazil Alliance

- **Safeguards and Co-benefits:** despite the project requesting the CCB Standard, the Free, Prior and Informed Consent (CLPI) procedure was not carried out, as the proponent claims that because the project is located on private property, without the presence of traditional communities and indigenous populations, there is no change to the rights to use the property and therefore consent does not need to be obtained. However, there are employees living on the farm, even if it is not in the project area, and they criticized the lack of transparency at the beginning of the project, demonstrating the importance of FPIC and communication channels (which have not yet been implemented).

Future Carbon Response:

According to the VCS Program Definitions, v4, "Free, Prior, and Informed Consent (FPIC)" is defined as: "A safeguard to protect the rights of indigenous peoples and local communities, particularly relating to decision-making processes that affect their lands, territories, and resources."

Furthermore, the concept of FPIC was established in ILO Convention No. 169, which established the right to participation and free, prior and informed consent (FPIC) as fundamental rights of indigenous and "tribal" peoples, precisely to safeguard the autonomy of these peoples to define their own development priorities and recognition for the land they occupy or use.

As mentioned in the comment made by Aliança Brasil, the project is located on private properties and there is no presence or overlap with traditional communities or indigenous populations. Therefore, there will be no resettlement of community members or risks to property rights.

Nevertheless, it is important to reinforce the applicability of FPIC according to the CCB Guidance:

"FPIC is required under two circumstances:

- When property rights are potentially affected, FPIC must be obtained from property rights holders.
- When project activities may lead to the removal or relocation of habitation or activities important to their culture and livelihood (resettlement)."

Therefore, the project context does not meet the requirements for carrying out Free, Prior and Informed Consent (FPIC).

Regarding communication with farm employees, during the CCB period (year 2023), presentations about the project were given in October to 51 employees and their respective families, as shown in the table below:

Instance	Employees
01 – Rovema Group	22
02 – Leite Group	19
03 – Tupá Group	10
Total	51

The presentations were conducted in an engaging manner, encouraging the audience to participate and share their perspectives and expectations regarding the project and the topic of climate change. Dynamic activities were carried out, where participants were divided into smaller groups and wrote down the positive and negative points about the project. After a period of group discussion, participants presented their ideas to everyone, generating much reflection. Most participants recognized the importance of the Rio Madeira REDD+ project in protecting the forest, ecosystem services, and biodiversity. Regarding the negative points, most expressed concerns about climate change, especially the impacts on younger generations and agriculture.

The only negative point mentioned that was specific to the project was about communication regarding its development, as mentioned in the Alliance's feedback. Recognizing this weakness and seeking to make communication more agile and assertive, the project has restructured its communication mechanisms. Since then, the communication channels have been redesigned:

- Exclusive project email: riomadeira@futurecarbon.com.br to share materials about the project and establish contact with stakeholders;
- Email faleconosco@futurecarbon.com.br and WhatsApp number +55 (11) 94183-7277: these channels make up the new "Fale Conosco" (Contact Us). Through these channels, stakeholders can send questions, complaints, suggestions, and reports.

The project also includes a program focused on strengthening stakeholder engagement and continuous communication, as described in section 2.1.8 of the PD CCB. Other activities are being planned to disseminate the project's results, such as training employees who will be multipliers and spokespersons in the field, new presentations and distribution of printed materials, and dissemination on local radio, for example.

The Project recognizes the importance of Active Listening with stakeholders, so all feedback received will be analyzed in order to continuously evolve and improve.

Comment 2

Institution: NBS Brazil Alliance

- **Additionality:** in the analyzed document this section is not described, only mentioning the VCS document available on the VERRA platform. However, in the VCS document there are steps of the tool that were not described, such as investment analysis and common practice analysis. Therefore, the Rio Madeira project does not present an appropriate analysis for additionality.

Future Carbon Response:

The Project Design Document in the VCS standard available in the VERRA registry under the name "DRAFT_VCS_PD_Rio Madeira Grouped REDD+ Project_v1.2.pdf" is a Draft version dated March 21, 2022. Since then, the project has undergone several adjustments until its seventh version. Among the adjustments, section 3.5 (Additionality) was revised, following all the steps of the Additionality Tool "VT0001 – Tool for demonstration and assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, v3.0, dated February 1, 2012". Thus, this comment is addressed in the most recent version of the project.

Comment 3

Institution: NBS Brazil Alliance

- Baseline: Some steps required by VM0015 were not presented clearly in the document, such as the similarity criteria between the project area and the reference region were not strictly analyzed, the reference region appears much smaller than the dimensions suggested by VM0015, of 20x-40x of the project area, and the leakage belt definition analysis did not was introduced. Furthermore, the model may be overestimating projected deforestation, since the linear model has a low R² and no analysis was performed to demonstrate that the model prediction is conservative, including the analysis suggested by VM0015 when approach is used and The results of quantitative predictions are not presented in a way that allows us to verify the calculations.

Future Carbon Response:

As previously clarified, the project underwent several adjustments until its seventh version. Among the adjustments, section 1.13 (Conditions Prior to Project Initiation) presents a similarity assessment between the Project Area and the Reference Region. Additionally, section 3.3 (Project Boundary) defines the project boundary coverage area, including the "Project Area" and "Reference Region", where the 20-40x ratio between them is met, as mentioned in VM0015 v1.1. Therefore, this comment is addressed in the most recent version of the project.

Regarding the linear model, there is an observed increase in the deforestation rate in the reference region throughout the historical period (2009-2019). As highlighted, the linear model proves to be statistically significant, with a p-value of 0.0079. Following the IPCC Uncertainty Guidance Note likelihood scale, this result is categorized as "Virtually certain," with a probability between 99% and 100%. Furthermore, the coefficient of determination (R²) of 0.56 indicates that the linear model explains approximately 56% of the deforestation variability over the historical period. In simpler terms, this implies that around 56% of the variations in the average historical deforestation can be attributed to the fitted linear model, providing error reduction compared to simply using the historical average.

In evaluating the effectiveness of the linear model used, it is crucial to consider the specific scenario of the problem and the expectations related to the study area regarding land-use changes. Within the context of investigating land-use changes, it is essential to acknowledge the complexity involved in deforestation forecasting, given the influence of various factors on this phenomenon. Therefore, the analysis in question should not be the sole basis for deciding on the baseline approach, as indicated in VM0015, section 4.1.1.

As guided by VM0015, the choice and justification of the baseline approach should consider not only the historical deforestation rates in the reference region but also the comprehensive analysis of agents and drivers that shape land-use dynamics in the regional context of the REDD project. Given the evidence presented in the most recent version of the project, the comprehensive, contextual, and statistical analysis led to the conclusion that the linear model is representative and adequate for the region's reality. This is due to the consideration of the agents, drivers, and underlying causes of deforestation, which exert a significant influence on deforestation trends in the Amazon region.

Comment 4

Institution: NBS Brazil Alliance

- **Proponent:** Only the developer (Future Carbon) is classified as a proponent, Grupo Rovema, Grupo Leite and Grupo Tupá, who are the owners of the areas in question, are not proponents of the project. Any reason for this rating?

Future Carbon Response:

This is a business model defined in a contract between Future Carbon and the other parties. .

Comment 5

Institution: NBS Brazil Alliance

- **Right to Generated Credits:** the document mentions a contract that was signed between the project developer and the three groups that own the three instances, which makes the developer the legal representative of the owners, but it was not clear who owns the rights to the carbon credits.

Future Carbon Response:

This is a business model defined in a contract between Future Carbon and the other parties.

Comment 6

Institution: NBS Brazil Alliance

- **Project Location:** specific information is not available for each of the three instances that make up the project area, such as property and project area, owners, registration number, etc.

Future Carbon Response:

The Project Design Document in the VCS Standard in its most recent version details in Section 1.7 (Ownership) each instance and the registrations that comprise it. However, the Project Design Document in the CCB Standard can improve in this aspect.

APPENDIX 4: EVIDENCE OF THE PROJECT'S SD CONTRIBUTIONS

This table refers to topic 2.1.12 - Sustainable Development Contributions of the project, providing evidence of the SDG targets included in Table 4. Evidence containing sensitive information, such as attendance lists, invoices, and other documents, will not be made publicly available to protect participant data, as they contain private information. Additionally, some documents are very extensive and would not fit into this table. However, these documents were made available to the VVB during the verification process.

Row number	SDG target	SDG indicator	Current project contributions
1)	4.4	4.4.1 Proportion of collectors with skills in Brazil nut management, by type of skill ¹⁹⁰	Trained 18 adult and youth Brazil nut collectors on sustainable extraction and good management practices native Brazil nut groves during two technical workshops.

Evidence:

1. Photos:



¹⁹⁰ SDG text adapted to the reality and context of the project's activities



2. Event Schedule:



Evento: Boas Práticas de Produção de castanha do Brasil – Técnicas de inventário e mapeamento de castanhais nativos.

Tipo: Curso

Local: Fazenda Nova Fronteira – Nova Califórnia, RO.

Período: 01 de dezembro de 2023

Carga Horária: 08 horas

Realização: Embrapa Acre

Palestrantes: Cleisa Brasil e Daniel Papa

Projeto: TED Bioeconomia

Programação do evento

1. Abertura e apresentação dos participantes (1 hora)
 - Castanha do Brasil – *Bertholletia excelsa*
 - Principais características da espécie e importância socioeconômica
2. Boas práticas de produção da castanha do Brasil (30 minutos)
 - Sustentabilidade da espécie
 - Segurança do trabalhador
 - Qualidade da castanha
3. Etapa pé-coleta (3 horas)
 - Mapeamento de castanhal nativo
 - Técnicas de inventário florestal
 - Variáveis coletadas em campo (diâmetro, circunferência, altura)
 - Localização geográfica com uso de GPS
 - Tipos de mapas
 - Atividade prática 01 – Interpretação dos mapas.
 - Atividade prática 02 – Elaboração de croqui do castanhal.
4. Etapa de coleta (3 horas)
 - Equipamentos de Proteção Individual
 - Prevenção de contaminação da castanha
 - Pré-secagem
 - Armazenamento da castanha em campo
 - Atividade prática 03 – Inventário de castanheiras com uso de drone e GPS.
 - Atividade prática 04 – Práticas de coleta e pós-coleta de castanha.
5. Encerramento

a. Extractivist Training Attendance List. *(Made available to the VCB)*

2)	4.a	4.a.1 Proportion of schools with access to: (b) internet for pedagogical purposes	Installed one internet antenna at EMEIF Flor do Cupuaçu school, providing access to ICT resources for 145 beneficiaries, including students and teachers.
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Evidence:

1. **Invoice for the Starlink purchase** (*Made available to the VVB*)

3)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Avoided 886,441 tonnes of CO2 emissions by conserving 52,032.33 hectares of Amazon rainforest during the monitoring period.
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Evidence:

1. **ER Calculation spreadsheet** (*Made available to the VVB*)

The conserved forest area can be obtained through the ratio between the original project area at the time of the PSD and the deforestation that occurs each year. In the case of the Rio Madeira Project, at the time of the PSD (23-10-2019), the forest area was 52,274.05 hectares. By subtracting the deforestation that has occurred since then, we arrive at the value of 52,032.33 hectares conserved. The calculation details can be verified in the 'Table 8 PA ex post' tab of the calculation spreadsheet. As for emissions, the values of avoided emissions can be consulted in the calculation spreadsheet in the 'Summary net GHG ERs' tab, or in the topic 3.2.4 of this document.

4)	15.5	15.5.1 Red List Index	Protected the habitat of 223 species of fauna, including 22 mammals, 182 birds, and 19 amphibians/reptiles, with 9 threatened species per the IUCN Red List Index (and 1 in the National List).
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Evidence:

1. **Inventory service contract.** (*Made available to the VVB*)
2. **Fauna Inventory 2023** (*Made available to the VVB*)
3. **Fauna Inventory Report** (*Made available to the VVB*)

5)	15.2	15.2.1 Progress towards sustainable forest management	Forest Cover Satellite Monitoring
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Evidence:Instance 1

1. **Proof of income of the person in charge of the patrol** *(Made available to the VVB)*
2. **Contract for the provision of services and invoices for payment to the third-party company responsible for the patrol** *(Made available to the VVB)*

Instance 2

1. **Proof of income of the person in charge of the patrol** *(Made available to the VVB)*
2. **Payment invoices to the person responsible for satellite monitoring** *(Made available to the VVB)*
3. **Satellite monitoring maps** *(Made available to the VVB)*

Instance 3

4. **Proof of income of those in charge of the patrol** *(Made available to the VVB)*

For all instances:

5. **GIS files related to the monitored period - 2023 (shapefiles, raster files and raw data)** *(Made available to the VVB)*

APPENDIX 5: LIST OF FAUNA SPECIES IDENTIFIED IN THE PA

Class	Family	Speciesname	Vernacularname	Status Mma	Status lucn	Type	Month/Year
Amphibia	Bufonidae	<i>Rhinella granulosa</i>	sapo		LC	Fauna survey	aug/2023
Amphibia	Bufonidae	<i>Rhinella margaritifera</i>	sapo-cururu		LC	Fauna survey	aug/2023
Amphibia	Bufonidae	<i>Rhaebo guttatus</i>	sapo-cururu		LC	Fauna survey	aug/2023
Amphibia	Bufonidae	<i>Rhinella sp.</i>	sapo		-	Fauna survey	aug/2023
Amphibia	Hylidae	<i>Dendropsophus nanus</i>	pererequinha		LC	Fauna survey	aug/2023
Amphibia	Hylidae	<i>Osteocephalus buckleyi</i>	perereca		LC	Fauna survey	aug/2023
Amphibia	Hylidae	<i>Boana boans</i>	rã-canoeira		LC	Fauna survey	aug/2023
Amphibia	Hylidae	<i>Boana lanciformis</i>	perereca		LC	Fauna survey	aug/2023
Amphibia	Aromobatidae	<i>Anomaloglossus stepheni</i>	rãzinha-do-folhiço		LC	Fauna survey	aug/2023
Amphibia	Leptodactylidae	<i>Adenomera andreae</i>	rãzinha-do-folhiço		LC	Fauna survey	aug/2023
Amphibia	Leptodactylidae	<i>Adenomera hylaedactyla</i>	rãzinha-do-folhiço		LC	Fauna survey	aug/2023
Amphibia	Craugastoridae	<i>Pristimantis fenestratus</i>	rã-do-folhiço		LC	Fauna survey	aug/2023
Crocodylia	Alligatoridae	<i>Paleosuchus trigonatus</i>	jacaretinga		LC	Fauna survey	aug/2023
Crocodylia	Alligatoridae	<i>Caiman crocodilus</i>	jacaretinga		LC	Fauna survey	aug/2023
Squamata	Gymnophthalmidae	<i>Cercosaura argulus</i>	calango		LC	Fauna survey	aug/2023
Squamata	Teiidae	<i>Kentropyx calcarata</i>	calango		LC	Fauna survey	aug/2023
Squamata	Colubridae	<i>Hydrodynastes gigas</i>	cobra-d'água		LC	Fauna survey	aug/2023
Squamata	Elapidae	<i>Micrurus lemniscatus</i>	coral-verdadeira		LC	Fauna survey	aug/2023
Squamata	Viperidae	<i>Bothrops atrox</i>	jararaca		LC	Fauna survey	aug/2023
Mammalia	Atelidae	<i>Ateles chamek</i>	macaco-aranha-peruano	VU	EN	Fauna survey	aug/2023
Mammalia	Pitheciidae	<i>Plecturocebus brunneus</i>	guigó-marrom		VU	Fauna survey	aug/2023
Mammalia	Canidae	<i>Cerdocyon thous</i>	cachorro-do-mato		LC	Fauna survey	aug/2023

Mammalia	Cuniculidae	<i>Cuniculus paca</i>	paca		LC	Fauna survey	aug/2023
Mammalia	Dasyproctidae	<i>Dasyprocta fuliginosa</i>	cutia		LC	Fauna survey	aug/2023
Mammalia	Tayassuidae	<i>Pecari tajacu</i>	cateto		LC	Fauna survey	aug/2023
Mammalia	Mustelidae	<i>Eira barbara</i>	irara		LC	Fauna survey	aug/2023
Mammalia	Caviidae	<i>Hydrochoerus hydrochaeris</i>	capivara		LC	Fauna survey	aug/2023
Mammalia	Felidae	<i>Leopardus pardalis</i>	jaguaritica		LC	Fauna survey	aug/2023
Mammalia	Cervidae	<i>Mazama americana</i>	veado-mateiro		DD	Fauna survey	aug/2023
Mammalia	Cervidae	<i>Mazama nemorivaga</i>	veado-roxo		LC	Fauna survey	aug/2023
Mammalia	Callitrichidae	<i>Mico rondoni</i>	mico-de-rondônia	VU	VU	Fauna survey	aug/2023
Mammalia	Procyonidae	<i>Nasua nasua</i>	quati		LC	Fauna survey	aug/2023
Mammalia		NID	Esquilo (squirrel)			Fauna survey	aug/2023
Mammalia	Felidae	<i>Panthera onca</i>	onça-pintada	VU	NT	Fauna survey	aug/2023
Mammalia	Pitheciidae	<i>Pithecia irrorata</i>	parauaçu		DD	Fauna survey	aug/2023
Mammalia	Callitrichidae	<i>Saguinus weddelli</i>	sagui-de-cara-suja			Fauna survey	aug/2023
Mammalia	Cebidae	<i>Saimiri boliviensis</i>	mico-de-cheiro-boliviano			Fauna survey	aug/2023
Mammalia	Cebidae	<i>Sapajus macrocephalus</i>	macaco-prego			Fauna survey	aug/2023
Mammalia	Leporidae	<i>Sylvilagus brasiliensis</i>	tapiti		EN	Fauna survey	aug/2023
Mammalia	Tapiridae	<i>Tapirus terrestris</i>	anta	VU	VU	Fauna survey	aug/2023
Mammalia	Tayassuidae	<i>Tayassu pecari</i>	queixada	VU	VU	Fauna survey	aug/2023
Birds	Tinamidae	<i>Crypturellus soui</i>	tururim		LC	Fauna survey	aug/2023
Birds	Tinamidae	<i>Crypturellus variegatus</i>	inambu-anhangá		LC	Fauna survey	aug/2023
Birds	Tinamidae	<i>Crypturellus parvirostris</i>	inambu-chororó		LC	Fauna survey	aug/2023
Birds	Anatidae	<i>Amazonetta brasiliensis</i>	ananaí		LC	Fauna survey	aug/2023
Birds	Cracidae	<i>Penelope jacquacu</i>	jacu-de-spix		LC	Fauna survey	aug/2023
Birds	Cracidae	<i>Nothocrax urumutum</i>	urumutum		LC	Fauna survey	aug/2023
Birds	Cracidae	<i>Pauxi tuberosa</i>	mutum-cavalo			Fauna survey	aug/2023

Birds	Odontophoridae	<i>Odontophorus stellatus</i>	uru-de-topete		LC	Fauna survey	aug/2023
Birds	Ciconiidae	<i>Mycteria americana</i>	cabeça-seca		LC	Fauna survey	aug/2023
Birds	Cathartidae	<i>Cathartes melambrotus</i>	urubu-da-mata		LC	Fauna survey	aug/2023
Birds	Cathartidae	<i>Coragyps atratus</i>	urubu		LC	Fauna survey	aug/2023
Birds	Accipitridae	<i>Elanoides forficatus</i>	gavião-tesoura		LC	Fauna survey	aug/2023
Birds	Accipitridae	<i>Harpagus bidentatus</i>	gavião-ripina		LC	Fauna survey	aug/2023
Birds	Accipitridae	<i>Ictinia plumbea</i>	sovi		LC	Fauna survey	aug/2023
Birds	Accipitridae	<i>Leucopternis kuhli</i>	gavião-vaqueiro		LC	Fauna survey	aug/2023
Birds	Accipitridae	<i>Buteo nitidus</i>	gavião-pedres		LC	Fauna survey	aug/2023
Birds	Accipitridae	<i>Buteo platypterus</i>	gavião-de-asa-larga		LC	Fauna survey	aug/2023
Birds	Charadriidae	<i>Vanellus chilensis</i>	quero-quero		LC	Fauna survey	aug/2023
Birds	Columbidae	<i>Patagioenas speciosa</i>	pomba-trocal		LC	Fauna survey	aug/2023
Birds	Columbidae	<i>Patagioenas plumbea</i>	pomba-amargosa		LC	Fauna survey	aug/2023
Birds	Columbidae	<i>Patagioenas subvinacea</i>	pomba-botafogo		LC	Fauna survey	aug/2023
Birds	Columbidae	<i>Leptotila rufaxilla</i>	juriti-de-testa-branca		LC	Fauna survey	aug/2023
Birds	Cuculidae	<i>Piaya cayana</i>	alma-de-gato		LC	Fauna survey	aug/2023
Birds	Cuculidae	<i>Piaya melanogaster</i>	chincão-de-bico-vermelho		LC	Fauna survey	aug/2023
Birds	Cuculidae	<i>Guira guira</i>	anu-branco		LC	Fauna survey	aug/2023
Birds	Strigidae	<i>Megascops choliba</i>	corujinha-do-mato		LC	Fauna survey	aug/2023
Birds	Strigidae	<i>Megascops usta</i>	corujinha-relógio			Fauna survey	aug/2023
Birds	Strigidae	<i>Lophotrix cristata</i>	coruja-de-crista		LC	Fauna survey	aug/2023
Birds	Strigidae	<i>Pulsatrix perspicillata</i>	murucututu		LC	Fauna survey	aug/2023
Birds	Strigidae	<i>Glaucidium brasilianum</i>	caburé		LC	Fauna survey	aug/2023
Birds	Strigidae	<i>Athene cunicularia</i>	coruja-buraqueira		LC	Fauna survey	aug/2023
Birds	Caprimulgidae	<i>Nyctiphrynus ocellatus</i>	bacurau-ocelado		LC	Fauna survey	aug/2023

Birds	Caprimulgidae	<i>Nyctidromus albicollis</i>	bacurau		LC	Fauna survey	aug/2023
Birds	Caprimulgidae	<i>Hydropsalis parvula</i>	bacurau-chintã			Fauna survey	aug/2023
Birds	Caprimulgidae	<i>Hydropsalis maculicaudus</i>	bacurau-de-rabo-maculado		LC	Fauna survey	aug/2023
Birds	Apodidae	<i>Panyptila cayennensis</i>	andorinhão-estofador		LC	Fauna survey	aug/2023
Birds	Trochilidae	<i>Phaethornis ruber</i>	rabo-branco-rubro		LC	Fauna survey	aug/2023
Birds	Trochilidae	<i>Campylopterus obscurus</i>	asa-de-sabre-de-cauda-escuro			Fauna survey	aug/2023
Birds	Trogonidae	<i>Trogon melanurus</i>	surucuá-de-cauda-preta		LC	Fauna survey	aug/2023
Birds	Trogonidae	<i>Trogon ramonius</i>	surucuá-pequeno			Fauna survey	aug/2023
Birds	Trogonidae	<i>Trogon curucui</i>	surucuá-de-barriga-vermelha		LC	Fauna survey	aug/2023
Birds	Momotidae	<i>Electron platyrhynchum</i>	udu-de-bico-largo		LC	Fauna survey	aug/2023
Birds	Momotidae	<i>Baryphthengus martii</i>	juruva-ruiva		LC	Fauna survey	aug/2023
Birds	Momotidae	<i>Momotus momota</i>	udu		LC	Fauna survey	aug/2023
Birds	Galbulidae	<i>Galbula cyanescens</i>	ariramba-da-capoeira		LC	Fauna survey	aug/2023
Birds	Galbulidae	<i>Jacamerops aureus</i>	jacamarazu		LC	Fauna survey	aug/2023
Birds	Bucconidae	<i>Bucco capensis</i>	rapazinho-de-colar		LC	Fauna survey	aug/2023
Birds	Bucconidae	<i>Malacoptila rufa</i>	barbudo-de-pescoço-ferrugem		LC	Fauna survey	aug/2023
Birds	Bucconidae	<i>Monasa nigrifrons</i>	chora-chuva-preto		LC	Fauna survey	aug/2023
Birds	Bucconidae	<i>Monasa morphoeus</i>	chora-chuva-de-cara-branca		LC	Fauna survey	aug/2023
Birds	Capitonidae	<i>Capito auratus</i>	capitão-de-fronte-dourada		LC	Fauna survey	aug/2023
Birds	Ramphastidae	<i>Ramphastos tucanus</i>	tucano-de-papo-branco		LC	Fauna survey	aug/2023
Birds	Ramphastidae	<i>Ramphastos vitellinus</i>	tucano-de-bico-preto		LC	Fauna survey	aug/2023

Birds	Ramphastidae	<i>Selenidera reinwardtii</i>	saripoca-de-coleira		LC	Fauna survey	aug/2023
Birds	Ramphastidae	<i>Pteroglossus bitorquatus</i>	araçari-de-pescoço-vermelho		NT	Fauna survey	aug/2023
Birds	Ramphastidae	<i>Pteroglossus mariae</i>	araçari-de-bico-marrom			Fauna survey	aug/2023
Birds	Ramphastidae	<i>Pteroglossus castanotis</i>	araçari-castanho		LC	Fauna survey	aug/2023
Birds	Ramphastidae	<i>Pteroglossus beauharnaisii</i>	araçari-mulato		LC	Fauna survey	aug/2023
Birds	Picidae	<i>Picumnus aurifrons</i>	picapauzinho-dourado		LC	Fauna survey	aug/2023
Birds	Picidae	<i>Melanerpes cruentatus</i>	benedito-de-testa-vermelha		LC	Fauna survey	aug/2023
Birds	Picidae	<i>Celeus elegans</i>	pica-pau-chocolate		LC	Fauna survey	aug/2023
Birds	Picidae	<i>Campephilus rubicollis</i>	pica-pau-de-barriga-vermelha		LC	Fauna survey	aug/2023
Birds	Falconidae	<i>Daptrius ater</i>	gavião-de-anta		LC	Fauna survey	aug/2023
Birds	Falconidae	<i>Ibycter americanus</i>	cancão		LC	Fauna survey	aug/2023
Birds	Falconidae	<i>Herpetotheres cachinnans</i>	acauã		LC	Fauna survey	aug/2023
Birds	Falconidae	<i>Micrastur semitorquatus</i>	falcão-relógio		LC	Fauna survey	aug/2023
Birds	Falconidae	<i>Falco sparverius</i>	quiriquiri		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Ara ararauna</i>	arara-canindé		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Ara macao</i>	araracanga		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Ara chloropterus</i>	arara-vermelha		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Ara severus</i>	maracanã-guaçu		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Psittacara leucophthalmus</i>	periquitão		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Aratinga weddellii</i>	periquito-de-cabeça-suja		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Pyrrhura lucianii</i>	tiriba-de-deville		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Brotoyeris chrysoptera</i>	periquito-de-asa-dourada		LC	Fauna survey	aug/2023

Birds	Psittacidae	<i>Pionus menstruus</i>	maitaca-de-cabeça-azul		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Amazona farinosa</i>	papagaio-moleiro		LC	Fauna survey	aug/2023
Birds	Psittacidae	<i>Amazona ochrocephala</i>	papagaio-campeiro		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Microrhopias quixensis</i>	papa-formiga-de-bando		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Myrmotherula sclateri</i>	choquinha-de-garganta-amarela		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Myrmotherula longipennis</i>	choquinha-de-asa-comprida			Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Thamnomanes ardesiacus</i>	uirapuru-de-garganta-preta		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Thamnomanes saturninus</i>	uirapuru-selado			Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Thamnomanes caesius</i>	ipecuá			Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Thamnophilus schistaceus</i>	choca-de-olho-vermelho		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Thamnophilus murinus</i>	choca-murina		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Thamnophilus aethiops</i>	choca-lisa		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Cymbilaimus lineatus</i>	papa-formiga-barrado		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Taraba major</i>	choró-boi		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Sclateria naevia</i>	papa-formiga-do-igarapé		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Myrmelastes rufifacies</i>	formigueiro-de-cara-ruiva		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Myrmoborus myotherinus</i>	formigueiro-de-cara-preta		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Myrmoborus leucophrys</i>	papa-formiga-de-sobrancelha		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Sciaphylax hemimelaena</i>	formigueiro-de-cauda-castanha		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Cercomacra cinerascens</i>	chororó-pocuá		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Cercomacroides nigrescens</i>	chororó-negro		LC	Fauna survey	aug/2023

Birds	Thamnophilidae	<i>Cercomacroides serva</i>	chororó-preto		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Hypocnemis peruviana</i>	cantador-sinaleiro		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Hypocnemis ochrogyna</i>	cantador-ocráceo	VU	VU	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Willisornis poecilinotus</i>	rendadinho		LC	Fauna survey	aug/2023
Birds	Thamnophilidae	<i>Oneillornis salvini</i>	mãe-de-taoca-de-cauda-barrada		LC	Fauna survey	aug/2023
Birds	Furnariidae	<i>Xiphorhynchus elegans</i>	arapaçu-elegante		LC	Fauna survey	aug/2023
Birds	Furnariidae	<i>Xiphorhynchus guttatoides</i>	arapaçu-de-lafresnaye			Fauna survey	aug/2023
Birds	Furnariidae	<i>Automolus ochrolaemus</i>	barranqueiro-camurça		LC	Fauna survey	aug/2023
Birds	Pipridae	<i>Tyranneutes stolzmanni</i>	uirapuruzinho		LC	Fauna survey	aug/2023
Birds	Pipridae	<i>Ceratopipra rubrocapilla</i>	cabeça-encarnada		LC	Fauna survey	aug/2023
Birds	Pipridae	<i>Machaeropterus pyrocephalus</i>	uirapuru-cigarra		LC	Fauna survey	aug/2023
Birds	Pipridae	<i>Chiroxiphia regina</i>	tangará-de-coroa-amarela			Fauna survey	aug/2023
Birds	Cotingidae	<i>Schiffornis turdina</i>	flautim-marrom		LC	Fauna survey	aug/2023
Birds	Cotingidae	<i>Tityra inquisitor</i>	anambé-branco-de-bochecha-parda		LC	Fauna survey	aug/2023
Birds	Cotingidae	<i>Pachyramphus polychopterus</i>	caneleiro-preto		LC	Fauna survey	aug/2023
Birds	Cotingidae	<i>Querula purpurata</i>	anambé-una		LC	Fauna survey	aug/2023
Birds	Cotingidae	<i>Lipaugus vociferans</i>	cricrió		LC	Fauna survey	aug/2023
Birds	Cotingidae	<i>Cotinga cayana</i>	anambé-azul		LC	Fauna survey	aug/2023
Birds	Cotingidae	<i>Gymnoderus foetidus</i>	anambé-pombo		LC	Fauna survey	aug/2023
Birds	Cotingidae	<i>Piprites chloris</i>	papinho-amarelo		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Leptopogon amaurocephalus</i>	cabeçudo		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Myiornis ecaudatus</i>	caçula		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Hemitriccus minor</i>	maria-sebinha		LC	Fauna survey	aug/2023

Birds	Tyrannidae	<i>Hemitriccus minimus</i>	maria-mirim		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Ornithion inerme</i>	poiaeiro-de-sobrancelha		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Myiopagis gaimardii</i>	maria-pechim		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Tyrannulus elatus</i>	maria-te-viu		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Attila spadiceus</i>	capitão-de-saíra-amarelo		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Legatus leucophaeus</i>	bem-te-vi-pirata		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Myiarchus tuberculifer</i>	maria-cavaleira-pequena		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Myiarchus ferox</i>	maria-cavaleira		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Rhytipterna simplex</i>	vissia		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Myiodynastes maculatus</i>	bem-te-vi-rajado		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Megarynchus pitangua</i>	neinei		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Myiozetetes cayanensis</i>	bentevizinho-de-asa-ferrugínea		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Tyrannus melancholicus</i>	suiriri		LC	Fauna survey	aug/2023
Birds	Tyrannidae	<i>Tyrannus savana</i>	tesourinha		LC	Fauna survey	aug/2023
Birds	Vireonidae	<i>Cyclarhis gujanensis</i>	pitiguari		LC	Fauna survey	aug/2023
Birds	Vireonidae	<i>Hylophilus semicinereus</i>	verdinho-da-várzea		LC	Fauna survey	aug/2023
Birds	Corvidae	<i>Cyanocorax chrysops</i>	gralha-picaça		LC	Fauna survey	aug/2023
Birds	Troglodytidae	<i>Microcerculus marginatus</i>	uirapuru-veado		LC	Fauna survey	aug/2023
Birds	Troglodytidae	<i>Pheugopedius genibarbis</i>	garrinchão-pai-avô		LC	Fauna survey	aug/2023
Birds	Passerellidae	<i>Ammodramus aurifrons</i>	cigarrinha-do-campo		LC	Fauna survey	aug/2023
Birds	Icteridae	<i>Psarocolius viridis</i>	japu-verde		LC	Fauna survey	aug/2023
Birds	Icteridae	<i>Psarocolius decumanus</i>	japu		LC	Fauna survey	aug/2023
Birds	Icteridae	<i>Psarocolius bifasciatus</i>	japuguaçu		LC	Fauna survey	aug/2023
Birds	Icteridae	<i>Cacicus cela</i>	xexéu		LC	Fauna survey	aug/2023

Birds	Icteridae	<i>Molothrus oryzivorus</i>	iraúna-grande		LC	Fauna survey	aug/2023
Birds	Icteridae	<i>Leistes militaris</i>	polícia-inglesa-do-norte		LC	Fauna survey	aug/2023
Birds	Mitrospingidae	<i>Lamprospiza melanoleuca</i>	pipira-de-bico-vermelho		LC	Fauna survey	aug/2023
Birds	Thraupidae	<i>Tangara gyrola</i>	saíra-de-cabeça-castanha		LC	Fauna survey	aug/2023
Birds	Thraupidae	<i>Tangara mexicana</i>	saíra-de-bando		LC	Fauna survey	aug/2023
Birds	Thraupidae	<i>Tangara chilensis</i>	sete-cores-da-amazônia		LC	Fauna survey	aug/2023
Birds	Thraupidae	<i>Thraupis episcopus</i>	sanhaço-da-amazônia			Fauna survey	aug/2023
Birds	Thraupidae	<i>Thraupis palmarum</i>	sanhaço-do-coqueiro			Fauna survey	aug/2023
Birds	Thraupidae	<i>Stilpnia nigrocincta</i>	saíra-mascarada			Fauna survey	aug/2023
Birds	Thraupidae	<i>Hemithraupis flavicollis</i>	saíra-galega		LC	Fauna survey	aug/2023
Birds	Thraupidae	<i>Lanio versicolor</i>	pipira-de-asa-branca		LC	Fauna survey	aug/2023
Birds	Thraupidae	<i>Loriotus luctuosus</i>	tem-tem-de-dragona-branca			Fauna survey	aug/2023
Birds	Thraupidae	<i>Loriotus cristatus</i>	tiê-galo			Fauna survey	aug/2023
Birds	Thraupidae	<i>Ramphocelus carbo</i>	pipira-vermelha		LC	Fauna survey	aug/2023
Birds	Thraupidae	<i>Tersina viridis</i>	saí-andorinha		LC	Fauna survey	aug/2023
Birds	Thraupidae	<i>Dacnis lineata</i>	saí-de-máscara-preta		LC	Fauna survey	aug/2023
Birds	Thraupidae	<i>Saltator maximus</i>	tempera-viola		LC	Fauna survey	aug/2023
Birds	Fringillidae	<i>Euphonia chrysopasta</i>	gaturamo-verde		LC	Fauna survey	aug/2023
Birds	Fringillidae	<i>Euphonia minuta</i>	gaturamo-de-barriga-branca		LC	Fauna survey	aug/2023
Birds	Bucconidae	<i>Nonnula sclateri</i>	freirinha-amarelada		LC	Photographic records	sep/2023
Birds	Bucconidae	<i>Notharchus hyperrhynchus</i>	macuru-de-testa-branca		LC	Photographic records	sep/2023

Birds	Bucconidae	<i>Chelidoptera tenebrosa</i>	urubuzinho		LC	Photographic records	sep/2023
Birds	Capitonidae	<i>Eubucco richardsoni</i>	capitão-de-bigode-limão		LC	Photographic records	sep/2023
Birds	Fringillidae	<i>Euphonia rufiventris</i>	gaturamo-do-norte		LC	Photographic records	sep/2023
Birds	Furnariidae	<i>Dendroma erythroptera</i>	limpa-folha-de-asa-castanha		LC	Photographic records	sep/2023
Birds	Galbulidae	<i>Galbalcyrrhynchus purusianus</i>	ariramba-castanha		LC	Photographic records	sep/2023
Birds	Galbulidae	<i>Brachygalba albogularis</i>	agulha-de-garganta-branca		LC	Photographic records	sep/2023
Birds	Picidae	<i>Picumnus subtilis</i>	picapauzinho-de-barras-finas		LC	Photographic records	sep/2023
Birds	Psittacidae	<i>Pyrrhura rupicola</i>	tiriba-rupestre		LC	Photographic records	sep/2023
Birds	Psittacidae	<i>Brotogeris cyanoptera</i>	periquito-de-asa-azul		LC	Photographic records	sep/2023
Birds	Psittacidae	<i>Pyrilia barrabandi</i>	curica-de-bochecha-laranja		LC	Photographic records	sep/2023
Birds	Psittacidae	<i>Primolius couloni</i>	maracanã-de-cabeça-azul		VU	Photographic records	sep/2023
Birds	Psittacidae	<i>Pionites leucogaster</i>	marianinha-de-cabeça-amarela		VU	Photographic records	sep/2023
Birds	Scolopacidae	<i>Bartramia longicauda</i>	maçarico-do-campo		LC	Photographic records	sep/2023
Birds	Thamnophilidae	<i>Hafferia fortis</i>	formigueiro-de-taoca		LC	Photographic records	sep/2023
Birds	Thamnophilidae	<i>Myrmoborus lophotes</i>	formigueiro-do-bambu			Photographic records	sep/2023
Birds	Thraupidae	<i>Paroaria gularis</i>	cardeal-da-amazônia		LC	Photographic records	sep/2023
Birds	Tyrannidae	<i>Myiozetetes granadensis</i>	bem-te-vi-de-cabeça-cinza		LC	Photographic records	sep/2023
Birds	Vireonidae	<i>Pachysylvia hypoxantha</i>	vite-vite-de-barriga-amarela		LC	Photographic records	sep/2023