



**Verified Carbon
Standard**

THE LOWER ZAMBEZI REDD+ PROJECT

MONITORING REPORT



Project title	Lower Zambezi REDD+ Project
Project ID	1202
Monitoring period	01-January-2024 to 31-December-2024
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Prepared by	BioCarbon Partners (BCP)

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PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The Lower Zambezi REDD+ Project (Project) is a Reducing Emissions from Deforestation and Degradation (REDD+) project on 40,126 ha of privately-owned land in Rufunsa District, Zambia, with an accounting area of 33,338 ha. The Project Area is known as 'Rufunsa Conservancy', and is owned by a Zambian company named Sable Transport Limited. The Conservancy is one of the last intact areas of forest within Lusaka Province, and provides a 60-kilometer buffer to Lower Zambezi National Park, a strategic protected area in Zambia in a globally significant trans-frontier conservation area. The population of the Project Zone as of the 2012 baseline evaluation was approximately 8,933 people living in 28 villages spread within 4 community zones.

The Project Proponent is BioCarbon Partners, which is responsible for certifying the Project and for early-stage Project finance. The core project climate activities undertaken include forest carbon inventorying, modeling cumulative deforestation patterns, and soil carbon assessments. Core community project activities include up to eighteen different types of community-based deforestation mitigation initiatives designed to create sustainable, scalable alternatives to deforestation, and strategic, meaningful incentives that comprise part of pay for performance programs that support forest conservation. Core biodiversity project activities include forest conservation systems, biodiversity monitoring and management, and fire management. Project area boundaries were marked at project start date and since then, aerial and/or ground patrols are conducted weekly to monitor compliance. Every monitoring period, 20 % of accounting and proxy area biomass plots and 100 % of leakage area monitoring plots are inventoried. Remote sensing is used to monitor disturbance and fires while wildlife and other biodiversity indicators are monitored in annual fixed transects surveys as well as random ground patrols. Ongoing and new community benefit projects are monitored by the Impact Monitoring division and their statuses are described in section 3.1.

The project was developed to conform to the Climate, Community and Biodiversity Standard (CCBS, Second Edition) and the Verified Carbon Standard (VCS, Version 3.3 and further updated to conform with Version 4.6). Furthermore, the Project is aligned with the Government of the Republic of Zambia's (GRZ) National REDD+ Program, implemented through the Forestry Department.

The project start date is 1st October 2009 and will be implemented until 30th September 2039. This project will be operational in a credit period of 1st October 2009 to 30 September 2039 for 30 years. The estimated emissions reduction for the 30-year project span is 5,607,851tCO₂e at an average of 186,928 tCO₂e/yr. The emissions reduction for the current monitoring period (January 1st, 2024, to Dec. 31st, 2024) is 243,495 tCO₂e. In the current monitoring period, there was NPRR¹ risk factor deduction of 21% (-51,134tCO₂e), resulting in the total final Issuance of 192,361tCO₂e VCU.

¹ Check the Non-Performance Risk Report for M12.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation	04-April-2014	VCS	DNV Climate Change Services AS	-
Verification	01-October-2009--01-October-2013	VCS	DNV Climate Change Services AS	4
Verification	02-October-2013--30-September-2014	VCS	SCS Global Services (SCS)	1
Verification	01-October-2014--31-December-2015	VCS	SCS Global Services (SCS)	1.25
Verification	01-January-2016--31-December-2016	VCS	SCS Global Services (SCS)	1
Verification	01-January-2017--31-December-2017	VCS	SCS Global Services (SCS)	1
Verification	01-January-2018--31-December-2018	VCS	SCS Global Services (SCS)	1
Verification	01-January-2019--31-December-2019	VCS	Aenor International (S.A.U.)	1
Verification	01-January-2020--31-December-2020	VCS	Aenor International (S.A.U.)	1
Verification	01-January-2021--31-December-2021	VCS	Aenor International (S.A.U.)	1
Verification	01-January-2022--31-December-2022	VCS	Aenor International (S.A.U.)	1
Verification	01-January-2023--31-December-2023	VCS	Aenor International (S.A.U.)	1
Verification ²	01-January-2024--31-December-2024	VCS	Aenor International (S.A.U.)	1
Total				15.25

² Current Active Verification

1.3 Sectoral Scope and Project Type

Sectoral scope 14	Agriculture, Forestry, and Other Land Uses (AFOLU)
AFOLU project category	Reduced Emissions from Deforestation and Degradation (REDD)
Project activity type	Avoiding Unplanned Deforestation and/or Degradation (AUDD)

1.4 Project Proponent

Organization name	BioCarbon Partners
Contact person	Nicholas Mudaly
Title	Chief Executive Officer
Address	BioCarbon Partners, 5th Floor, Barkly Wharf, Le Caudan Waterfront, Port Louis, Republic of Mauritius
Telephone	+260 211 290 051
Email	info@biocarbonpartners.com

1.5 Other Entities Involved in the Project

Organization name	Musika Development Initiatives Ltd.
Role in the project	Funding and Technical Partner
Contact person	Mr. Rob Munro
Title	Director of Strategy
Address	6 Tukuluho Rd. Longacres, Lusaka, Zambia
Telephone	+260 211 251 371
Email	info@musika.org.zm

Organization name	Natures Nectar Ltd
Role in the project	Implementing Partner
Contact person	Katherine Milling
Title	Co-Founder & CEO
Address	PO Box KLA14, Kalumbila, North-Western Province, Zambia
Telephone	+260 976139341
Email	katherine@naturesnectarzambia.com

Organization name	Legacy Forests (BCP Trust)
Role in the project	Implementing Partner
Contact person	Gina Woolley
Title	Business Development
Address	Plot #4658/A Chikwa Road, Ridgeway, Lusaka, Zambia
Telephone	+260 211 290 051
Email	gwoolley@biocarbonpartners.com

1.6 Project Start Date

Project start date	01-October-2009
Justification	The project start date of an AFOLU project is the date on which activities that lead to the generation of reductions or removals are implemented (e.g. implementing management or protection plans). Sable Transport Ltd., the owner of the property, has operated the Rufunsa Conservancy since it was first established in 2001 with the objective of developing wildlife-based tourism activities. However, there has been uncertainties around the title deed until 2009 when the title deed court case was resolved in Sable's favour. From that moment, security systems were strengthened, and community leaders were engaged to improve the natural resources protection (Sable Transport's attestation letter available in Appendix L).

1.7 Project Crediting Period

Crediting period	☐ Seven years, twice renewable ☐ Ten years, fixed ☒ Other: 30 years. As per VCS requirements, AFOLU projects other than ALM shall have an initial crediting period of minimum 20 years, renewable, and must have a credible and robust management and implementation plan. Sable Transport Ltd. granted an easement to BCP for an initial term of 30 years in order to independently manage the property as to preserve its natural value and to develop a REDD+ project through the perseverance of the Land (Deed of Conservation Easement available in Appendix L), therefore acting as a project longevity safeguard.
Start and end date of first or fixed crediting period	01-October-2009 to 30-September-2039

1.8 Project Location

The Lower Zambezi REDD+ project is located approximately 120 km southeast of Lusaka and falls within the miombo eco-region which is host to a plethora of endemic species. It falls within the recently declared Rufunsa district and borders the Lower Zambezi National Park to the east and south, Chiawa Game Management Area (GMA) to the west and the Soli Shamifwi Royal Establishment (Chief Bunda Bunda's Chieftdom) to the north (Figure 1). The project area is accessible by road via the small towns of Chinyunyu and Sinjela on all-weather dirt roads. The project area is the Rufunsa Conservancy, privately owned by Sable Transport Ltd, a local Zambian company.

The project area consists primarily of intact, primary miombo woodland that has never been logged with some open grassland and deep ravines with dense Acacia woodlands. The project area is 40,126 ha in size. A portion of Rufunsa Conservancy has been encroached by illegal charcoal producers and this area has been excluded from the project area (labeled Encroachment, Figure 1). Figure 2 shows the land cover and topography of the Lower Zambezi REDD+ project area.

There are an estimated 8,300 people living in the project zone which falls in the Rufunsa district which is further divided into four zones and 28 villages. The project zone is bound between -15°16'57.72"S – 28°58'25.68"E (NW Corner) -15°16'57.72"S – 29°23'43.4394"E (NE Corner), -15°35'51.3594"S – 29°23'43.4394"E (SE Corner), and -15°35'51.3594"S – 28°58'25.68"E (SW corner).

MR.6

The project accounting area is the boundary of Farm 10.800, known as Rufunsa Conservancy, as shown in Figure 1. Sable Transport Limited, a Zambian registered and a Zambian citizen owned company, privately owns Rufunsa Conservancy under a leasehold from the Government of the Republic of Zambia. This area was originally registered as a game ranch for wildlife tourism operations. Due to a lack of resources and wildlife poaching pressure, the area has not been used or promoted for eco-tourism or hunting and has been operated as a conservancy.

The accounting area was calculated by firstly excluding non-forested portions of the project area (bare earth and grassland). Then, all steeply sloped lands (greater than 20 degrees' slope) which are inaccessible to agents of deforestation were also excluded. The slope of 20 degrees was selected based on the assessment of the maximum slope of fields in the reference area. Figure 3 shows the topography and slope of the Lower Zambezi REDD+ project area.

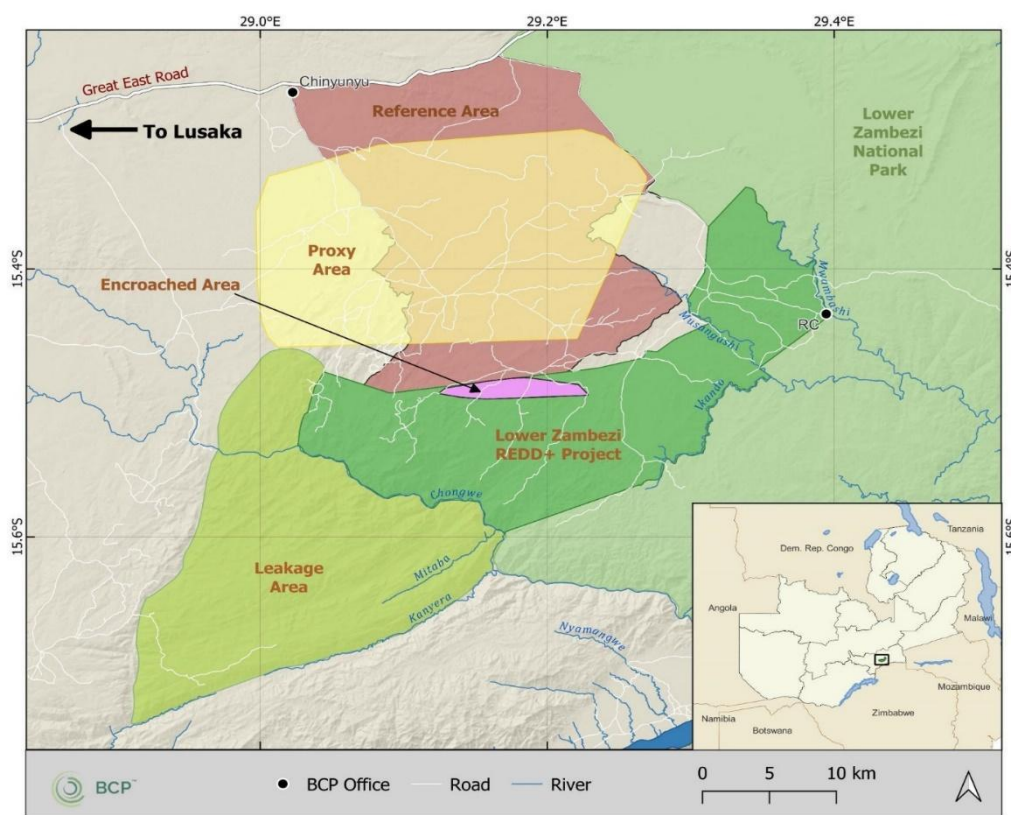


Figure 1. Location map of the Lower Zambezi REDD+ Project. (MR.1)

For clarity, steep slopes were excluded only if the size of the polygon to be excluded is greater than 0.4 ha, in which case a 15 m buffer was created around these polygons. The accounting area comprises 33,338 ha of the total project area of 40,126 ha. A 30 m Digital Elevation Model (ASTER Global Digital Elevation Model Version 2) was used in the slope calculation.

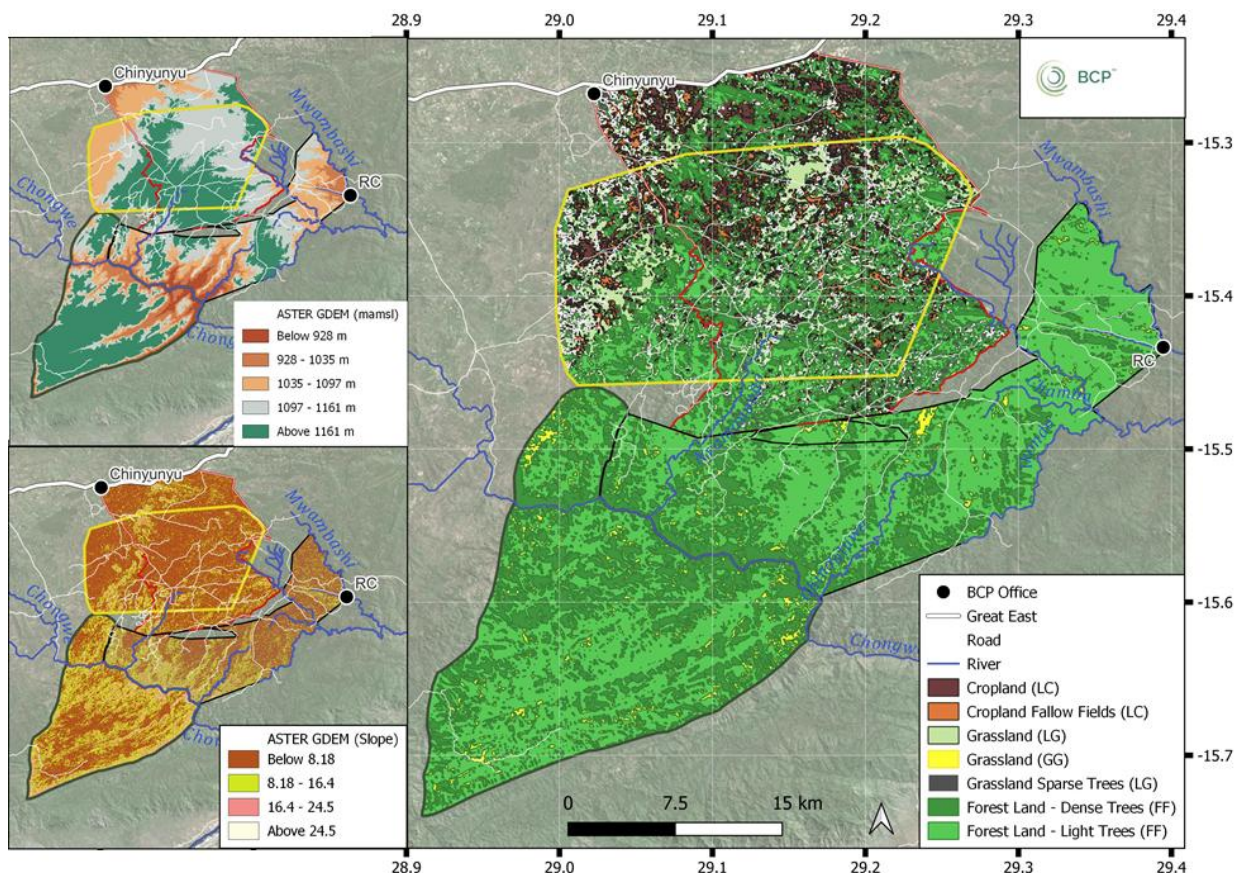


Figure 2. Land cover and topography of the Lower Zambezi REDD+ Project.

For the project accounting area boundaries, it is important to note that while the title deed outlines the boundaries of the conservancy, the reader will see that a portion of this area has been removed along the northern boundary (Figure 1). This excluded area has been removed as this portion of the property has been encroached by illegal squatters currently undertaking charcoaling and subsistence agriculture activities. This illegal squatting resulted from confusion as to the exact location of the Northern boundary of the property. As a result of this confusion, a small number of households (approximately 19) had settled on private property within the boundaries of the Project Area. An additional 24 households live on communal land on or near to the boundary of the property. It is possible that some of these illegal squatters arrived prior to the project start date, but there certainly has been new occupation after the project start date. It has now been brought under control.

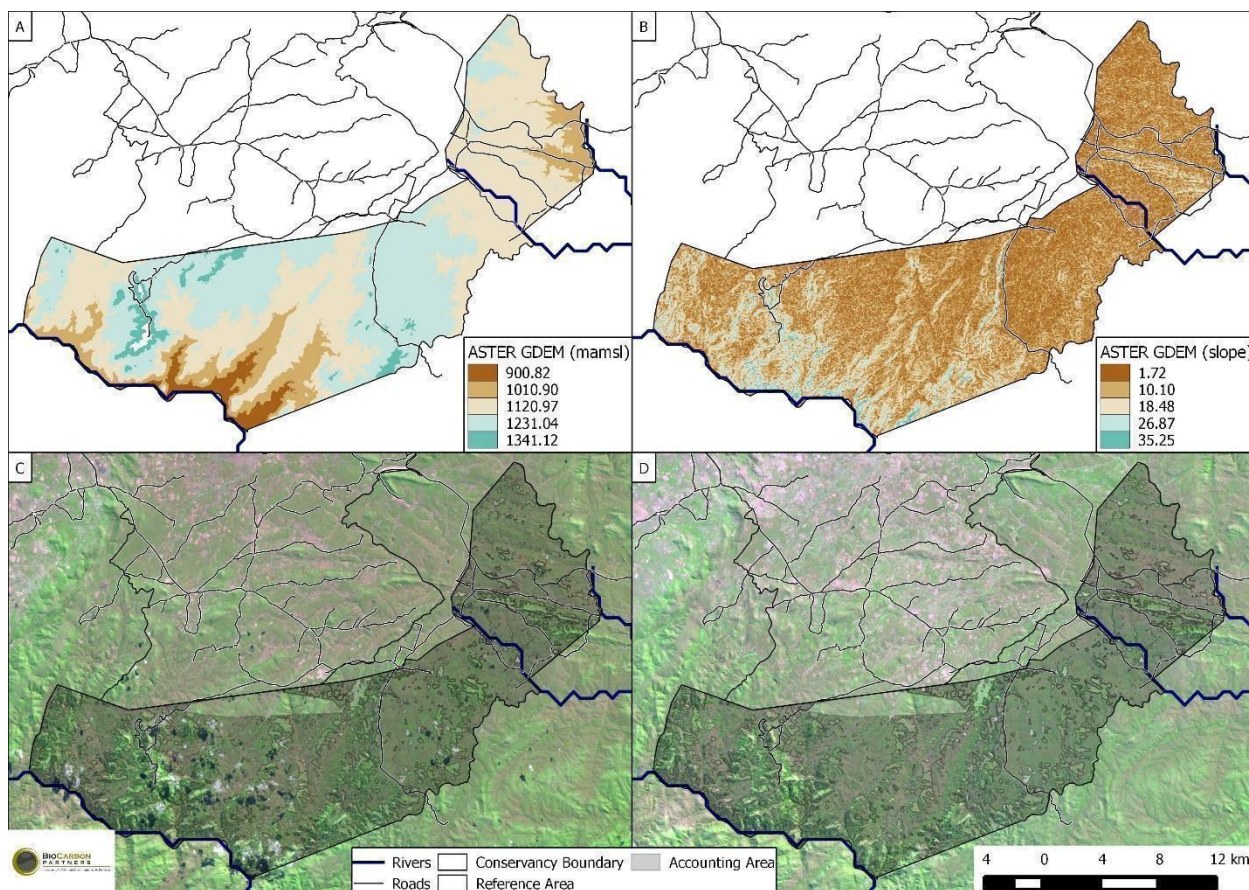


Figure 3. Topography (A), Slope (B), Accounting Area and forest cover in 1989 (C) and 2009 (D).

Due to the sensitive nature of land tenure in Zambia it was decided not to evict these people, but rather exclude this encroached area from the accounting area. It has been decided that the best option is to exclude the encroached area from carbon accounting as including it will most likely make it necessary to relocate the occupants which could lead to unnecessary conflict. It is a conservative exclusion; the area has not been included in emissions reductions accounting.

The boundaries of the exclusion area are based on a survey undertaken by BioCarbon Partners. Each illegal squatting household was surveyed with additional location data also collected using a hand held Global Positioning System (GPS) unit. A convex hull was then generated around these points and used to adjust the boundaries of the conservancy.

There has been no BCP eco-charcoal production in the Project Area (Rufunsa Conservancy-boundaries as per title deed) or the accounting area or the excluded encroached area. All eco-charcoal production was taking place in a degraded patch of forest in the proxy area several kilometres away from the project area.

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	VM0009	Methodology for Avoided Ecosystem Conversion	3.0
Tool		AFOLU Non-Permanence Risk Tool	4.2
Tool	VT0001	Tool for the Demonstration and Assessment of Additionality in VCS AFOLU Project Activities	3.0

1.10 Double Counting and Participation under Other GHG Programs

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?

☐ Yes ☒ No

1.10.2 Registration in Other GHG Programs

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

☐ Yes ☒ No

1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

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

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

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

If yes:

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

1.12 Sustainable Development Contributions

The LZRP contributes to 16 of the 17 UN Sustainable Development Goals (table 1) or SDGs Priorities set by the Zambian Government³. There is no requirement for any formal monitoring and reporting of activities that pertain to these goals.

In 2024 (M11), the LZRP contribution was as follow:

SDG 1. No Poverty - Disbursement of conservation fees, livelihood investments, local employment

SDG 2. Zero Hunger - Improvement of honey, climate smart agriculture and horticulture production

SDG 4. Quality Education -Teacher's' salary Support

SDG 5. Gender Equality - Recruitment of local women for livelihood and resources protection activities

³ <https://zambia.un.org/en/sdgs>

SDG 6. Clean Water and Sanitation – Maintenance of boreholes and training of V-WASH groups.

SDG 7. Affordable and Clean Energy - Eco Charcoal site management.

SDG 8. Decent Work and Economic Growth - Small business development and diversification.

SDG 9. Industry, Innovation and Infrastructure - Forest carbon science innovation supports technology thereby supporting rural communities gaining access to global markets through various livelihood initiatives such as bee keeping and Eco-Charcoal.

SDG 10. Reduced Inequalities - Conservation fees and livelihood investments benefitting rural households.

SDG 11. Sustainable Cities and Communities - Development of sustainable and resilient community governance structures and livelihood initiatives.

SDG 12. Responsible Consumption and Production: Conservation Farming contribute to this goal.

SDG 13. Climate Action - Implementation of REDD+ activities, achieving 243,495tCO₂e emissions reductions.

SDG 15. Life on Land - Protection of forests and important wildlife habitats, and sustainable use of community lands.

SDG 16. Peace, Justice and Strong Institutions - Support for good governance of local institutions.

SDG 17. Partnerships for the Goals - Partnership with government and Local natural resources management institutions.

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
1)	1.1	1.1.1 Proportion of population below the international poverty line	Implemented activities to decrease	1,199 households benefited directly from conservation fees Over ZMW 517,065 was paid in livelihood investments in LZRP	Average household income increased by 129% between 2012 and 2022 and by approximately 47% between 2020 and 2022 ZMW 4,207,791 paid to LZRP communities where 1,199 Households benefit directly from conservation and livelihood fees for a total of 5,875 community beneficiaries. Since project inception, 34 community projects have been implemented and completed.

2)	2.3 & 2.4	2.3.1 Volume of production per labor unit by classes of farming/pastoral/forestry enterprise size 2.3.2 Average income of small-scale food producers, by sex and indigenous status 2.4.1 Proportion of agricultural area under productive and sustainable agriculture	Implemented activities to increase	3,325.6 kg of honey were harvested and bought in 2024, resulting in K66,512 channeled to communities. Mean maize grain yields increased from 2.2 tons/ha under conventional agriculture during the baseline year to 6.2 tons/ha under CSA in 2022/2024 40 (Male:22, Female:18) lead farmers were trained in CSA. 29 (M:18, F:11) were new lead farmers recruited in 2024 to replace the ones that graduated after 3 seasons. 406 follower farmers (185 males and 221 females) were trained CSA by 40 lead farmers.	40 Lead Farmers are currently applying CSA technologies in addition to being provided with farming inputs. 800 follower farmers trained in CSA. 5 Agriculture Extension officers have been trained, and supported with fuel per month. 1 Agroforestry Chiefdom nursery has been established in Bunda Bunda. 83 Eco-charcoal producers trained. 3,760 beehives currently in active honey production 10 Horticulture farmers 1 poultry house constructed installed with a solar system and an incubator
3)	3.8	3.8.1 Coverage of essential health services	Implemented activities to increase	No impact during this monitoring period	Refurbishment of Chilimba Clinic Solar lighting at Namanongo Clinic

4)	4.6	Access to education services (BCP defined indicator) or 4.6.1 Percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex	Implemented activities to increase	6 community teachers benefiting from teacher salary support.	Built a Teachers house, constructed a classroom block, Construction of a 1x2 classroom block and salary support for 8 teachers.
5)	5.5	5.5.2 Proportion of women in managerial positions	Implemented activities to increase	120 of 409 registered beekeeping farmers are female	20% female representation on BCP payroll 120 of 409 registered beekeeping farmers are female
6)	6.6	6.1.1 Proportion of population using safely managed drinking water services	Implemented activities to increase	Rehabilitation of boreholes in the project area	32 boreholes drilled of which 3 are mechanized and maintained since project start

7)	7.1 & 7.2	7.1.2 Proportion of population with primary reliance on clean fuels and technology 7.2.1 Renewable energy share in the total final energy consumption	Implemented activities to increase	45% of producers are women	Collaborated with Forestry Department to ensure the community rights to sustainable production empowering communities, avoiding deforestation of sensitive areas on 190.72 hectares
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8)	8.1 & 8.3 & 8.5	8.1.1 Annual growth rate of real GDP per capita 8.3.1 Proportion of informal employment in non-agriculture employment, by sex 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	Implemented activities to increase	6 community teachers benefiting from teacher salary support. 1,199 households benefited directly from conservation fees Over ZMW 517,065 was paid in livelihood investments in LZRP Mean maize grain yields increased from 2.1 tons/ha under conventional agriculture during the baseline year to 4.0 tons/ha and 2.6 tons/ha under CSA in 2023/2024 farming season. Total of ZMW 66,512 of revenue for the community from honey production. Supported 16 village banking groups.	Average household income increased by 129% between 2012 and 2022 and by approximately 47% between 2020 and 2022 Supported 20 village banking groups with ZMW 100,000 starter pack each
8)	8.8	8.8.1 Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status	Implemented activities to decrease	Project functions under the BCP HR manual which ensures correct policies at the workplace and protects the health and safety of all employees.	Project functions under the BCP HR manual which ensures correct policies at the workplace and protects the health and safety of all employees.

9)	9.1 & 9.4	9.a.1 Total official international support (official development assistance plus other official flows) to infrastructure	Implemented activities to increase	Supported Co-operative bodies with Annual Work Plan development and Needs Assessments.	Rehabilitation of Chinyunyu District Forestry Office. Rehabilitation of Mukamba Entry Gate to Lower Zambezi National Park
10)	10.1	10.1.1 Growth rates of household expenditure or income per capita among the bottom 40 percent of the population and the total population	Implemented activities to increase	1,199 households benefited directly from conservation fees Over ZMW 517,065 were paid in livelihood investments in LZRP	Average household income increased by 129% between 2012 and 2022 and by approximately 47% between 2020 and 2022

11)	11.1 11.5	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing 11.5 (own indicator) Number of hectares of watershed forests protected to protect ecological system, and as such reduce impact of natural disaster 11.5 (own indicator) Number of community members partaking in Climate Smart Agriculture techniques to limit drought disaster impact	Implemented activities to increase	1,199 households benefited directly from conservation fees The project significantly improved the effective management of 40,126 ha of the Rufunsa Conservancy through conservation activities, enhancement of law enforcement and poverty alleviation In 2024, 29 new lead farmers were trained to replace the ones that were weaned off, this brought the total # of farmers enrolled under conservation farming in 2024 to 40 (Males:22, Females:18)..	Average household income increased by 129% between 2012 and 2022 and by approximately 47% between 2020 and 2022 ZMW 4,207,791 paid to LZRP communities where 1,199 Households benefit directly from conservation and livelihood fees for a total of 5,875 community beneficiaries.
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12)	12.2	Proportion of land with sustainable management of natural resources (BCP defined indicator)	Implemented activities to increase	Sustainable forest management and use of ecological services are primary topics during community engagement meetings.	10 years of agreeable sustainable management and efficient use of natural resources with partnership communities Collaborated with Forestry Department to ensure the community rights to sustainable production empowering communities, avoiding deforestation of sensitive areas on 190.72 hectares New waste management SOP implemented on company level
13)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	By conserving 40,126 ha of forest, Project LZRP has prevented the release of 243,495 tons of carbon dioxide into the atmosphere during the monitoring period. REDD+ topics and explanations to community members at VAG level meetings	Prevented the release of 2,661,147tCO ₂ e into the atmosphere since the implementation of the project.

14)	15.1 & 15.2	15.1.1 Forest area as a proportion of total land area 15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type 15.2.1 Progress towards sustainable forest management 15.5.1 Red List Index of species survival 15.9.1 Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020	Implemented activities to increase	In 2024, scout's patrols resulted in 13 snares removed, 4 apprehensions. One line transect biodiversity survey was completed, in conjunction with camera trapping surveys. Acoustic surveys are specifically earmarked for the Southern Ground Hornbill species.	Maintained forest area under sustainable charcoal production to 190.72ha. Since the use of the Spatial Monitoring and Reporting Tool (SMART) in June 2020, the resources protections teams covered 27355.4km of foot patrols, apprehended 97 people, and confiscated 267 snares and 5 firearms. BCP partners with Oxford affiliate, Lion Landscapes, to support biodiversity monitoring efforts within our project zones. This is the 7th consecutive year that a structured biodiversity survey was conducted in LZRP. While the actual wildlife numbers remain low, slight increases are observed for most ungulate species.
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15)	16.6 16.7	16.6.2 Proportion of population satisfied with their last experience of public services 16.7.2 Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group	Implemented activities to increase	Implementation of the 2024 Annual Work Plan (AWP) and drafting of the 2025 AWP elaborated on the Completion of the 2024 Needs Assessment exercise	BCP promoted the development and support of local institutions, such as Zone Development Committees, which are being trained and empowered to manage projects and community natural resources more effectively on their own. Annual Work Plans and Needs Assessments are completed for each Zone Development Committees and signed off by Government Partners, ensuring Communities are included in the Governance and Implementation of the Project. As part of this process, BCP, the committees and representatives from other stakeholders visit all of the zones in the Bunda Bunda chiefdom to share progress on community projects and solicit feedback and inputs on projects for the following year. Through this participatory planning process, projects are evaluated and selected for the upcoming year and progress checks with communities planned for to ensure a transparent implementation process.
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16)	17.3 & 17.9 & 17.11 & 17.15	17.3.1 Foreign direct investments (FDI), official development assistance and South-South Cooperation as a proportion of total domestic budget 17.9.1 Dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries 17.11.1 Developing countries' and least developed countries' share of global exports 17.15.1 Extent of use of country-owned results frameworks and planning tools by providers of development cooperation	Implemented activities to increase	Sale of carbon credits contributes to the exports of the country, ensuring inbound flow of financial resources Supports through various meetings the jurisdictional process towards national REDD+	Donated a full GIS system to Forestry Department, and provided related training
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1.13 Commercially Sensitive Information

No commercially sensitive information has been excluded from this version of the monitoring report.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

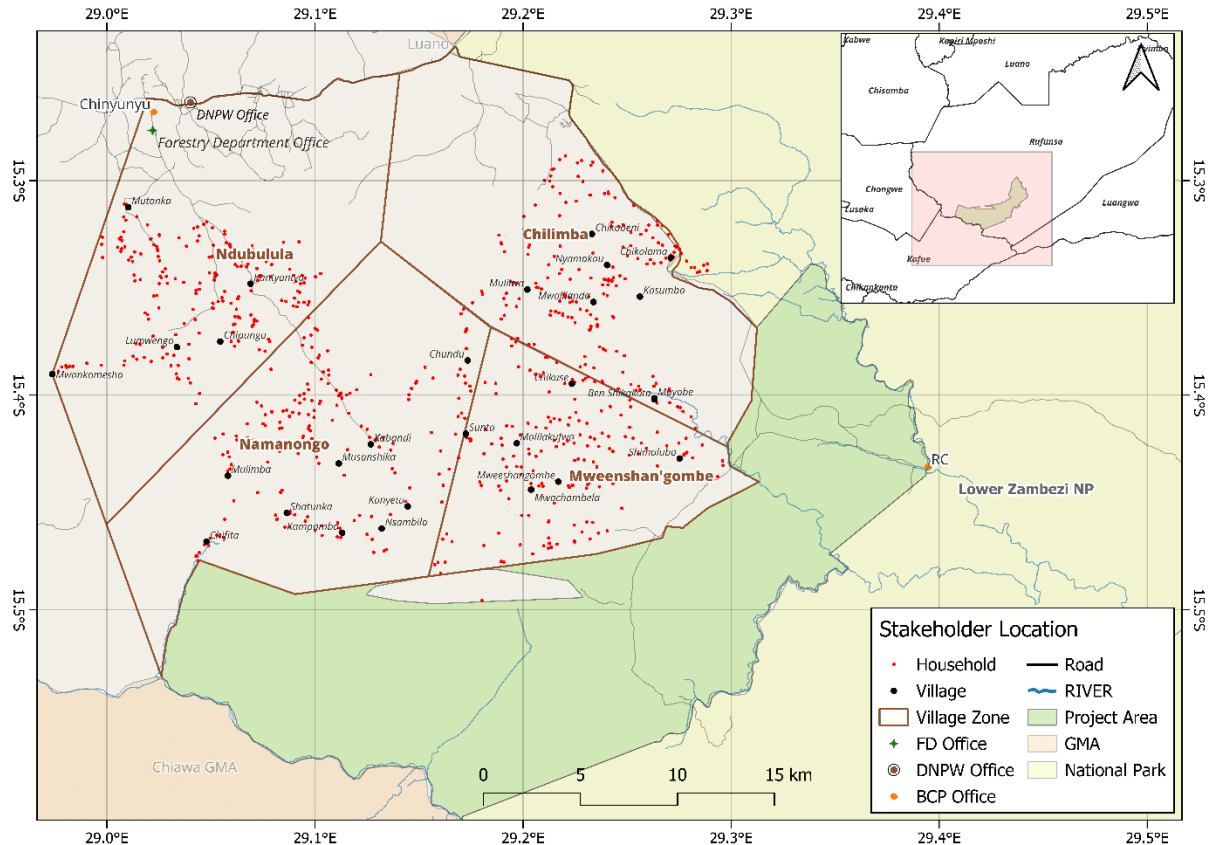
2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification	The project undertook an extensive consultation process with all the relevant local stakeholders. Stakeholder identification included the following steps: - Remote Sensing: Areas of deforestation and the communities within them, in the vicinity of Rufunsa Conservancy, were identified using remote sensing techniques. - On-the-Ground Consultation: BCP's Community Engagement Manager conducted extensive consultations with local communities and their leaders. This process aimed to identify the communities most involved in deforestation activities and those most likely to be affected by REDD+ initiatives at Rufunsa Conservancy over the next 30 years. - Baseline Survey Analysis: Insights from BCP's Baseline Survey were used to further identify stakeholders and to gain a deeper understanding of the nature and extent of their reliance on deforestation-related activities.
Legal or customary tenure/access rights	- The land tenure has not changed as a result of the project. As described above, the project undertook an extensive consultation process with all the relevant local stakeholders. The land is a private game ranch.

Stakeholder diversity and changes over time	- The social economic and cultural diversity of the stakeholder groups has remained the same since project start.
Expected changes in well-being	- The project's community objective is instituting poverty alleviation activities benefiting at least 10,000 households, specifically targeting poor and vulnerable households. This will be done through provision employment, alternative livelihoods (Beekeeping and Climate smart agriculture), Improving access to clean and safe drinking water, education, and health)
Location of stakeholders	Stakeholders are in Lusaka Provinces of Zambia (see Figure 3a) .
Location of resources	The forest resources are withing Bunda Bunda Chiefdom

Figure 3a. Location of Project Stakeholders



2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation

In 2024 (M12), various community meetings were held with an aim of creating awareness on the BCP-REDD+ Model, the role of the community in the successful project implementation, the VCS/CCB project verification process and the role of the community in the process. Furthermore, some community meetings focused on updating the community on project implementation status. These meetings were also a platform where the community both raised their grievances and had them resolved. A total of 109 community consultative meetings were held in the current monitoring period with a total of 3,881 people attending. Details of these meetings can be found in the Community Engagement tracker in appendix B.

Date(s) of stakeholder consultation	See community engagement tracker in appendix B
Communication of monitored results	Communication of Monitoring Results was done through Community Meetings, see Appendix B for the engagement Tracker.
Consultation records	Each community meeting is documented and evidenced in a report containing information on the meeting content, outcome, and local community participation details. Links to these reports are available in the Community Engagement tracker in appendix B.
Stakeholder input	All inputs/contributions/grievances from the local community and other stakeholder are noted and drafted into meeting report/minutes or recorded in the grievance register (See the Community Tracker and Grievance register in appendix B), All issues/inputs that need immediate attention or resolution are resolved there and then and others that need time are resolved in follow up meeting or through written means. In the current monitoring period, there were no inputs from the local stakeholder, the project received that would necessitate updating the project design.

2.1.3 Free, Prior, and Informed Consent

Consent	The Lands and Deeds Act, Cap 185 of the Laws of Zambia, permits the registration of easements over land. Section 50 of the Act outlines that when any easement in or over land comprising a provisional certificate or when a certificate of title is created, for the purpose of being annexed to, or used together with other land, the Registrar shall enter a memorial. Such easement upon a Provisional Certificate or Certificate of Title and memorial shall, from the date of entry have the effect of including the easement. The Lower Zambezi REDD+ Project is located within private property, the Rufunsa Conservancy, with full consent from the owner. There is a legally binding "Conservation Easement" between the landowners and BCP. This easement agreement transfers the carbon and conservation rights of the project area to BCP for a period of 30 years starting in 2012. Six months prior to the agreement being signed, BCP sought consent from communities within the project zone to implement a REDD+ project within the Rufunsa Conservancy. In addition, all project activities taking place within the Project Zone are similarly proceeding with the full consent of all local residents, in line with the principle of obtaining Free, Prior and Informed Consent (FPIC) from community stakeholders.
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Outcome of FPIC	The overwhelming response from community members for a REDD+ project being implemented on Rufunsa Conservancy was positive approval. No involuntary relocations have taken place since project inception. The Project Description document describes encroachments that took place on the Conservancy due to confusion of the location of the boundary. None of the people were involuntarily removed and given the option to stay. Subsequently there have been other minor encroachment incidents in remote parts of the conservancy and the households agreed to relocate voluntarily after they were allocated other land in the project zone. Furthermore, a portion of Rufunsa Conservancy has been encroached by illegal charcoal producers before the start of the project and soon after and this area has been excluded from the project area despite being within the titled boundaries of the private property. This illegal settlement resulted from confusion as to the exact location of the Northern boundary of the property. As a result of this confusion, a small number of households (approximately 19) had settled on private property within the boundaries of the Project Area. An additional 24 households live on communal land on or near to the boundary of the property. Due to the sensitive nature of land tenure in Zambia it was decided not to evict these people, but rather exclude this encroached area from the accounting area. It has been decided that the best option is to exclude the encroached area from carbon accounting as including it will most likely make it necessary to relocate the occupants which could lead to unnecessary conflict.
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2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
Not Applicable for the current MP	No Grievances were received/reported in the current monitoring period

2.1.5 Public Comments

No public comments were received in the current monitoring period.

Summary of comments received	Actions taken
N/A for the current MP (The project didn't under go any public comment period in the current monitoring period)	N/A for the current MP(The project didn't under go any public comment period in the current monitoring period)

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

The management team of LZRP possesses extensive and specialized expertise in executing large-scale land management and carbon projects in Africa. Specifically, since 2012, the management team of BCP has been instrumental in developing and executing the Lower Zambezi REDD+ Project (LZRP) in Zambia. This project holds significant distinctions, being the first verified REDD+ initiative in Zambia and the first of its kind in Africa, and the third globally to achieve gold-level validation across all three criteria of the Climate, Community, and Biodiversity (CCB) standard.

Continuing their success, the BCP management team has effectively overseen the LZRP since its inception, consistently achieving VCS (Verified Carbon Standard) verifications annually since 2013. Notably, this makes it the first REDD+ project in Africa and the second globally to reach this milestone. As of 2023, BCP has successfully undergone 18 validations and verifications under VCS and CCB standards, encompassing both the LZRP and LCFP projects.

Moreover, the BCP management team boasts over 30 years of combined experience dedicated to REDD+ implementation in Zambia, conservation efforts, and carbon-related activities. The core managerial team comprises experts in various fields including conservation, ecology, Carbon, GIS/RS, community engagement, business administration, aviation, sales and marketing. Additionally, BCP receives support from implementing partners within government institutions, possessing relevant authority and skills to aid in forest and biodiversity management as well as community engagement

2.2.2 Risk assessment.

Risk identified				Mitigation or preventative measure taken
Natural and human-induced risks to	-	Natural risks- Climate change effects such as		- Promote climate-smart agriculture (CSA)

stakeholders' wellbeing	droughts, and wildlife conflicts, as well as disease outbreaks linked to environmental changes. - Human-induced risks - human rights violations, social conflicts over resources or benefits, economic risks like livelihood failures, health and safety concerns during field operations, and political or governance issues that could disrupt project activities.	techniques (e.g., drought-resistant crops, conservation farming, agroforestry). - Sensitizing communities on sustainable land management (SLM) to reduce land degradation and increase resilience. - Construct physical barriers(e.g., community fences, or beehive to deter wildlife from entering farms. - Building of clinics to reduce long distances to access health care, - Water and sanitation programs to ensure the communities have access to clean drinking water. - Conduct regular training on human rights and code of conduct. – - Establish transparent grievance mechanisms, and monitor field activities to ensure compliance. - Facilitate inclusive community dialogues, develop fair benefit-sharing mechanisms, strengthen local conflict resolution structures, and use participatory planning to address disputes. - Support diverse, sustainable livelihoods through training, start-up support, and market linkages, while promoting savings and
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		loan groups for financial resilience. - Provide safety and first aid training, equip field teams with necessary gear, implement safety protocols, and ensure access to healthcare. - Engage government authorities, strengthen transparent local governance, monitor political changes, and foster collaboration through multi-stakeholder platforms.
Risks to stakeholder participation	- Risk of elite capture of benefits. This will hinder the participation of local stakeholders if they perceive that a small group is benefiting more from the project, i.e. Households may not benefit enough from REDD+ to halt deforestation. - Stakeholders may not fully comprehend the objectives, benefits, and processes involved in REDD+ projects. This lack of awareness can hinder their active participation and support. i.e Households may “cheat” and take benefits while continuing to deforest. - Poor communication between project proponents and local stakeholders can lead to misunderstandings, mistrust, and reduced	The very first preventative measure to low stakeholder participation is the implementation of a robust stakeholder and sensitization strategy, with a constant presence of BCP staff within communities, to ensure that stakeholders understand and support the project. Clear and consistent communication is crucial for maintaining stakeholder interest. To increase buy-in from communities, BCP promotes the development and support of local institutions, such as Zone Development Committees, which are being trained and empowered to manage projects and community natural resources more effectively on their own. Annual Work Plans and Needs Assessments are completed for each Zone Development Committees and signed off by Government Partners, ensuring Communities are included in the Governance and Implementation of the Project. As part of this process, BCP, the committees and representatives from other stakeholders visit all of the zones

	engagement. i.e. Communities may not grasp the connection between performance (REDD forest conservation) and the benefits they receive which may affect the participation. - Stakeholders may fear economic repercussions, such as loss of livelihoods or reduced access to resources. If the economic benefits of REDD+ projects are not communicated effectively, stakeholders might resist participation or Households may “cheat” and take benefits while continuing to deforest.	in the Bunda Bunda chiefdom to share progress on community projects and solicit feedback and inputs on projects for the following year. Through this participatory planning process, projects are evaluated and selected for the upcoming year and progress checks with communities planned for to ensure a transparent implementation process, and as such to reduce “elite capture”. Furthermore, the project has created tight systems that do not leave room for manipulation or abuse, and, most importantly, by ensuring that our projects bring tangible community benefits, we have worked hard to reduce any incentives that individuals might feel to engage in destructive or corrupt activities. For instance, in order to mitigate potential motivations for engaging in destructive or unethical behaviors, community funds are retained and administered by BCP. Furthermore, the selection of community projects and incentives occurs through a participatory process involving representatives from all villages within a given zone. This approach serves to uphold accountability in project execution. Finally, BCP enforces transparent monitoring and reporting protocols to promptly identify and address instances of corruption or misconduct (grievance mechanism). Another key risk mitigation strategy is the development of substantial community benefit projects and systems such as conservation community covenants.
Working conditions	- Health and Safety: The LZRP implements project activities like fire management and forest	Compliance at the highest level to national and international laws, regulations and standards related to working conditions (see 2.3.1 below)

	and biodiversity monitoring which exposes project workers to risks of injury and accidents from equipment/tools and the rough terrain. - Land Tenure and Rights/ Community Engagement and Participation: If no proper land tenure and rights are in place/unresolved boundary issues or Lack of meaningful participation and consultation with local communities and indigenous peoples, conflicts in REDD+ project areas may arise , leading to disputes between local communities, indigenous peoples, and project developers which has potential can lead to resentment and mistrust. This can impact the working conditions of individuals involved in the project, as well as their access to resources. - Gender inequity: Like in any other field there is always a risk of gender inequality where women may face discrimination, unequal opportunities, and harassment in the workplace. - Security Risks: The project area shares a boundary with a National Park and very close to a Game management area, which exposes project	Personal Protective Equipment(PPE) is procured and given to all project workers that are involved in project activities that may expose them to injury. Training is conducted before any project activity like fire management is done, that incorporates the proper use of equipment to avoid any injuries during the exercise. Development and effective implementation of robust community engagement system to ensure total participation and buy-in of all stakeholders including IPs and LCs Development and effective implementation of the robust grievance resolution mechanism where local stakeholders e.g. IPs and LCs are encouraged to submit any grievances they may have, and grievances. The project ensures that these grievances are resolved within a 30-day period. BCP does not tolerate woman discrimination and harassment in the workplace (See 2.3.1 below) BCP is an equal opportunity employer and also encourages women candidates whenever job adverts put out in the media. All scouts that conduct patrols in the project area undergo scout training that includes firearm handling, wild animal behavior etc. This training equips them to handle any armed groups they may come across or aggressive wild animals they may come across during patrols. All personal/project workers that are involved in project activities like forest and biodiversity
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	workers especially scouts and forest and biodiversity teams to security risks associated with REDD+ projects, including threats from wild animals, illegal loggers, illegal miners and poachers, groups are usually armed. These security risks can jeopardize the safety and well-being of project workers and communities.	monitoring (not trained scouts) are not allowed to go in the field without a trained scout(armed) or wildlife police officer(armed) from the department of national parks and wildlife.
Safety of women and girls	No risk identified	See 2.3.1 below
Safety of minority and marginalized groups, including children	No risk identified	See 2.3.1 below
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	The project doesn't use harmful chemicals, however, in instances where the country faces serious Fall Armyworm (FAW) infestation, like in the 2024/2025 ⁴ farming season, Government programs by the ministry of Agriculture mean to fight FAW infestation may use low risk Fall Armyworm (FAW) chemicals provided by the Ministry of Agriculture(See ministry of agriculture FAW Manual on Integrated Pest Management in Appendix J)	Ensuring that chemical provided by the government directly to the farmers are low risk to the environment in case of serious infestations by FAW. Farmers are encouraged not to use chemicals in the field during trainings.

⁴ <https://www.agriculture.gov.zm/zambia-loses-us159million-to-fall-armyworms-climate-change/>

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

	Risks identified	Mitigation or preventative measure(s) taken
Discrimination	- Potential discrimination in Employment and Hiring Practices - Potential discrimination in project implementation activities and Allocation of project benefits.	BCP has an HR Policy that has been approved by Ministry of Labour.(See AppendixB). It follows Zambian labour laws and international standards. BCP does not allow any form of discrimination or abuse such as sexual harassment by any employees or project participants while participating in project activities. This is accomplished through; Clear Policies and Procedures. BCP has a policy entitled “Workplace Harassment, Discrimination and Bullying Policy”, and extends to contractors. The HR Policy is thoroughly explained to each BCP staff during the onboarding process. After the onboarding, BCP staff are required to formally acknowledge receipt and understanding of the organization's anti-discrimination and anti-harassment policies. BCP supports the employment of female Community Scouts. Community Scouts are all held to strict DNPW and CRB codes of conduct as they are required to work under the supervision of Government Wildlife Police Officers, who are also

		governed by strict uniformed services policies against discrimination and sexual harassment. Therefore, organizations from the Government involved in this project (DNPW and Forestry Department) are governed by set Government policies within the laws of Zambia to ensure that civil servants are not complicit in discrimination and sexual harassment. This also applies to CRBs which fall under the Wildlife Act of 2015. In order to mitigate against possible discrimination to project staff and partners, BCP's agreements with communities consistently declare that the definition of non-performance is; 'threats, violence towards or blocking of access of BCP staff and partners to areas of work'. In the event of unethical behavior performed by BCP staff members or local stakeholders, the grievance mechanism provides the right channel for community members to report such behavior. In addition, BCP has a Whistleblower service where misconduct can be reported (See Appendix B). This Whistleblower Policy enables all employees and other stakeholders to raise their concerns in a responsible and effective manner if and when they discover information which they believe shows serious malpractice. Any deviation from the key policies - significant or not, will be a cause of serious concern to the Company and
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		should be reported to the authorized officials immediately. This Whistleblower Policy aims to provide a method of properly addressing genuine concerns that individuals within and outside the Company might have and offers appropriate protection to the whistle blowers from victimization, harassment, or disciplinary proceedings.
Sexual harassment	- Potential sexual harassment in the workplace - Potential Sexual harassment in project implementation activities i.e. patrols, forest monitoring etc. (Both have potential to bring Legal Liability to the project, Reputational Damage for the project, Workplace Morale and Productivity because of Emotional and Psychological Impact on victims,)	Development and Implementation of the following policies. Workplace Harassment, Discrimination and Bullying Policy Fraternization Policy Whistleblower policy (See Appendix B) See Mitigation or preventative measure(s) taken for Discrimination above for more details.
Gender equity in labor and work	Gender Discrimination	BCP has equal Opportunity Policies that clearly articulate and communicate policies that emphasize equal opportunities, gender equity, and fair pay. These policies are accessible to all employees upon joining the organization addition, All job opening in the current monitoring period were advertised on public media and

		selection was based of qualifications and encouraged qualified women to apply for the roles. BCP has a strong emphasis on gender equity. BCP recognizes the importance of mainstreaming gender in the promotion of sustainable use and management of natural resources under a REDD+ project. The project ensures that men and women are equally able to access, participate, and benefit from natural resource management projects, and that gender inequalities are reduced or eliminated. BCP implements activities to challenge gender stereotypes, support women to take leadership roles in natural resources, Economic opportunities for women are encouraged, through livelihood empowerment support and linkages to stable markets. BCP supports the employment of female Community Scouts who have passed shortlisting, selection, basic, advanced, and in service training. As a result, around 30% of BCP-supported Community Scouts are women. Likewise, BCP is supporting the enrollment of women in the Conservation Farming/Climate Smart Agriculture program, with approximately 30% of Lead Farmers being women.
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Forced labor	NO Risk Identified	BCP adheres to local laws and international standards that are further reinforced by internal policies preventing all sort of unethical behavior.
Child labor	No Risk Identified	BCP based on the HR manual, implement procedures to verify the age of workers to ensure compliance with child labor laws to ensure that they are not under age. In addition, BCP adheres to local laws and international standards that are further reinforced by internal policies preventing all sort of unethical behavior.
Human trafficking	Forced Labor in Forest Management	BCP adheres to local laws and international standards that are further reinforced by internal policies preventing all sort of unethical behavior.

2.3.2 Human Rights

To continues recognizing, respecting, and promoting the protection of the rights of IPs, LCs, and customary rights holders in line with applicable international human rights law, and the United Nations Declaration on the Rights of Indigenous Peoples and ILO Convention 169 on Indigenous and Tribal Peoples, the project implements the following:

Risks identified	Mitigation or preventative measure(s) taken
Potential Inadequate respect for the rights of IPs and LCs in the projects can lead to human rights violations, including forced evictions, harassment, and violence.	Community Consultation and Free, Prior, and Informed Consent (FPIC): Before any project is implemented, IPS and LCs are consulted by conducting a FPIC before initiating any project activities that may affect their lands, resources, or livelihoods.

	Capacity Building Initiatives: The project support/conducts capacity building initiatives within IPs and LCs to empower them economically, socially, and environmentally. This includes initiatives in the education sector. In the current monitoring period, 6 supported teachers with salaries. (See appendix J) Conflict Resolution Mechanisms: The project has a robust Conflict resolution mechanism assigned with the communities that allows the communities (IPs and LCs) to raise grievances in cases where they are not happy project implementation. See Appendix B for the grievance mechanism document and grievance register for the current monitoring period (M12). IPs and LCs are also encouraged to raise grievances and seek resolution during community meetings (Transparent and accessible mechanism) and based on the Grievance mechanism, grievance raised are supposed to be resolved in 30 days
Potential infringement on the land and resource rights of IPs, LCs, and customary rights holders	Community Consultation and Free, Prior, and Informed Consent (FPIC): Before any project is implemented, IPS and LCs are consulted by conducting a needs assessment to obtain FPIC before initiating any project activities that may affect their lands, resources, or livelihoods. Conflict Resolution Mechanisms: The project has a robust Conflict resolution mechanism assigned with the communities that allows the communities (IPs and LCs) to raise grievances in cases where they are not happy project implementation. See Appendix B for the grievance mechanism document. IPs and LCs are also encouraged to raise grievances and seek resolution during community meetings (Transparent and accessible mechanism) and based on the Grievance mechanism, grievance raised are supposed to be resolved in 30 days

	Benefit sharing Agreements: The project has signed agreements with all the community's participation in the project and in there it explicitly defines the benefit sharing.
Potential to overlook or undervalue the traditional knowledge, cultural heritage, and customary practices of IPs and LCs, risking their loss, appropriation, or misappropriation	The project Recognizes and respect local/traditional knowledge held by IPs and LCs and ensures that project activities do not exploit or appropriate this knowledge without proper consent (See section 2.3.3 for additional information)
Potential Failure to obtain FPIC from IPs and affected communities before implementing REDD+ activities	Community Consultation and Free, Prior, and Informed Consent (FPIC): At the project start the project conducted a comprehensive FPIC process for in the 4 Zones. In addition, FPIC for the project is a never-ending process, for example Before any project is implemented, IPs and LCs are consulted by conducting a needs assessment to obtain FPIC before initiating any project activities that may affect their lands, resources, or livelihoods.
Potential excluding or marginalizing IPs and LCs from meaningful participation in the design, planning, implementation, and monitoring of the projects	Participatory needs assessment: Before any project is implemented, IPs and LCs are consulted by conducting participatory needs assessment to obtain FPIC before initiating any project activities that may affect their lands, resources, or livelihoods. This is done to ensure that no one is excluded as far as project implementation is concerned (See appendix B for supporting documentation related to participatory needs assessment and approvals from traditional leadership, conducted) Partnership with Indigenous Representatives: The project collaborates with local natural resource governance institutions (Cooperatives) as the project has signed agreements with them. Been patrons to the CFMGs, the project also collaborates with Traditional leadership i.e. the chief. The project Involves them in decision-making processes and seek their input on matters that affect their rights and interests through community meetings.

Community Meetings Trackers for the current monitoring period (M12) can be found in Appendix B.

Capacity Building Initiatives: The project support/conducts capacity building initiatives within IPs and LCs to empower them economically, socially, and environmentally. This includes initiatives in the education, training, and skills development sectors. In the current monitoring period, supported teachers and tertiary school community members with school fees and Tuition fees.

Equitable Benefit Sharing: The project signed agreements with the respective communities where benefit sharing mechanisms are highlighted. By working with the Cooperatives, the project ensures that economic, social, and environmental benefits generated by the project are shared fairly and contribute to the well-being of these communities.

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified.	Mitigation(s) or preventative measure taken
Potential to overlook or undervalue the cultural heritage, traditional knowledge, and customary practices of IPs.	BCP preserves the cultural heritage of the communities involved in the LCFP through the respect of traditional leadership and customary practices in all aspects of project implementation. For instance, communication and consultations are done during collective gathering announced few days in advance to traditional leaders that are spreading the information orally across the entire community. The project interventions were also built upon the local knowledge and know-how. It was evident in the project's agents and drivers' study that the local communities had a high reliance on agriculture and was projecting to expand their "farms" substantially in the future. This indicates that in the interest of reducing the pressure faced by local communities to engage in deforestation, The project could potentially achieve a positive degree of success by introducing improved farming techniques, to local communities, while respecting their cultural heritage. Furthermore, the investment in honey production as a sustainable source of income for the local communities built on the traditional beekeeping practices that is widespread within rural communities of Zambia. Beekeeping in Zambia has been a livelihood for centuries and has been practices traditionally by removing the bark from trees to make cylindrical beehives. However, that technique results in short-lived hives, lasting no longer than 3 years, and moreover induces the death of the

	tree from which the bark has been taken out. It is therefore not sustainable and BCP partnered with experts in beekeeping to provide sustainable, long-lasting hives.
Potential Failure to recognize and protect cultural sites, sacred places, and traditional ecological knowledge can lead to the erosion and loss of cultural identity and heritage for IP communities.	To continue preserving and protecting cultural heritage, the project in M4, completed developing a BCP High Conservation Values (HCV) Protocol and Conducted an HCV assessment based on the HCV- Resource Network. This was done for all Zones under LZRP (See appendix J for Protocol and the Assessment report). This is the first step that will lead to Monitoring that is planned for (2025) M13. The next step planned for the next monitoring period (M13) is community consultation and awareness which will lead to documentation of these HCVs (Social HCVs) and monitoring of the social HCVs that include Burial sites, Grave yields and Shrines and consequently a strategy on how to protect and preserve them.

2.3.4 Property Rights

Risks identified.	Mitigation or preventative measure(s) taken
No risk identified	The project area is under leasehold tenure and therefore the communities do not have statutory or customary rights over it. No involuntary relocations have taken place. The Project Description document describes encroachments that took place on the Conservancy due to confusion of the location of the boundary. None of the people were involuntarily relocated and given the option to stay. Subsequently there have been other minor encroachment incidents in remote parts of the conservancy and the households agreed to relocate voluntarily after they were allocated other land in the project zone. During the current monitoring period, instances of encroachment were observed within the project area. In response, several efforts were undertaken to prevent further encroachment: - A meeting was held with the newly instated His Royal Highness Chief Bunda-Bunda to provide an update on the grievance related to encroachment that was resolved in Monitoring Period 10 (M10). This engagement also included a community meeting with the Chifita community and a joint visit to the project boundary. - The project proponent (PP) reinforced community incentives near the deforested area by supporting five climate-smart agriculture (CSA) lead farmers—initially recruited in 2023—with agricultural inputs and training to strengthen their CSA practices during the current monitoring period (M12). - Additional measures are planned for the next monitoring period, including further community meetings and incentives such as the formation of village savings groups.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan

The Lower Zambezi REDD+ Project (LZRP) is a privately executed initiative on privately owned land, and it does not generate any REDD+ revenue from community lands within the LZRP jurisdiction. The project does not entail any relinquishment of rights by the local community. However, in line with our commitment to preserve Rufunsa Conservancy, we distribute a significant portion of the revenue generated through performance-based Conservation fees to our neighboring community. This approach is aimed at enlisting their support in safeguarding Rufunsa Conservancy, thereby ensuring continued benefits for the local community. It is imperative to note that the distribution of REDD+ Revenues is contingent on performance, with funds being reduced annually in the event of forest encroachment.

The REDD+ Conservation Fee Sharing Agreement (RCFSA) establishes the terms and conditions governing forest protection and the sharing of performance-based revenue (conservation fees) between BCP and the local stakeholder community zones participating in the Lower Zambezi REDD+ project (LZRP). The RCFSA is complemented by various attachments, including addendums, sustainable Harvesting, and Land use plans. This agreement was revised in the current monitoring period.

An annual amount as per the RCFSA a total is disbursed to 29 villages under the LZRP, organized into four distinct zones, and manage by the Zone Development Committees (ZDC). Each zone is allocated 25% in accordance with the terms of the RCFSA. BCP retains and administers the conservation fees following the presentation of fully approved community projects. These projects are selected through a rigorous and consultative community needs assessment process, which is officially adopted and endorsed by duly elected zone leaders. Quarterly bank statements and reconciliations are provided to the respective zones.

Revenue distribution within each zone operates as follows:

HRH Chief Bunda-Bunda: In exchange for fulfilling roles and responsibilities related to the support and enforcement of the agreement with BCP, the Chief is entitled to 6% of the gross Conservation Fee Share in the form of cash transfer. In cases where there is no Chief or Acting Chief to undertake these duties during the revenue-sharing period, the Chief's share can be redirected and disbursed to the Community Stakeholders.

Headmen/Indunas: Registered Headmen/Indunas for each zone receive 6% of the gross Conservation Fees share in the form of cash transfer for their respective zone in recognition of their roles and responsibilities under the agreement.

Zone Cooperative and Administration: The designated Community Cooperative for each zone is entitled to 6% of the gross conservation fees share in the form of cash transfer in exchange for their governance and administrative functions. Detailed information regarding the administration costs and their management is provided in each Zone Cooperative Constitution and/or By-Laws.

Community Stakeholders: In acknowledgment of their efforts to combat deforestation in the Conservation Forest, the communities of all 4 Zones receive a share of 82% of the gross revenue-share amount (Conservation Fee) equally split between each Zone in the form of in-kind support. This allocation is directed towards supporting various development projects. The decision-making process concerning the utilization of the 82% community component of the conservation fee occurs through an open, transparent, and representative mechanism known as Participatory Activity Based Budgeting. This process is led by local institutions, primarily the Cooperatives, for each zone.

Benefit sharing during the monitoring period

Benefit sharing was implemented in accordance with the 2024 revised RCFS. Payments to His Royal Highness Chief Bunda Bunda, zone cooperatives, and headmen have already been executed in the current monitoring period.

- Each of the four cooperatives—Namanongo, Mweshangombe, Liyoyelo, and Chilimba—received K22,500.00 as their 6% share, amounting to a total of K90,000.00.
- Similarly, each of the four headmen from the same zones received K22,500.00, also totaling K90,000.00.
- His Royal Highness Chief Bunda Bunda received 6% of the total amount, equaling K90,000.00.

In total, K270,000.00 has been distributed under the 6% RCFS benefit sharing allocation.

The remaining 25% allocated for project implementation in each zone will be utilized in the upcoming monitoring period. Needs assessments have already been conducted, and the implementation of identified projects is scheduled for the next cycle

2.4 Ecosystem Health

	Risk identified	Mitigation or preventative measure taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	No negative biodiversity impacts were identified at validation. By enhancing landscape connectivity, and a corridor between the Chiawa GMA and Lower Zambezi National Park, the project is designed to have a positive impact on biodiversity. Enhanced conservation management on Rufunsa Conservancy will likely improve habitat conditions for the wildlife. It is envisaged that the ongoing and future rehabilitation of animal populations on Rufunsa Conservancy through better funded and managed

		protection has a positive impact on other depleted areas, as the Conservancy could act as a source from where individuals could migrate to re-populate depleted areas. Displacement of poaching activities is unlikely as wildlife is almost completely depleted in the project zone and neighboring areas. Displacement of poaching into the Lower Zambezi NP is also unlikely as the only option is for poachers to circumvent the Conservancy. This will increase significantly the distance they need to travel due to the Conservancy's 60 km of park frontage, and expose poachers to BCP, DNPW and CLZ patrols for more days, therefore disrupting poaching routes. Furthermore, poachers living within the project zone are now benefitting from community-based deforestation mitigation projects designed to improve the community wellbeing.
Soil degradation and soil erosion	No risk identified	The project does not conduct any activity disrupting the pedology of the area such as the extensive use of agricultural inputs. Furthermore, the project protects the forest on top of the Lower Zambezi escarpment and as such prevent erosion by stabilizing the soil.
Water consumption and stress	No risk identified	The project does not conduct any activity disrupting the hydrology of the area such as dam construction or irrigation.
Usage of fertilizers	Run offs as a result of overall tillage practices can transport nitrogen and phosphorous nutrients (both synthetic and organic) from fields into waterways – leading to eutrophication.	The project uses D-Compound (10% Nitrate (N), 20% Phosphorus Oxide (P_2O_5), 10% Potassium (K_2O), Sulfur (S) + Zinc (Zn)) and Urea (carbon, nitrogen, oxygen, and hydrogen. Feed-grade urea contains about 42-46% nitrogen, which corresponds to 260 to 288% crude protein equivalent) as synthetic fertilizers to support the local farmers enrolled in the Conservation farming program.

	Overall tillage practices such as hand hoe ridging and or animal/tractor ploughing is prone to significant water and or wind erosion effects as 100% of the top soil is inverted to establish crops. This inversion invariably leads to product run offs and could increase product contact with humans, livestock, and or wildlife.	Both fertilizers are employed in hand hoe basin and or animal draught power rip lines (tram line) minimal tillage practices. The permanent hand hoe basins and or animal draught power rip lines, unlike overall tillage practices enables a farmer to better place and protect both products from the effects of rain and wind borne erosion effects as well as mitigating third party direct contact with humans, livestock and or wildlife unlike can be the case with traditional overall tillage practices, With the minimal tillage practices, the D compound product is placed directly towards or on the bottom of the 15 cm deep planting basin or rip line. Once placed in the basin or rip line, the product remains in a sedentary state at the bottom of the planting basin or rip line. The product is then immediately backfilled and covered with approximately 3-5 kg of top soil that is placed directly on top and across the product once the application operation is done and prior to the first planting rains and the sowing operation follows. Seeding is done directly in the basin and or rip, directly over the product so emerging tap roots can quickly access the product before dissipation quickly occurs from rainwater soak into the soil. In the case of Urea, farmers ensure that the product is also covered up with top soil, and is placed adjacent to the knee-high (50-55 cm high) maize crop. Covering the product with top soil coupled with the physiological stage of the maize and or soya crop at the time of product application further mitigates potential negative run offs and direct contact with humans, livestock, and wildlife. Further, covering urea with top soil reduces the Nitrogen Oxidation process which can lead to the production of Nitrous Oxide. This, in turn significantly reduces the emission of Nitrous Oxide from urea application While the range of organic fertilizer products has both improved in quality and availability, D
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		Compound and Urea are still price competitive, and when used properly, tend to outperform organic fertilizer products. Like organic products when employed in traditional tillage practices are not without their environmental impact. BCP is exploring, with a local company, are testing two of their bio-fertilizer (maize and soya) products with fifty interested and capable Lead Farmers this coming season (2022/2023 farming season). BCP is exploring a potential transition from chemical fertilizers to comparable bio- fertilizers. To facilitate this transition, the project has begun implementing trials of organic fertilizers to assess their efficacy with selected farmers. In the last monitoring period, the project has distributed organic fertilizers to 43 farmers. Each season, Lead Farmers, who in turn train follower farmers are required to attend a whole gamut of refresher training, including the correct and safe application of both products into their planting basins and or rip lines. In-field and real time auditing and monitoring of fertilizer application operations is done by Lead Farmers, BCP agricultural staff and front line Ministry of Agriculture camp and block extension staff.
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2.4.1 Rare, Threatened and Endangered species

Species or habitat	The LZRP is directly adjacent to the Lower Zambezi National Park which contains several RTE species which includes elephants, lions, leopard, wild dogs, vultures and southern ground-hornbill among others
Areas needed for habitat connectivity	These species can also be found permanently or occasionally within the LZRP. In addition, the Lower Zambezi National Park is part of a landscape-level complex of land where viable populations of naturally occurring species exist in natural patterns of distribution and abundance. The project activities are specifically designed to reduce the pressure on the environment which would ultimately impact the RTE species and their habitat of this landscape. Indeed, the project is securing an important buffer zone by reducing the threat and impact of habitat loss and poaching. The potential displacement of these activities into other part of this landscape is mitigated through surveillance and law enforcement patrols taking place beyond the boundaries of the LZRP.

	Risks identified	Mitigation or preventative measure(s) taken
Habitats for rare, threatened, and endangered species	No Risk Identified	The project activities are specifically designed to reduce the pressure on the environment which would ultimately impact the RTE species and their habitat of this landscape. Indeed, the project is securing an important buffer zone by reducing the threat and impact of habitat loss and poaching.
Areas for habitat connectivity	No Risk Identified	The project creates and enhances wildlife connectivity by connecting TFCAs, National Parks and ecologically significant ecosystems

2.4.2 Introduction of species

Species introduced	Classification	Justification for use	Adverse effects and mitigation
<i>Zea mays</i> (Maize)	Non-native Species	Sorghum spp. is a potential alternative and has been replaced in favor of maize as it produces bigger yields and is not prone to bird predation.	No negative evidence documented. It is used extensively in Zambia
<i>Cajanus cajan</i> (Pigeon pea)	Non-native Species	No known local alternative within native species. It is a nutritious legume.	No negative evidence documented. It is used extensively in Zambia.
<i>Mangifera indica</i> (Mango)	Non-native Species	<i>Parinari curatellifolia</i> is a potential alternative and is locally utilized but does not have the same production and fruit size and is slow growing.	No negative evidence documented. It is used extensively in Zambia
<i>Carica papaya</i> (Papaya/Pawpaw)	Non-native Species	No known local alternative within native species with fruit that size	No negative evidence documented. It is used extensively in Zambia
<i>Moringa oleifera</i> (Moringa)	Non-native Species	There are possibly alternative local species that have the same nutritional values, but <i>Moringa oleifera</i> is particularly fast growing.	No negative evidence documented. It is used extensively in Zambia
<i>Faidherbia albida</i> (Formerly <i>Acacia albida</i>)	Native Species	This species is indigenous in Zambia although it may not naturally occur in all project areas. It is valuable for its nitrogen fixing and soil stabilizing functions and therefore contributes to soil fertility improvement. <i>Faidherbia albida</i> can be used for fodder.	No negative evidence documented, it is used extensively in Zambia
<i>Gliricidia sepium</i>	Non-native Species	This species is a multi-purpose nitrogen fixing tree which is a valuable asset to agroforestry and conservation agriculture while aiding soil	Whilst the species is considered a weed in Jamaica, this is not the case in any other area, including Zambia, and is not

		stabilization, providing fodder for livestock. It is fast growing, produces a lot of biomass which contributes to soil organic matter thereby improving soil fertility. It tolerates repeated cutting or harvesting. The stems of <i>Gliricidia sepium</i> can be used as firewood thereby reducing pressure on fuel wood extraction from the forests.	listed as invasive on the Global Invasive Species Database. The trees generally show limited seed production outside their native range due to a lack of pollinators and poor conditions for seed germination meaning this risk is extremely low.
<i>Tephrosia candida</i> and <i>Tephrosia vogelii</i>	Non-native Species	These are particularly useful drought-tolerant nitrogen fixing species as the rate at which they release nitrogen closely matches crop uptake and reduces loss of nitrogen. <i>Tephrosia</i> is rich in bioactive phytochemicals which have strong insecticidal activities against a wider range of pests – the leaves of <i>Tephrosia</i> are widely used for pest control	In Zambia, no negative effects have been documented.

Existing invasive species	Mitigation measures to prevent spread or continued existence of invasive species
Not Applicable (There is no evidence of any spread of invasive species in the project area as well as the project zone)	Not Applicable (There is no evidence of any spread of invasive species in the project area as well as the project zone)

	Risks identified	Mitigation or preventative measure(s) taken
Invasive species	No Risk Identified	The project does not bring in any new species to the project area. However, for species introduced within the project zone to support our climate-smart agricultural activities, only non-invasive species are permitted.

2.4.3 Ecosystem conversion

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No Risk Identified	This is a REDD+ project and not a ARR, ALM, WRC or ACoGS projects.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The LZRP has developed a wide range of deforestation mitigation and benefit sharing activities with local stakeholders. These activities fit broadly into three different categories namely a) Community Sensitization, Education and Consultation, b) Community-Based Deforestation Mitigation Projects, and c) Protection, Enforcement and Monitoring.

BCP's community engagement and project implementation strategies build upon local governance structures by working closely with "Zone Development Committees" (ZDCs). ZDC's are comprised of village-level representatives within a zone, who have been democratically elected by villagers and Village "committees" in each village. In so doing, BCP not only cooperates with existing, village-level representation, but we have also played a large role in creating zone-level institutions where none had previously existed, and where the next highest level of recognized leadership had formerly existed at the Chieftdom or District level. The ZDC is a transparent forum to filter eligible community project opportunities that are appropriate across village boundaries, and share information of village project progress, both within the zone, and in other zones. ZDC's serve the function of being a form of ongoing participatory rural appraisal system (PRA); as a forum for local people to examine their own problems, set their own goals, and monitor their achievements. In this way, community projects are 'owned' and implemented through the community, rather than by BCP.

There are four (04) ZDCs within the project zone, namely Namanongo, Ndubulula, Chilimba and Mweenshan'gombe zones. Each ZDC is composed of two democratically-elected representatives from every village of the zone, which in turn are electing one Lead Representative among themselves. This is at this level that Community Annual Work Planning is agreed upon collectively, using the Community Carbon Fees to fund the activities, as per BCP's Benefit Sharing Mechanism. This is also based on this community governance structure that BCP community development efforts are geographically stratified, organized and managed.

Activity Area 1: Community Sensitization, Education and Consultation

Stakeholders understand and support the objectives of BCP's project activities, and are meaningfully involved in decision-making processes to ensure local legitimacy and buy-in to the project.

Community Sensitization

BCP works closely with local representatives and traditional community leaders to identify local causes and drivers of deforestation, and to design projects that are anticipated to

meaningfully and sustainably address them. BCP's community-based approach allows project activities to benefit from local knowledge, legitimacy and support. Since February 2012, BCP representatives have engaged with local communities through a robust and extensive "community consultation and sensitization" process, which adheres to the principles of obtaining Free, Prior and Informed Consent (FPIC) from local stakeholder communities. We have thus consulted over 86% of community stakeholders, and benefit from over 85% approval rating among stakeholders surveyed at community meetings.

Since 2012, BCP has undertaken an extensive sensitization and consultation process with community stakeholders living adjacent to Rufunsa Conservancy, the project area for the Lower Zambezi REDD+ Project, in line with the principles of ensuring Free, Prior and Informed Consent (FPIC). Since 2012, BCP has facilitated over 1,256 formal sensitization meetings (until end of October 2021) across the 2928 villages within the LZRP project zone. Over 2, 200 names are listed on attendance sheets accompanying these FPIC meeting minutes (1,563 people attended village meetings from January to October 21). To enhance community engagement, BCP in 2015, invested in new office and accommodation facilities in Chinyunyu in Ndubulula Zone. While this location increased project costs, it increased the ability of the Community Engagement team to be more accessible, and mobile within the communities than from the prior base in Rufunsa Conservancy.

This is an ongoing project activity that started in February 2012. Every meeting conducted with community groups, representatives and other stakeholders is used as an opportunity to share information and updates of the project. Quarterly Meetings in all 4 zones include REDD+ sensitization and awareness.

In 2024 (M12), various community meetings were conducted with an aim of creating awareness on the BCP-REDD+ Model, the role of the community in the successful project implementation, the VCS/CCB project verification process and the role of the community in the process. Furthermore, some community meetings focused on updating the community on project implementation status i.e cash dividends and conservation fees updates. Lastly, these meetings provides a platform where the community both raise their grievances and also had them resolved. A total of 109 community consultative meetings were held with a total of 3,881 people attending. Details of these meetings can be found in the community engagement tracker in appendix B.

Community meetings serve as a platform for community members to voice any grievances related to project implementation. However, during the current monitoring period(M12), no grievances were reported.

Governance: Institutional Building

BCP has worked with local communities to develop and support 'hybridized' community decision-making institutions, called Zone Development Committees (ZDCs). The ZDCs are designed to promote local ownership of projects and to support locally appropriate decisions

made through transparent decision-making structures. ZDCs address (avoid) problems of elite capture by combining local, democratically elected representatives from each village with local traditional leaders, to allow decisions about project activities to simultaneously benefit from local knowledge and support, as well as legitimacy maintained through the inclusion of traditional leaders. BCP meets regularly with ZDCs in each of the 4 community zones for the Lower Zambezi REDD+ Project, to promote local sensitization and understanding of project activities, solicit feedback, and discuss upcoming project activities (including: project identification, project design, and project implementation).

Working with local governance structures in the project zone is the most important engagement strategy BCP uses to reach out to the community. These structures are used as a platform to sensitize on BCP work in the project zone, the REDD+ Project taking place in Rufunsa Conservancy, consult as well as engage with the local leaders and community representatives on community development projects that address the major drivers of deforestation and directly provide a sustainable source of income that assists to reducing poverty

In 2015 members of the BCP CET identified existing governance structures in the project zone which the CET can work with for project implementation in the area. This was done by conducting an assessment with targeted people in the project zone and these include area or ward councilors, former and current members of Area Development Committees (ADC)/ Ward Development Committees (WDC), and other respected community members. The goal of this assessment was to determine whether local governance structures such as ADC's and WDC's could be supported in the Bunda Bunda chiefdom and if these structures also need strengthening to build their capacity so that they become self-reliant and take ownership of community development projects and decisions made on behalf of or by the community. Results of the assessment showed that ADC's or WDC's are not present in Rufunsa District as a whole as well as within the LZRP project zone since the year 2011. In addition, there hasn't been any existing ADC or WDC in Chilimba zone. Additionally, the Bunda Bunda CRB has not been in existence while the LZRP was implemented.

Hence, BCP CET members further assessed the local existing cooperatives in the project zone if they had the capacity to work as governance structures in their respective zones i.e. Chilimba, Namanongo, Mweshang'ombe and Ndubulula. Cooperatives are a government recognized structure under the Department of Cooperatives in the Ministry of Commerce, Trade and Industry. Agricultural cooperatives existed in some zones prior to LZRP. Rather than creating a new institution, it was pragmatic to work through existing Government recognized structures which have district-level Government officer support. BCP signed REDD+ Conservation Fee Sharing Agreements (RCFSA) with 3 of the zones to clearly explain the roles of both parties' and the "rules" of benefit sharing from REDD+.

This project activity started in January 2013. BCP participated in District level planning and coordination through the District Development Coordinating Committee. However, formation

of sub-district structures – Ward Development Committees was frozen by the Ministry of Local Government in 2017. Existing ones were disbanded in 2018 by the Ministry.

In 2019, cooperatives were supported to register as corporate entities under the Ministry of Commerce and Trade through the Ministry of Agriculture. Meetings have been conducted with cooperatives on the management of income generating projects for financial management (e.g. Hammer Mills). No governance activities were conducted in the current monitoring period. This activity will however resume in 2025 (M13).

Activity Area 2: Community-Based Deforestation Mitigation Projects:

This activity area addresses (reduce) local drivers of deforestation by improving local livelihoods and by providing meaningful alternatives to deforestation-dependent livelihood activities.

Agroforestry

Agroforestry is a land use system where woody perennials (trees, shrubs, bamboos etc.) are deliberately used with crops and animals on the same land management unit in some form of spatial and sequential arrangement. Farmers were taught the different benefits that they can get from different agroforestry technologies. These Technologies include Biomass Transfer, Improved Fallow, Alley cropping, live fencing, Ornamental, Fodder bank, Seed orchard, Fruit trees, Windbreak and many more. In addition to the presentations of the above topics, practicals were done mainly in the following topics:

- i. Tree Nursery Soil Mixture Formation and
- ii. Pot filling.

Agroforestry promotes tree-planting and reforestation projects, particularly those with a commercial or food security improvement aspect (such as fruit tree planting activities in combination with vegetable gardens or conservation farming plots).

There is an agro-forestry component in the Conservation Farming Training Program (CFTP). In 2012, as part of an initial pilot, BCP partnered with Zambia's Conservation Farming Unit (CFU) and Musika to provide initial agro-forestry training to ten households as part of the CFTP. In 2015, BCP focused on the expansion of the CFTP from 197 to 500 new households. This implementation was done in partnership with Community Markets for Conservation (COMACO). Four treadle pumps and *Gliricidia sepium* nurseries were established in each zone at a lead farmer's farm for distribution to CFTP farmers

Agroforestry projects started in November 2012 and since then BCP has supported the Forestry Department with nurseries of different tree species to support farmers in agro-forestry and smart agriculture practices through conservation farming. In 2019 BCP supported the drilling of a borehole at the Chinyunyu District Forest Station to support tree seedling production at the Forestry Department's nursery.

In 2020 BCP supported the Forestry Department in raising seedlings for their nursery as well as those that were distributed to Lead farmers in the district. From the support from BCP, the department was able to raise 25,418 *Gliricidia sepium* seedlings that were distributed to farmers, 250 paw paw seedlings, 280 Mangoes, 320 Guavas and 930 avocados for their nursery. About 30,000 seeds of Musangu (*Faidherbia albida*) were also procured by the Forestry Department with support from BCP and the department is currently mobilizing pots so that the seeds can be raised into seedlings.

From 2016 to date, BCP has supported the department with about 58,866 seeds from which 28,866 seedlings have been raised.

In the current monitoring period (M12) there was no support given to the forestry department to conduct their agroforestry activities. This activity will however resume in 2025 (M13).

Conservation Farming

BCP's Conservation Farming Training Program (CFTP) was originally led in partnership with the Zambian Conservation Farming Unit (CFU) and Musika Development Initiatives. The CFTP is designed to teach farmers how to become more efficient and productive on their farms, with an aim to improve local food security and reduce two of the strongest local drivers of deforestation: clearing for agricultural expansion, and clearing for charcoal production (to earn income to supplement incomes from agriculture). There are six main 'interventions' promoted by the CFTP:

- i. Early Planting – helps farmers to take advantage of “natural fertilizer” from first rains
- ii. No burning of crop residue – improves soil health, reduces emissions
- iii. Minimum-tillage basins – allows farmers to plant without needing animals to plough (less labour, less expensive, and allows for early planting that allows for “natural fertilizer” from first rains)
- iv. Precision farming – higher efficiency; maximum yields from minimum inputs
- v. Agro-forestry – helps to minimize inputs (fertilizer) over time; *Faidherbia albida* trees provide natural fertilizer
- vi. Inter-cropping, crop rotation, diversification – help farmers to remain productive on the same area of field/farm over time (reduces need to clear new areas of fields).

In November 2012, BCP launched an initial pilot Conservation Farming Training Program (CFTP) with 10 households, through support and collaboration with CFU and Musika.

BCP has since partnered with the Ministry of Agriculture via District Agricultural Coordinators (DACOs) to provide Conservation Farming training to households. This is more cost effective and a more pragmatic partnership with the Government.

As of the end of the previous monitoring period (M11), the project has a total of 40 lead farmers and over 800 follower farmers.

During the current monitoring period, 2024 (M12), The project wined off a total of 29 out of the 40 lead farmers as they have exhausted the maximum of 3 seasons. To replace the wined off 29, the project recruited 29 new lead farmers. The total number of lead farmers has therefore remained the same as in the previous monitoring period i.e. 40 (M:22, F:18) (See appendix J for the lead farmer register). In addition, Just like in the previous monitoring period, total number of follower farmers is over 800 (on average a Lead farmer manages to have 20 follower farmers out of the target of 25).

The following conservation farming activities were conducted and funded from the agriculture budget:

- *Trainings*

During the current monitoring period, a Lead Farmer training was conducted from September 17 to October 1, 2024, involving 40 participants (29 new and 11 returning lead farmers) under the LZRP. The training aimed to enhance the understanding and adoption of Climate-Smart Agriculture (CSA) principles, focusing on practical techniques and fostering collaboration among farmers to promote sustainable agricultural practices. Key topics included climate change impacts on agriculture, soil and water management, agroforestry, sustainable crop and livestock management, crop residue retention, and crop rotation. These sessions equipped lead farmers with the knowledge and skills to implement practices that contribute to food security, climate resilience, and sustainable resource use.

Follower farmer trainings were also conducted during September and October of 2024, engaging 406 participants under the LZRP. The sessions covered the link between agriculture and deforestation, CSA principles such as residue retention, minimal soil disturbance, crop rotation, and diversification, along with the benefits of using certified seeds and planting nitrogen-fixing trees. Practical demonstrations included land preparation using hand tools and animal draft, spacing of basins and rip lines, fertilizer application, backfilling, seed spacing, weeding, and pest and disease management. Additionally, a Gliricidia training session held on February 2, 2024, in collaboration with the Ministry of Agriculture, highlighted agroforestry practices and their integration into CSA and a total of 51 farmers participated in the training. These comprehensive training programs aim to empower farmers with sustainable techniques to improve livelihoods and conserve natural resources. (See Appendix J for supporting documentation)

- *Distribution of inputs for farmer field school demonstration.*

In alignment with previous years' line of action lead farmers in Bunda Bunda (from the project zone) received a pack of demonstration inputs which included the following:

- i. Maize seed 5kg
- ii. Soya beans seed 25kg
- iii. Groundnuts seed 20kg
- iv. Basal dressing fertilizer 2 X 50kg
- v. Top dressing fertilizer 1 x 50kg

A Total 40 packs were distributed in this monitoring period (M12), See supporting documentation in Appendix J.

The project does not distribute any chemical pesticides to farmers. However, during extreme situations such as in the 2023/2024 farming season, when the country experienced severe Fall Armyworm (FAW) infestations worsened by prolonged dry spells and drought, there was a significant risk of total crop loss for farmers country wide. In response, the Ministry of Agriculture implemented a national program to control FAW outbreaks and protect farmers' crops by providing low-risk FAW control chemicals that are considered safe for the environment⁵. Additionally, the FAW Manual on Integrated Pest Management (IPM), which outlines these measures, has been submitted to the VVB as supporting documentation.

- *Distribution of Gliricidia sepium*

This activity started in December 2020 with a total of 7,000/25,000 seedlings of *Gliricidia sepium* delivered to lead farmers. A total of 25,000 seedlings were raised by the Forestry Department and are all set to be distributed by the end of February 2021.

Unlike in the 2020, seedlings were distributed to the farmers. In 2022 (M10), *Gliricidia sepium* seed packs (1000 seeds and 1 polypack) were instead distributed. The farmers then raised the seedlings and planted them on their own. A total of 35 seed packs were distributed to 35 farmers.

In the current monitoring period (2024) a total of 40 *Gliricidia sepium* packs consisting of 1000 seed each were distributed to all the lead farmers.

- *Distribution of Bicycles and PPE*

⁵ <https://www.agriculture.gov.zm/zambia-loses-us159million-to-fall-armyworms-climate-change/>

In the current monitoring period M12 (2024), PPE (i.e work suits) were distributed to 29 new lead farmers each receiving one work suit and a bicycle. Distribution lists for the work suits can be found in the Appendix J.

Improved Small Livestock Production

Throughout BCP's extensive first round of the community "Project Identification and Design Process," which was designed to solicit detailed community feedback concerning priority project activities, Small Livestock Projects were consistently and frequently identified as a top-priority project activity. BCP's small livestock projects are designed to simultaneously improve local food security and help participants to develop small-scale community-owned livestock businesses that can generate income for participants. Participation in livestock project activities is linked to deforestation mitigation through the use of Community Covenants, which restrict participation to those members who agree not to engage in deforestation or poaching activities inside the project area of Rufunsa Conservancy.

This project activity started in February 2013 and ran through 2018. Then after, it was not supported following the exhaustion of the VIGOR Grant.

In 2020, BCP resumed the Community Improved Village Chicken Project (see appendix J) under the Agriculture division in both LZFP and LCFP projects. The project is designed to be a breeding (multiplication) hub of Improved Village Chicken for the area of operation. The Project will focus on the production of Improved Village Chicken with the goal of giving every household in the area 10 improved village chickens each, to keep at their homesteads. The poultry house for LZRP is being constructed in Ndubulula zone and is being managed by the Zone Development Committees. This will be followed by empowering every household with 10 Improved Village Chickens from the hub in villages across all the 4 zones (see Appendix J for supporting media files).

The poultry house was completed during 2021. The construction works of the building were completed in 2021 and certified by the District Buildings Engineer.

In 2022 BCP concluded the installation of an incubator and the solar panel. In addition, poultry equipment and improved village chickens were also provided. The project was successfully handed over.

The project initiative introduced improved village chickens in 2023. However, during the current monitoring period, it was observed that the improved village chickens were not yielding the desired results. As a result, they proposed transitioning to broiler chicken rearing in the next monitoring period (M13).

Social Services (i.e.: school, borehole, and clinic)

- Water and Sanitation.

In M11, the project continued its efforts to improve access to clean and safe drinking water by drilling and installing four boreholes in the villages of Chundu, Kabani, Kanyetu, and Shikabtea (Namanongo VAG). Additionally, work began on rehabilitating ten boreholes in the VAGs of Chilimba and Mweshangome, covering the villages of Nyamakau, Mulilwam, Chikobeni, and Kasumba within the project area. These initiatives aimed to enhance water access and reliability for the local communities.

In the current monitoring period (M12), while no new boreholes were drilled or installed, the project focused on rehabilitating problematic boreholes to restore their functionality. Furthermore, the project collaborated with the Government of Zambia to conduct V-WASH training for Village Water, Sanitation, and Hygiene Committees, emphasizing the importance of maintaining and managing water resources effectively (see supporting documentation in Appendix J).

- Borehole Rehabilitation

The project rehabilitated 9 boreholes in the current monitoring period (M12), the table below has the details (see supporting documentation in Appendix J).

	Borehole – Community	Geo Location
1	Chikobeni Community Borehole	-15.44218,29.35137
2	Nyamakau Community Borehole	-15.36.897,29.218411
3	Mulilwa Community Borehole	-15.36069 ,29.250598
4	Kasumba Community Borehole	-15.36309,29.250598
5	Chikoloma Community Borehole	-15.33357,29.271598
6	Mweshangombe Community Borehole	-15.46289,29.229792
7	Shimaluba Community Borehole	-15.42544,29.242168
8	Mwachombela Community Borehole	-15.44351,29.203917
9	Chikuse Community Borehole	-15.43000,29.26750

- V-Wash Training

Objectives of the training focused on;

- The Importance of hygiene and sanitation regarding our water points and our communities
- Learning and sharing experiences of water point management
- Learning and sharing experiences of financial management of water user contribution
- Learning and sharing experiences on operations and maintenance requirements to ensure sustainable use of water points

A total number of 17 V-WASHE Committees and 170 V-WASHE Committee members were trained in Operation and maintenance, borehole surrounding and standards of hygiene behaviour in the communities (see supporting documentation in Appendix J).

Below is the tabulation of how the participants were equally selected in their respective wards.

Sn	Place	No. of committee	No. of people represented water point
1	Kasumba	1	10
2	Chikobeni	1	10
3	Chikuse	1	10
4	Lumwengo	1	10
5	Miyobe	1	10
6	Mutonka	1	10
7	Chikoloma	1	10
8	Sunta	1	10
9	Kanyentu	1	10
10	Chuundu	1	10
11	Musashinka	1	10
12	Kabandi	1	10
13	Mwachombela	1	10
14	Benny	1	10
15	Mweshangombe	1	10
16	Mulilwa	1	10
17	Nyamakao	1	10

Education

In the education sector, the teacher salary support initiative continued in 2024 (M12) and, one additional teacher was included, increasing the number of teacher benefiting from this initiative from 5 in M11 to 6 teachers in the current monitoring period (M12) (see supporting documentation in Appendix J).

Village Banking Initiatives

Following the successful initiation and implementation of an initial 10 village banking groups with an initial investment of K100,000 and capacity building by the project in M10, the initiative was replicated to an additional 10 village action groups, bringing the total number of village banking groups supported by the project to 20 in the previous monitoring period (M11). Each of the 10 new savings group were given a starting capital of K10,000, bringing the total amount invested in village banking groups at the end of the previous monitoring period to K100,000 and a K200,000 into the village banking initiative since inception in 2022.

During the current monitoring period (M12), no new village banking groups were formed. Of the 10 groups recruited in M10, only seven remain active, while three have become inactive due to member defaults. This batch has struggled to maintain performance, with the funds on their books now standing at K92,700, down from the initial investment of K100,000 made three years ago. The decline is primarily attributed to defaults by members who failed to repay borrowed amounts.

In contrast, the 10 groups recruited in M11 have shown remarkable progress, with only one group becoming inactive. This second batch has raised the initial investment of K100,000 to an impressive K275,694 by the end of this monitoring period, reflecting a yield of over 175% in two years.

To address challenges and improve the performance of village banking groups, the project plans to conduct refresher training sessions to reinforce awareness of bylaws related to loan repayments. Additionally, it aims to engage traditional leadership to support the enforcement of these bylaws.

Despite some of the challenges highlighted above, under this initiative, the project has compiled a few success stories, See table below;

Name	Village Banking Groups Name	Success Story
Kennedy Hangoma	Twelekeshe Savings Group	Using his profits from the savings group, he has managed to increase the number of his livestock, he started with 12 chickens and currently he has over 30 chickens. Mr. Kennedy also has got 8 goats procured from his profits from the savings group.

Saraphina Mumba		Narrated in an interview that, she has managed to build two shops from the savings group's profits, the shops have increased her household income. She can pay for school fees and support her family from the profits she makes from the two shops. Additionally, she has also bought chickens from the savings group's profits, she has a total number of 12 chickens now, as she had only started with 3 chickens
Ruth Tembo		From her profits from the savings group, she bought goats, and she has a total number of 9 goats currently. She can pay school fees and support her family when she sales goats. Her household income has increased since joining the savings group
Alice Banda	Chitukuko Savings Group.	From her profits from the savings group, she managed to buy goats. Currently she has a total number of 8 goats. She is also able to support her school going children from the profits from the savings group.
Esnart Phiri		From her profits from the savings group, she has increased the number of her chickens, and she is also able to support her family from the profits.

Sustainable Honey Production

BCP aims to promote honey production as an alternative source of food and income among rural stakeholders. Since honey production is reliant on the protection of forest areas, the project will also create an incentive for participants and beneficiaries from the project to protect areas of forest where the production is taking place. BCP will help to connect participants to markets for locally produced honey. We have already formed a strategic partnership with a large-scale honey seller in Zambia.

Three honey project pilots were initiated in Ndubulula, Namanongo and Mweshang'ombe zones. BCP through the Chinyunyu Forest Department trained 8 participants; 3 from Mweshang'ombe and 5 from Ndubulula in honey production and bee-keeping. The five from Ndubulula were picked from a group that was formed and previously trained by the Forestry Department and the remaining three are households from the Biodiversity Banking project. An additional 16 participants have been trained by Luano Honey.

A total of 230 top-bar Kenyan hives, 50 swarm boxes, 20 gloves, 20 veils, 3 bee- keeping manuals and 5 smokers were procured to assist in the success of this pilot in the project zone. Later on additional 131 top-bar Kenyan hives were hung in the project zone; 3 Forest department, 36 Ndubulula, 6 Mweshang'ombe and 86 Namanongo. All participants were trained on the baiting and monitoring of the placed hives. The program was then expanded in partnership with BeeSweet to 5,000 hives in the 4 Zones of the LZRP Project Zone.

In the first quarter of 2020, Beekeepers sold a combined total of 2,737.00 Kilograms, earning them K27,372.00. Unfortunately, the contract with BeeSweet ended in April 2020 without renewal. The farmers are, however, still harvesting honey and selling to whoever they please, including BeeSweet on individual agreements as BCP is conducting a feasibility study for expanding the honey project as well as consulting potential new partners. BCP working with Nature's Nectar conducted a feasibility study between September and October 2020 for expanding the honey project. This study was used to provide baseline data to the new partner on the current status on the honey project.

Following the feasibility study, BCP in March 2021 entered into a Specific Partnership Agreement with Nature's Nectar to manage the beehives and purchase honey from the managed beehives. Currently this Specific Partnership Agreement is working well with Nature's Nectar having already trained 8 Mentors in honey harvesting. Furthermore, 996 bee hives were assembled and delivered to Ndubulula and Namanongo as follows,

1. Ndubulula - 546 Beehives
2. Namanongo - 450 Beehives

In the current monitoring period (M12), the total number of beekeepers and beehives remained unaltered totaling 409 and 3,760, respectively. Honey harvests figures reported in this monitoring report exclude the honey purchased for the second harvest period, because this data was not available at the time of preparing this report. Nonetheless, the numbers for the first harvest season of M12 are as follows;(see supporting documentation in Appendix J).

Zone	Quantity bought (kg)	Total paid out (ZMW)
Chilimba	685.01	16,440.00
Namanongo	1444.20	34,660.00
Ndubulula	667.62	160,22.00
Mweshang'ombe	528.80	12,691.00
TOTAL	3325.63	66,512.00

No training was conducted in the current monitoring period, as no new beekeepers were recruited.

BCP is currently reviewing the contract with NN, and a revised agreement is expected to be finalized at the start of the next monitoring period. The revised agreement is meant to improve and strengthen beekeeping implementation and outcomes.

As part of the updated agreement, NN will continue to hold key meetings at critical points during the season and provide buckets, equipment, and logistics necessary for honey purchasing, as they have done this season.

To strengthen this agreement and expand the reach of beekeeping activities, BCP will implement the following initiatives moving forward:

- Assess hive damage: Conduct evaluations to determine the total number of damaged hives across Ndubulula, Namanongo, Mweshang'ombe, and Chilimba.
- Hive repairs and rehangings: Facilitate the repair and rehangings of damaged beehives in all four zones.
- Beekeeping training for Chiefdom Assistants: Conduct orientation and training sessions to enhance their knowledge of beekeeping activities.
- Community sensitization: Organize quarterly meetings in all four zones to raise awareness about the benefits of beekeeping.
- Training for Zonal Lead Farmers (ZLFs): Provide instruction on beehive assembly, hanging, baiting, labeling, and farmer record-keeping.
- Bicycle procurement: Facilitate the purchase of bicycles for ZLFs to improve mobility and efficiency.
- Beehive relocation: If necessary, support the transfer of beehives from Mweshang'ombe to Chilimba.

To further support NN, BCP's field-based Chiefdom Assistants will be trained to assist NN and participating farmers. With prior experience in the activity, additional training from BCP and NN will equip them with the technical and managerial skills needed to provide real-time support to NN, ZLFs, and contracted farmers.

Beyond training, BCP Chiefdom Assistants will also assist with information management tasks and collaborate with senior field management and NN to identify highly productive zones and capable, interested farmers. This has and will continue to contribute to improved and diversified household income for beekeeping farmers across LZRP.

Sustainable Eco-Charcoal Production

BCP's pilot Sustainable Eco-Charcoal project combines sustainable harvesting practices taking place on protected areas of (degraded) community forest, improved higher-efficiency kiln technologies, and critical value chain interventions (such as access to transportation "at cost" for sustainably produced products), with the aim of creating strong incentives for rural

producers to switch from current unsustainable charcoal production practices to sustainable charcoal production practices. The project is designed to replace unsustainable harvesting practices with sustainable practices that allow for the regeneration of forests, promote community-based forest protection, and improve rural producer livelihoods through the development of a commercially viable sustainably harvested charcoal product.

In 2021 (M9), 25.82 tons of eco-charcoal was produced, however there was no eco-charcoal production between 2022 and 2023 including in the current monitoring period. This is attributed to the ban of charcoal production in Bunda Bunda chiefdom by the traditional leadership. Despite this ban, the Charpreneurs continued with their routine forest management activities in their eco-charcoal sites.

During the current monitoring period (M12) early prescribed burning, enrichment tree planting, coppicing, livestock exclusion to prevent overgrazing and charcoal forest boundary maintenance are some of the activities implemented (See Report in Appendix J). In addition, engagement with the new Bunda-Bunda Chief and government were done and production is scheduled to restart in the next monitoring period.

Tree Planting (woodlots), Tree Nurseries, and Orchards

BCP's tree planting and afforestation projects are the result of a strong partnership and collaboration with the Zambian Forestry Department. In February and March 2013, over 500 trees were planted in 2 School Fruit Orchards, as part of a community 'nursery' project, as well as a forest rehabilitation project connected to the Sustainable Eco-Charcoal Project. Tree planting is promoted as a means of afforestation and improved forest management, which can additionally support the health of forest-compatible projects that promote the sustainable management of forest resources, as well as commercial opportunities for communities that wish to develop and manage local nurseries.

No activities were implemented in the current monitoring period (M12) but will be resume in the next monitoring period (M13).

Crop Diversification

As a key element to the Conservation Farming Training Program (CFTP), crop diversification was promoted through BCP's strategic partnership with Musika Development Initiatives—an organization committed to connecting rural producers to urban markets. Crop diversification promotes long-term field health, increases yields, and improves household resilience in the face of climatic changes or other unexpected events, reducing the likelihood of total poverty or livelihood destruction - especially among the 'poorest of the poor' - as a result of such unfortunate events.

The Crop Diversification program was implemented through Musika, a partner organization, and it is linked closely to the CFTP supported by BCP. As such, 197 participating households had access to this program.

This activity was discontinued in 2017 due to limited funding but most of the farmers are now participating in the current sustainable agriculture initiatives explained above.

During 2021 the Horticulture project was initiated and 8 Horticulture Lead Farmers were trained and provided with horticulture starter packs.

In 2022, two (2) additional horticulture farmers were recruited, bringing the total to 10 horticulture farmers in the project. In addition, a horticulture training of the 10 farmers was conducted from the 7th April to the 17th May, 2022. The training was conducted by the Zambia Agriculture Research Institute - Msekera Research Station (Agroforestry Research Team Staffs) in collaboration with Bio-Carbon Partners (BCP). The main objectives of the training were;

- To train horticultural farmers in improved vegetable and fruit tree production
- To reduce dependence of forest reserves and offer alternative livelihood

In the current monitoring period M12 no Horticulture trainings were conducted, this will be resume in the next monitoring period (M13).

Employment

BCP views meaningful job creation as one of the strongest and most sustainable ways of providing an alternative livelihood opportunity to local stakeholders. By providing community stakeholders with regular alternative sources of income, BCP hopes to drastically reduce the pressures they otherwise face to engage in deforestation-dependent activities, such as charcoal production, to earn income.

BCP has created multiple employment opportunities in local communities, including:

- i. **Forest Inventory Team:** Members of local communities trained in forest carbon measurement and reporting techniques, including data collection using Android phone technology. In 2014 there were 3 members of the team, with 5 members from the local community trained in plot sampling and MRV techniques. Since 2015 BCP has maintained 2 FMT teams in both LZRP and LCFP projects, each with 5 members (4 for forest inventory and 1 for logistics) selected from the community and receive training annually. In M10 and the current monitoring period, the project created and trained a biodiversity monitoring team that is comprised of 3 members from the local community.
- ii. **Village Scouts:** As of the end of 2024 (M12), 13 scouts are supported by the project, a reduction from 28 scouts in the previous monitoring period. This decrease is primarily due to the promotion of several BCP-supported scouts to Wildlife Police Officers (WPOs). The project acknowledges the current manpower challenges and, to address this gap, CRBs, with BCP's support, have identified and recruited

additional scouts who are currently undergoing training. This effort aims to strengthen and sustain joint operational effectiveness.

The recruitment of new scouts was carried out through a transparent and inclusive process led by the CRBs, ensuring fairness and community involvement. It is important to note that community scouts are not directly employed by BCP, but by their respective Community Resource Boards (CRBs), with whom they sign employment contracts. BCP's role is to provide essential support to the scouts, including training, payroll, rations, personal protective equipment (PPE), and other resources necessary for effective field operations. To ensure fairness and inclusiveness, job advertisements for scout positions were publicly posted at cooperative offices and other key community locations, making the information accessible to all interested community members and allowing them to apply without barriers(evidence for the job adverts by the CRBs that were displayed at cooperative offices have been provided to the VVB as supporting documentation).

- iii. Tourism Support / Domestic Workers: Since 2013, BCP employs 1-2 "Domestic Workers" who assist with campsite maintenance as part of a tourism development initiative at the Rufunsa Conservancy, and who assist with basic camp maintenance at the Rufunsa Conservancy headquarters.
- iv. Land Management / Construction: Employment opportunities have been created through construction (infrastructure improvement) and land management activities (such as roads maintenance, erosion control) at Rufunsa Conservancy.

As per December 2024 indirect employment opportunities created within LZRP via Asset provision amounts to approximately 4,581 positions, distributed among lead farmers, beekeepers, scouts and enumerators.

Activity Area 3: Protection, Enforcement and Monitoring

Project boundaries are known and respected by all parties, and ongoing carbon stock monitoring activities take place with full cooperation from all parties involved.

Forest Monitors and Scouts

Trained resource protection teams composed of local community members patrol and secure the project area, reporting any acts of deforestation or wildlife poaching that take place. Particular emphasis is placed on protecting the perimeter of the property, especially the boundary adjacent to community lands, with an aim to prevent further encroachment of the project area. Security activities are undertaken through close collaboration with the Forestry Department, Zambian Police and the (Department of National Parks and Wildlife) DNPW. Resource protection teams are also trained in effective conflict resolution practices, for example, effective communication styles for pursuing non-confrontational discussions with

local community stakeholders. BCP's Forest Monitors are also engaged in ongoing comprehensive biodiversity monitoring programs, which are designed to track the ongoing impacts of BCP's REDD+ activities on local wildlife.

In the monitoring period (M12), the project achieved 1,127 conservation man days. Conservation efforts in the form of vehicle, foot and motorbike scouts' patrols were conducted in the LZRP REDD+ zone. A total of 431.4 hours and 1421.5 km foot patrols were achieved by our scouts. The scouts also achieved a total of 144.5 hours and 1924.8 km for motor vehicle patrols.

In the same monitoring period, a total of 13 snares were recovered . See appendix B for annual Spatial Monitoring and Reporting Tool (SMART) reports for the monitoring period under review.

Boundary Demarcation

In October 2012, BCP undertook a "boundary demarcation" activity along the Northern boundary of the property, which separates the project area from community lands. The purpose of this activity was to ensure local community stakeholder awareness and acceptance of project area boundaries, in the interest of reducing the potential of conflict stemming from confusion about the boundary location. This activity was undertaken in cooperation with the Principal Surveyor from the GRZ Ministry of Lands, to ensure correctness and legitimacy of the demarcation in the eyes of all stakeholders, including local government authorities. In the demarcation process, local traditional leaders, BCP representatives, and the GRZ Surveyor walked along the demarcated boundary, following the GPS points listed on the original Title Deed and beacons that had been placed on the ground to mark the boundary. BCP representatives painted trees along the boundary, to provide a more visual demarcation than the beacons had originally provided.

The boundary clearing and demarcation has been completed and it is maintained annually.

Community-Based Forest Biomass and Carbon Stock Monitoring

The Forest Inventory Team, composed of local community members, has pioneered the use of innovative digital biomass data collection systems, using ODK Collect on smartphone devices, in order to collect important data concerning forest carbon stocks in Rufunsa Conservancy. Members of BCP's community-based Plot Teams have received intensive training in tree and soil sampling, and the use of smartphone technology to collect data used for carbon accounting. The FMT serves an important dual-function of promoting community involvement and ownership of local forest resources, and ensuring high quality data collection for the purposes of our carbon accounting.

In 2020, the forest inventory team completed a 5-years rotation period of collecting accounting area and proxy biomass data, thus the project area's carbon stocks have been updated for the first time since 2016. Leakage monitoring and biodiversity monitoring are

undertaken annually. Leakage monitoring consists of geo-referencing every felled tree in all permanent plots and the total number of felled trees is compared against the average density of trees/ha in the project accounting area. In the event that leakage is detected, the community engagement teams engage with the local governance structures where the leakage took place and work together to find a solution to halt further pressure on the forest resources. Biodiversity monitoring consists of fixed line transect distance sampling and camera trap surveys, as well as point transect surveys (acoustic surveys) specifically for the southern ground-hornbill. Natural risk factors such as fire, extreme weather events, or elephant damage that could impact the permanence of project benefits are monitored daily by the resources protection teams (i.e. scouts) that are thoroughly patrolling the project area (see NPRR for further details).

At the mid of the current monitoring period (M12), the forest monitoring team underwent a refresher training mainly focusing on revised field-based carbon stock assessment SOP that incorporates a procedure for canopy cover data collection using an instrument called densitometer. The training was facilitated by our Principal carbon Specialist. Furthermore, the forest monitoring teams completed the 4th annual rotation of 20% biomass and 100% Leakage plots as per annual monitoring plan (see appendix J for the training report and the Leakage and Biomass data collected in M12). The figure below shows Biomass, Leakage and proxy plots monitored in 2024 (M12). The team experienced challenges in accessing some of the plots due to broken bridges and bad roads.



The robust Social Monitoring Team Standard Operating Procedure (SOP) calls for the ongoing monitoring and evaluation of the impacts of project activities on local stakeholder livelihoods. This will allow BCP to ensure that it's project activities are effectively designed (and re-designed, as necessary) to achieve their aims of positively impacting local communities and effectively addressing (reducing) local drivers of deforestation.

BCP's Social Monitoring Program has been ongoing, with recent efforts in 2014 to improve our data collection and tracking capacity. In 2014, a database of community project participants was created, with the aim of allowing for more centralized reporting on overall project impacts, and reducing the risk of double-counting, as many community stakeholders are by now engaged in multiple BCP activities. Beginning 2014, BCP maintains at least one

full-time Monitoring and Evaluation Specialist on the payroll, who further assists with the formalization and strengthening of BCP's data collection and monitoring techniques, as well as data analysis and reporting.

Following the 2012 baseline, BCP has conducted 3 social monitoring follow up surveys i.e.. In 2017, 2020, with latest conducted in 2022. These follow up surveys follow the initial socio-economic baseline study undertaken in 2012.

The key findings from the latest 2022 survey were:

- i. An overall increase in total household income across all respondents of 129% since 2012.
- ii. The contribution of agriculture as an income source increased from 32% in 2012 to 59% in 2022, where it was the leading contributor to total household income.
- iii. The contribution of forestry products reduced from 37% in 2012 to 2 % in 2022.
- iv. Alternative sources of income, including small business, piecework, sale of livestock and others, now collectively contributed the second highest income at 38% of total household income.
- v. 16% of respondents benefited directly through tender or direct employment.
- vi. The most commonly collected forestry products from the GMA were firewood (by 55%), wild fruits (38%) wild roots (34%) and honey (30%)
- vii. 88% of respondents indicated that they would continue to use conservation farming in the following 2 years, in comparison to 72% from the previous survey

Understanding of REDD+	%LZRP n=100
Conserves forests to reduce emissions of important gasses such as CO ₂	83
Deforestation is a major cause of global warming/climate change	60
It provides alternative livelihoods to those dependent on forests	35
Community developments arises from forest carbon fees	23
Understanding of the principles in permanence	

Carbon is stored for an extended period of time in forests and soils	79
The projects will last for at least 30 years	53

Community Covenants

In the LZRP BCP has pioneered the use of innovative “Community Covenants,” which are written contracts between BCP and project participants that explicitly link participation in BCP-supported projects to achievable forest protection aims. For example, all BCP employees from local communities are required to sign a Community Covenant, written into their employment contract, which specifies the conditionality of their ongoing employment on their agreement to stop any deforestation activities taking place in the project zone. The purpose of the Community Covenants is two-fold: first, Community Covenants provide a direct and explicit link between BCP’s activities and reductions in deforestation activities taking place within the project zone. Second, Community Covenants prevent/reduce the risk of adverse effects from project activities or benefits—for example, BCP does not want community stakeholders to use their incomes from employment with BCP in order to fund charcoal production or poaching activities that threaten the project.

Community Covenants are ongoing agreements used as an innovative tool for linking community development / livelihoods “benefits” to biodiversity and forest protection aims of the project. In some cases, we have transitioned from the title of “Community Covenant” and have begun to use the language of a Memorandum of Understanding (MoU), in which the forest protection terms of the project are clearly outlined. In 2014, MoUs linking participation in community projects to forest protection were signed as part of the Eco-Charcoal Project expansion into Namanongo and Mweshang’ombe Zones (nine new project sites identified) and the “Bio Bank” project that is implementing forest protection activities on 990.4 hectares of community forest in Mweshang’ombe Zone, adjacent to the Rufunsa Conservancy. These MoUs explicitly document participants’ agreement to implement improved/sustainable forest management techniques on demarcated areas of community forest, in exchange for access to services / “benefits” through these projects.

Additionally, all of BCP’s employment contracts contain an enforceable “Community Covenant ” clause, that documents that employment is contingent upon respect for BCP’s Ongoing deforestation mitigation activities, and violation of this covenant is a terminable offense.

In 2015, community covenants were signed between BCP and community members participating in various projects such as School support program, Village chicken and Honey projects.

All community projects were covered under an Agreement with the community, headmen signed in 2016. Community covenants were signed for individual projects in each zone.

In 2021, We did not sign any community covenants. This is because most of the projects implemented in 2021 completed in December and the commissioning and handover to the community was concluded in 2022(M10) together with the signing of covenants.

In 2023(M11), The project signed community covenants with the communities for the Village banking initiative, and considering that no new projects were initiated in the current monitoring period (M12), there were no community covenants were signed.

Structured Biodiversity Monitoring

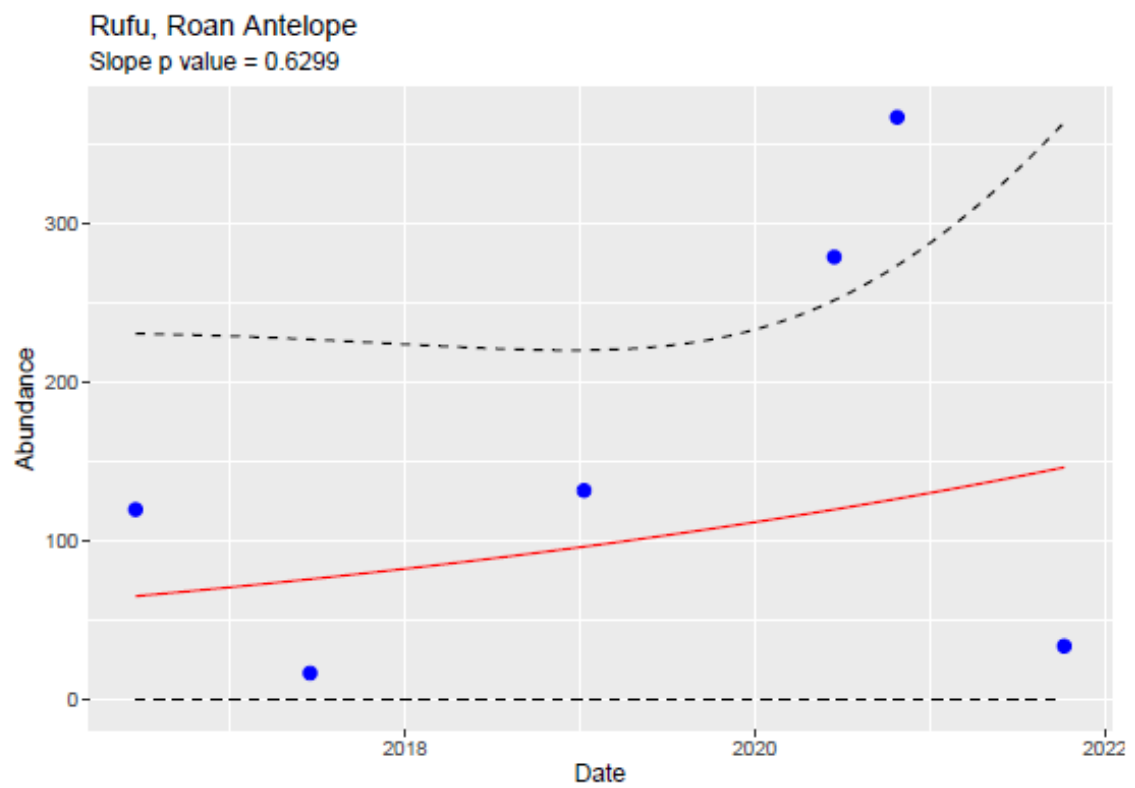
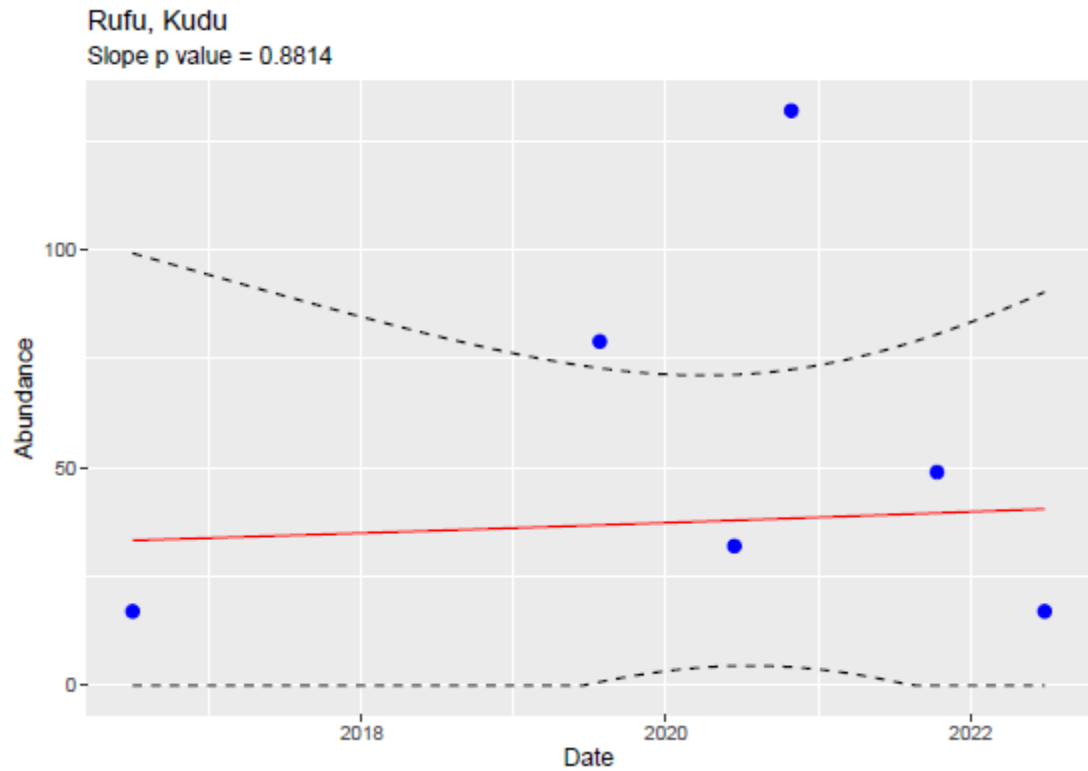
The Line Transect Distance Sampling method is used to monitor medium to large mammals and other species of conservation importance, and indirect signs of wildlife presence are also recorded. In this survey scouts/forest monitoring teams walk in a straight line in a predetermined and fixed direction. In order to infer abundance estimates, the perpendicular distance between the transect line center and the observation is recorded precisely which enables afterward to derive a detection probability function and then an effective strip width based on which density estimates are computed. Transects are positioned across the whole Conservancy in a North-South orientation. A sampling frame consisting of 37 cells of 3km x 3km is overlaid on the Conservancy and each cells are crossed by 2 parallel transects of 3km long positioned 1.5 km apart.

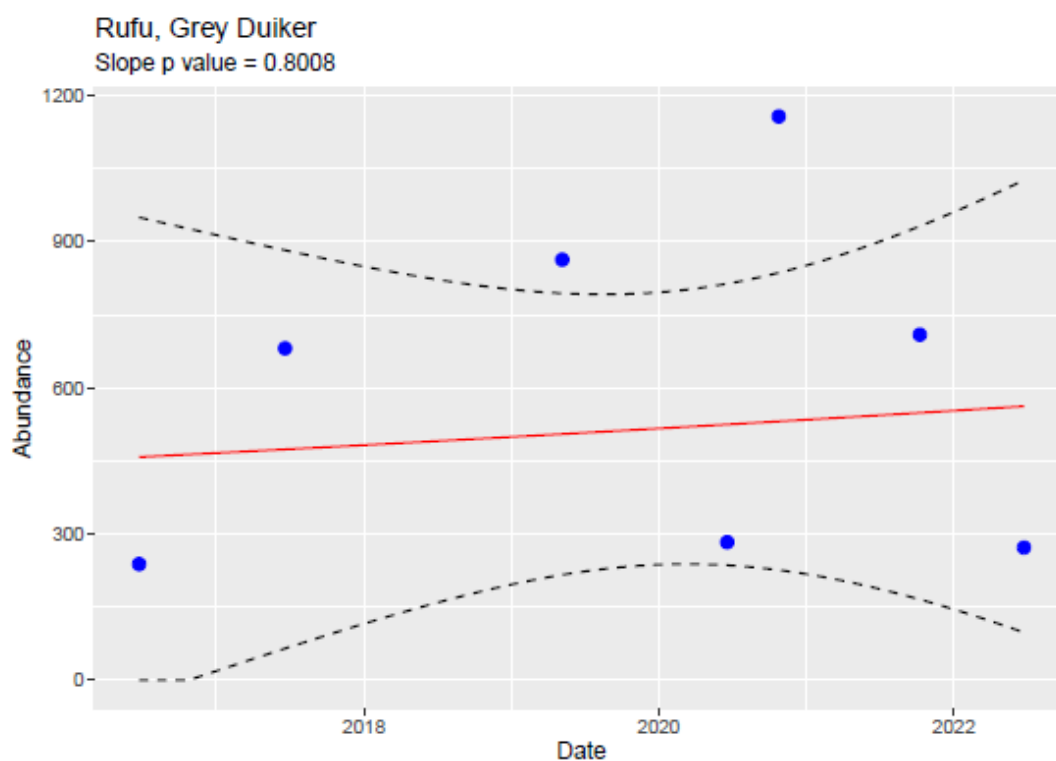
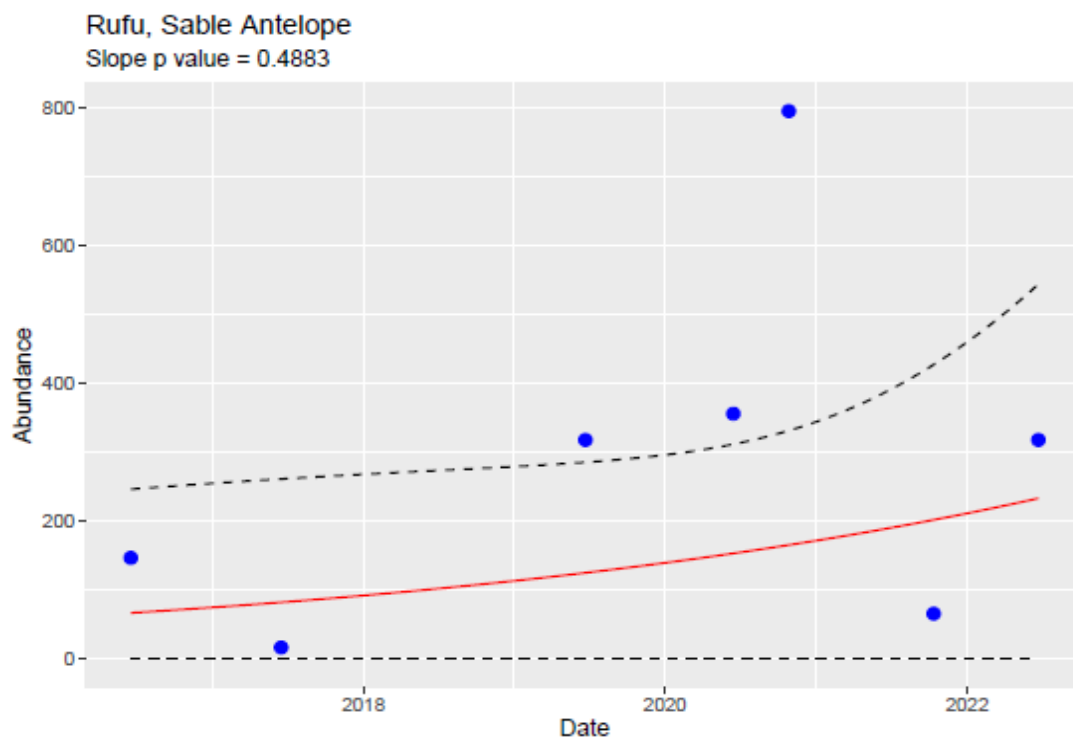
This results in a total of 74 transects for a total length of 222 km. One survey is planned per year, during the dry season, between June and October-November.

Additionally, a total of fifty-six (56) camera traps were also deployed across the conservancy in 2020 and 2021, on the same grid based system then the Line Transects, for a period of two to three months. The camera trap surveys are repeated annually to support the data from transect surveys and are particularly valuable for capturing the presence of locally rare, nocturnal and elusive species. It enables as well to compute patch occupancy analysis which provides information on population trends.

Finally, to complement the Line Transect survey and camera trap arrays, wildlife is monitored on a daily basis by the scouts patrolling the conservancy.

The graphs hereunder (Figure 5 A-E) are showing the trends in abundance estimates derived from the transect surveys since 2016 for the animal species showing positive trends.





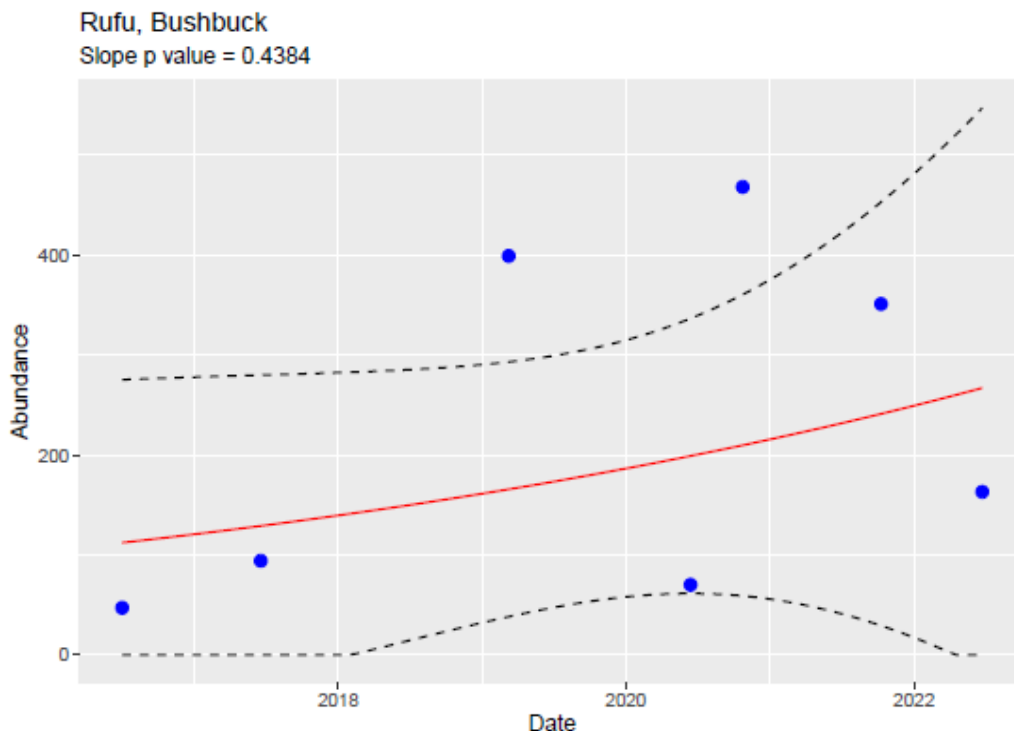


Figure 5. Trends in abundance in the Rufunsa conservancy for the period 2016-2022 as assessed by line transect distance sampling, for A) greater kudu (*Tragelaphus strepsiceros*), B) roan antelope (*Hippotragus equinus*), C) sable antelope (*Hippotragus niger*), D) common duiker (*Sylvicapra grimmia*), & E) bushbuck (*Tragelaphus scriptus*). The blue dots represent the abundance estimates of each individual survey, whereas the red line indicates the average abundance and the dotted lines the associated upper and lower limits of the 90% confidence interval. The slope p-value at the top left indicates if the trend is statistically different from zero (i.e. stable population), with significant level set at $p < 0.10$. In this case, the upward trend is not significant.

The population of the Southern Ground-hornbill, listed as Vulnerable on the IUCN Red List of Threatened Species, is monitored through acoustic surveys, where the morning calls are being recorded by field teams at specific locations within the Conservancy. This survey is conducted a couple of times per year since 2021 and informs on the distribution and number of groups of Southern Ground-hornbill present within the Conservancy.

Just like in the previous monitoring period, The Line Transect Distance Sampling survey was conducted in the current monitoring period. The survey took place between July 7th and September 17th. The survey effort consisted of 28 grid cells containing 2 parallel transects of 3km long each, for a total effort of 168 km of transect length and 56 sampling units. During the survey, 41 independent observations belonging to 08 species were made (see report in Appendix J).

Camera Trap survey

Twenty-eight (28) camera traps were deployed in May-June 2024 and remained active until November 2024, with the core survey period expanding from June 15th to September 15th, resulting in a survey effort of 2,576 camera trap days. The data are still being processed but at this stage of processing of species have been captured, including lions for the third consecutive year.

Southern Ground-hornbill monitoring

A system has been developed to identify different family groups of this high conservation value, territorial bird species which is considered a trigger species under the CCB Standards. This system combines data from call sound surveys conducted during the nesting season and live sighting data, including demographic breakdowns of the groups, recorded by community scouts and monitoring teams using SMART (Spatial Monitoring and Reporting Tool) during formal surveys and general patrols. In 2020, the focus was on collecting live sighting data and training field teams to use the SMART system and correctly identify males, females and juveniles.

In 2021, implementation of the call sound survey technique of southern ground-hornbill monitoring started. The survey involves deployment of team members at the post locations before the sunrise to listen to the avifauna until 07:00, trying to detect the characteristic territorial calls of Southern Ground-Hornbill groups. A pilot survey took place in the second quarter of 2021 and the actual survey started in December 2021 and was repeated in January 2022. The time of the survey coincides purposefully with the start of the breeding season (December-March) where the groups are calling every morning from the nest sites. In the late dry season 2022, the survey was repeated despite falling outside the breeding season. This served as a pilot study for the implementation of a new method enabling to infer abundance estimates from repeated occupancy-based surveys (method of Royle and Nichols), and for which heterogeneity in detection probability is an important modeling consideration.

During 2022, a People and Perception Social Survey was carried out in the villages surrounding the northern boundary of the Rufunsa Conservancy. The survey consisted of administering a questionnaire elaborated by one of BCP partner, the Mabula Ground-Hornbill Project, aiming at describing the level of understanding of the southern ground-hornbill biology, ecology and conservation status by the local communities, as well as identifying the cultural and socio-economic values of the bird for the communities. The questionnaire was followed by the presentation of outreach and sensitization material.

Two acoustic surveys of the Southern Ground-hornbill have been conducted in 2023, in January and May. During these two surveys, the morning calls were detected from all points sampled

During the current monitoring period (M12), 28 acoustic recording devices were deployed in late October to cover a sampling period starting on November 1st and ending on November 30th 2024. Daily recording schedules were set to 4:30 to 6:30 AM and 5:00 to 7:00 PM. It results in 7,200 hours of recording. (see Appendix J for supporting documentation). These will be pre-processed by the software Kaleidoscope which analyzes acoustic characteristics of the sound waves, such as frequency, amplitude, and temporal patterns. It uses these parameters to classify and cluster similar sounds, effectively grouping vocalizations that share distinctive features. The software can then compare these grouped sounds to a reference database of known bird vocalizations to suggest potential species matches. The final classification will then be verified by a local expert consultant.

Aerial Resource Protection Surveys

BCP's Airwing department periodically flies over the Conservancy and collects data on wildlife observations and illegal activities using BackCountry Navigator, SMART, and Smart Collect applications. Figure 6 below shows one of the aerial flight that was conducted during the current monitoring period (M12).

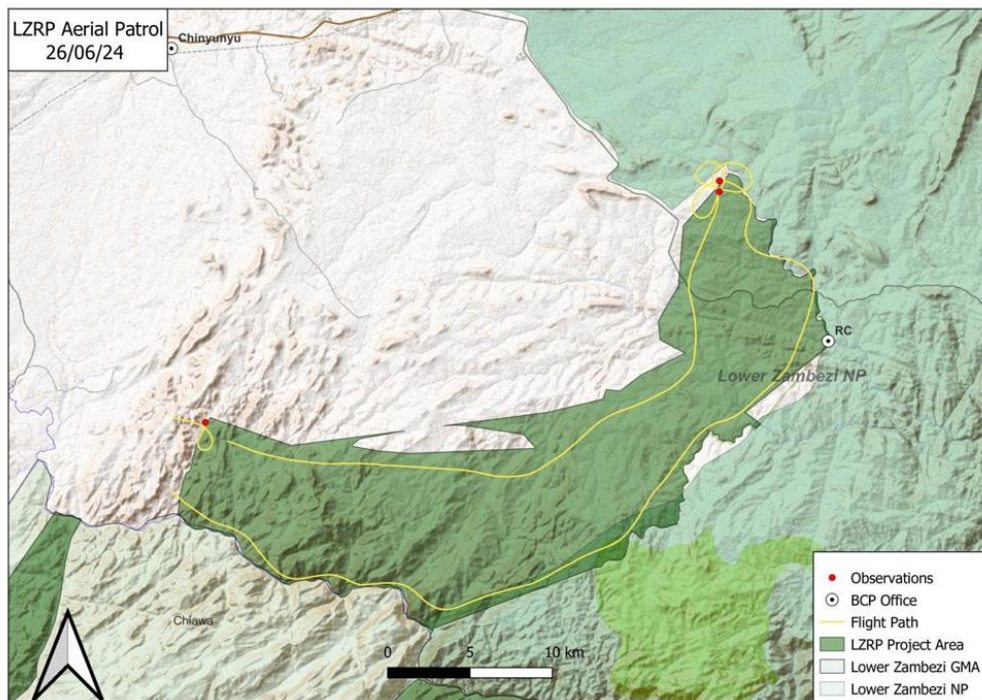


Figure 6. Air wing flight (26-06-24) across the LZRPA project area

Fire Management/Impact Monitoring

BCP uses a Belt transect monitoring system to monitor the impact of fire on tree population. Forty belt transects of 100x2m have been set up and get regularly enumerated. All live trees are tagged and will be monitored over time. However, this was not monitored in 2024. Fire hotspots from the Visible Infrared Imaging Radiometer Suite (VIIRS) were downloaded monthly showing fire hotspots for the months of August and October in the current monitoring period (M12) (See Appendix J for fire ignitions map).

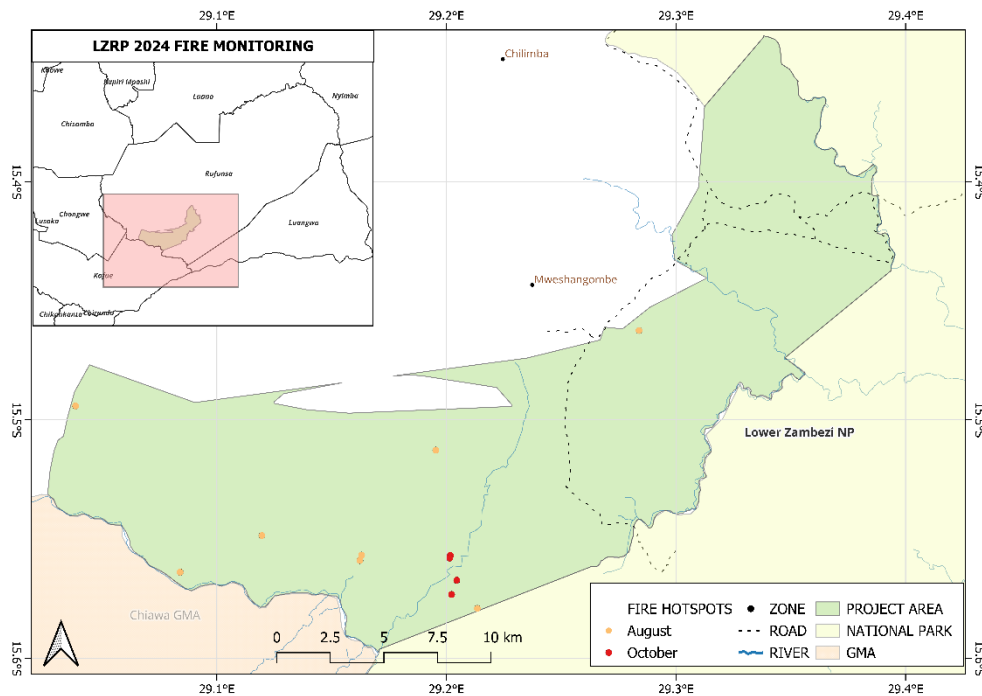


Figure 7. Distribution of fire hotspots detected between August and October 2024 (source: MODIS Visible Infrared Imaging Radiometer Suite (VIIRS))

3.2 Deviations

3.2.1 Methodology Deviations

MR.97

As in M8, there was a minor deviation of the visual approach for leakage monitoring (Appendix F, VM0009). Instead of Forest Inventory Team members estimating degradation, they were required to geo-reference every felled tree in the permanent plots and the total number of felled trees were compared against the average density of trees/ha in the project accounting area, again avoiding biased estimations/erroneous counting of trees in 1 ha plots. This value was then placed in a degradation category as per VM0009. This approach removed all potential bias and greatly improves the robustness and repeatability of degradation monitoring. This deviation does not affect the conservativeness of any emissions reductions as it is in fact an improvement of the prescribed procedure and removes observer bias that could result in degradation in the leakage area being underestimated.

There was also a minor variation with regards to the monitoring of disturbances. VM0009 requires that disturbances in the project area must be monitored in plots. The very low density of disturbances experienced in the LZRP are not captured by plots. Therefore, when disturbances are detected by other means, their size is directly measured using ground surveys. Additionally, cloud-free Sentinel-2 imagery from April-May, 2023 in comparison to April-May, 2021 were used to check for potential encroachment. The imagery was obtained from Google Earth Engine, exported to Google Cloud as map tiles (script provided to VVB), and then opened in QGIS where imagery from different years was compared to identify changes. No encroachment was detected for the current monitoring period.

The accuracy assessment process was not specifically described in the PD for project emissions deforestation analysis (manual digitalization of deforested areas). However, analysis has been included in this MR and would be incorporated into the PD at the next baseline re-evaluation.

This methodology deviation does not affect the conservativeness of emissions reductions. It is an improvement as a minor disturbance would have unlikely been captured during routine monitoring with plots and the manner in which a disturbance would be quantified by this approach is much more accurate than what could be achieved with fixed plots.

Neither of these deviations relate to any other part of the methodology except for monitoring and measuring of activity shifting leakage and disturbances in the project area.

The project uses two different allometric equations to estimate above-ground biomass. One was developed from data provided by Prof. Chidumayo from Zambian Miombo (see Appendix C) and was tested on trees up to 55 cm DBH. It is used to estimate the biomass

of trees up to 63 cm dbh, with the biomass of trees between 55 cm and 63 cm dbh assumed to be equal to a 55 cm dbh tree. Then, a second equation developed by Mugasha et al. in Tanzanian Miombo (see Appendix C) is used to estimate the biomass of trees between 63 cm dbh and 110 cm dbh with trees with a greater than 110 cm dbh assumed to have biomass equal to a 110 cm dbh tree. This parsing is necessary because the methodology requires that the directly measured biomass of the largest tree in the representative sample of destructively harvested trees be greater than the biomass predicted by the equation and that the value of the first-order derivative of the largest tree in the representative sample and inventory not differ by more than 10%. The first selected allometric equation does under predict the biomass of the largest tree in the representative sample, but the difference of the first-order derivative values was greater than 10%. The second allometric equation doesn't pass the first test (it slightly over predicts the biomass of the largest tree in the sample). However, compared to the Zambian equation, it predicts lower biomass for every size tree. Therefore, the equations were applied as described above to enable the project to make an estimate of the biomass of larger trees that fell outside the range of the size of trees used to develop the equations. Less than 1 % of the trees in the inventory had a dbh between 55 cm and 110 cm or above 110 cm. Applying the equations in this way is conservative and erases the possibility of the equation over predicting biomass of trees outside the size classes for which it was tested. This deviation only relates to how biomass is measured for monitoring purposes and doesn't affect any other part of the methodology. It results in a more conservative estimate of biomass and emissions savings. Therefore, it meets the criteria for an acceptable methodological deviation.

3.2.2 Project Description Deviations

In the current monitoring period, there were the following project description deviations regarding Other Entities Involved in the Project.

1. The name of the one of other entities Involved in the Project changed from BCP-Trust which is in the PD to Legacy Forests. This is just a name change. The entity remains the same. This name change happened in 2021.
2. Inclusion of 1 new entity to support project implementation, that was initially not in the project design i.e. Nature Nectar – This stems from the project's need to scale up our beekeeping activity and effectively link our beekeepers to market. Nature's Nectar involvement is in the implementation of our beekeeping activities i.e. Provision of beehives to our farmers, training and provision of market for the honey harvested. The partnership was signed in 2021.
3. The project did not explicitly include any project risks related working condition in the validated PD. This risk has explicitly been included in section 2.2 of this monitoring report and will be incorporated in the PD at the next baseline revaluation.

4. The validated PD does not explicitly identify any adverse effect from introduced species because the project in itself does not introduce species in the Project Area. However as far as livelihood project implementation is concerned, the project does introduce species under climate smart agriculture in the project zone, therefore the project has in the current monitoring period introduced a PD deviation related to adverse effects of introduced species in the project zone. Section 2.4.2 of the MR has a table of introduced species in the project zone and their adverse effects.

5. The biomass and proxy monitoring plan follows a 20% annual rotation, meaning the forest inventory dataset is updated every five years. The last update was completed in M8, with the next scheduled for M13 (the next monitoring period). However, due to an error identified in one of the proxy plots, the project has conservatively updated the forest inventory dataset with the corrected Rusp090 proxy plot data during the current monitoring period—one year ahead of schedule

3.3 Grouped Projects

This is not a grouped project.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	α
Data unit	Unitless
Description	Combined effects of β and θ at the start of the historic reference period, updated every 10 years after project start date, see appendix I
Source of data	Reference area and historic reference period
Value applied	1.484
Justification of choice of data or description of measurement	Time and place in which the logistic model is fit. BioCarbon Partners Carbon Accounting department. Analysis undertaken in 2020.

methods and procedures applied	
Purpose of data	Calculation of baseline emissions
Comments	Is one of the results of applying the cumulative deforestation model but is not used in baseline type U3 as it is replaced with <i>ru</i>

Data / Parameter	β
Data unit	Unitless
Description	Effect of time on the cumulative proportion of deforestation over time, updated every 10 years after project start date, see appendix I
Source of data	Reference area and historic reference period
Value applied	0.000371
Justification of choice of data or description of measurement methods and procedures applied	Time and place in which the logistic model is fit. BioCarbon Partners Carbon Accounting department. Analysis undertaken in 2020.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	γ
Data unit	Days
Description	Time shift from beginning of historic reference period to project start date
Source of data	Historic reference period
Value applied	10,957
Justification of choice of data or description of measurement methods and procedures applied	Time and place in which the logistic model is fit. BioCarbon Partners Carbon Accounting department. Analysis undertaken in 2013
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	λ_{soc}
Data unit	proportion (unitless)
Description	Exponential soil carbon decay parameter
Source of data	VCS AFOLU default for tropical regions
Value applied	0.2
Justification of choice of data or description of measurement methods and procedures applied	Conservative default based on IPCC value.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	$\hat{\sigma}_{EM}$
Data unit	standard deviation (unitless)
Description	The estimated standard deviation of the state observations used to fit the logistic function
Source of data	Remote sensing image interpretation
Value applied	0.4978
Justification of choice of data or description of measurement methods and procedures applied	Time and place in which the logistic model is fit. BioCarbon Partners Carbon Accounting department. Analysis undertaken in 2020.
Purpose of data	Calculation of baseline emissions
Comments	standard deviation (unitless)

Data / Parameter	$\mathcal{B}$
Data unit	Set
Description	The set of all selected carbon pools in biomass. Is a subset of
Source of data	PDD
Value applied	2
Justification of choice of data or description of measurement	The project accounts for AGOT and BGOT. All other biomass pools are conservatively excluded and were found to be insignificant. AGMT and BGMT pools are not applicable to the

methods and procedures applied	project as there are no commercially valuable timber trees that occur in the accounting area.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	
Data unit	Set
Description	The set of all selected carbon pools
Source of data	Monitoring records
Value applied	3
Justification of choice of data or description of measurement methods and procedures applied	The project accounts for AGOT, BGOT and SOC. All other pools are optional, were found to be insignificant and have been conservatively excluded.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	
Data unit	Set
Description	The set of all observations of conversion. When superscripted with a monitoring period, the conversion observations are taken for leakage analysis.
Source of data	Remote sensing image interpretation or field observations in the reference area.
Value applied	28,582
Justification of choice of data or description of measurement methods and procedures applied	VM0009, v3.0 section 6.6 onwards. The number of observations of forest state in the reference area were originally quantified as 3120 but some points were removed due to complications with forest state interpretation or non-forest at start of historic reference period.
Purpose of data	Calculation of baseline emissions
Comments	Value was 15,600 in the initial baseline evaluation, and updated to 28,582 at the 10 years baseline reevaluation (Appendix I)

Data / Parameter	M
Data unit	Set
Description	The set of all monitoring periods
Source of data	Monitoring records
Value applied	27
Justification of choice of data or description of measurement methods and procedures applied	There will be 27 monitoring events over the project crediting period of 30 years. The project proponent has decided on annual monitoring
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	A_{PAA}
Data unit	Ha
Description	Area of Project Accounting Area
Source of data	GIS analysis prior to sampling
Value applied	33,338
Justification of choice of data or description of measurement methods and procedures applied	See GIS data in Appendix H. BioCarbon Partners, Carbon Accounting Department. Data used to generate this value include the title deed, GIS layers, several tiles from the ASTER Global Digital Elevation Model, Land cover classification undertaken using Landsat imagery - 2013 - Appendix H
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	A_{PX}
Data unit	Ha
Description	Area of proxy area
Source of data	GIS analysis and participatory rural appraisal prior to sampling
Value applied	42,794

Justification of choice of data or description of measurement methods and procedures applied	GIS layers and expert knowledge - BioCarbon Partners Carbon Accounting department - 2013 - Appendix H
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	A_{AS}
Data unit	Ha
Description	Area of activity-shifting leakage area
Source of data	GIS analysis
Value applied	27,805
Justification of choice of data or description of measurement methods and procedures applied	GIS layers and expert knowledge - BioCarbon Partners Carbon Accounting department - 2013 - Appendix H. Fulfils criteria stipulated in VM0009.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	n_d
Data unit	Set
Description	Number of spatial points in the reference area
Source of data	Remote sensing image interpretation
Value applied	2,582
Justification of choice of data or description of measurement methods and procedures applied	Number of points defined as per the methodology VM0009 to adequately quantify forest state in the reference area - BioCarbon Partners Carbon Accounting department - 2019 - Appendix H
Purpose of data	Calculation of baseline emissions
Comments	The points were 2,600 in 2013 but 18 were eliminated during the 2019 baseline reevaluation (Appendix I) due to cloud cover.

Data / Parameter	α_i
Data unit	Binary
Description	State observation for the i^{th} sample point in the reference area
Source of data	Cumulative Deforestation Model - BioCarbon Partners Carbon Accounting Department - 2019 - Appendix H
Value applied	0 or 1
Justification of choice of data or description of measurement methods and procedures applied	Data collected as per the methodology.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	p_{LME}
Data unit	Proportion (unitless)
Description	Portion of leakage related to market effects
Source of data	Leakage monitoring data - See Appendix C and Appendix F
Value applied	0
Justification of choice of data or description of measurement methods and procedures applied	Market effect and activity shifting leakage are the same as the same agents are clearing forest for commodities and for agricultural purposes. They are not separate entities as is often the case in planned deforestation scenarios.
Purpose of data	Calculation of leakage
Comments	

Data / Parameter	q
Data unit	Days
Description	Lag between start of degradation and deforestation
Source of data	Consultation with local agents of deforestation – 28 farmers were questioned to determine how long they usually wait after clearing an area before ploughing it.
Value applied	620

Justification of choice of data or description of measurement methods and procedures applied	Based on observations in the reference area, hence applicable to the project area.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	r_{RS}
Data unit	Unitless
Description	Expansion factor for above-ground biomass to below-ground biomass (root/shoot ratio)
Source of data	Chidumayo, E. N. 2013. Estimating tree biomass and changes in root biomass following clear-cutting of Brachystegia-Julbernardia (miombo) woodland in central Zambia. Environmental Conservation. 42(1), pp. 54 - 63.
Value applied	0.54
Justification of choice of data or description of measurement methods and procedures applied	The root-shoot ratio was determined within a study site that overlaps the project reference area. See Appendix E for more information including documentation pertaining to measurements and procedures that were applied. In addition, the justification for the use of the shoot to root (RS) ratio of 0.54 in the project is supported by the following. Local Applicability: The RS ratio of 0.54 was derived by Chidumayo (2014) specifically for Miombo woodlands in the Chongwe district, Zambia, which is geographically overlaps with the projects reference area. This proximity means similar ecological conditions and disturbances, aligning with the scientific principle of using local models for accuracy in biomass estimation. Conservative Estimation: Chidumayo's study adopted a conservative approach by using pit samples and excluding finer root material, which tends to underestimate belowground biomass. This conservatism ensures that the ratio is not inflated and remains a reliable minimum estimate. Independent Validation: Kachamba et al. (2016) evaluated various allometric models and found that Chidumayo's models had non-significant mean prediction errors, indicating their robustness and accuracy across different Miombo sites.

	Model Safeguards: The LZRP applies different models for trees with stem diameters over 55 cm, ensuring the RS ratio is not misapplied to larger trees, which could lead to overestimations. Comparison with Other Studies: While other studies in Miombo woodlands have reported different RS ratios, the Chidumayo (2014) ratio of 0.54 is the most locally relevant and conservatively derived, making it the most suitable for the LZRP project's specific conditions.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	r_U
Data unit	Unitless
Description	Onset proportion of deforestation immediately adjacent to project area
Source of data	GIS analysis and image interpretation
Value applied	0.126
Justification of choice of data or description of measurement methods and procedures applied	Positions the baseline emissions models relative to the instantaneous rate of deforestation. Measurement was undertaken using GIS analyses described elsewhere in the document. BCP Carbon Accounting Department - 2013 - Appendix H
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	t
Data unit	Days
Description	Time since project start date
Source of data	Calendar
Value applied	5,205
Justification of choice of data or description of measurement methods and procedures applied	Project start date is 1 October 2009 and the current monitoring period ended on the 31st December 2024.
Purpose of data	Calculation of project emissions

Comments	
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Data / Parameter	t_i
Data unit	Days
Description	The point in time of the observation made at point
Source of data	Remote sensing image interpretation
Value applied	1 – 12,698
Justification of choice of data or description of measurement methods and procedures applied	The initial historic reference period stretched from 1984 to 2009, the reference period was then extend to 2019 during the 10 years baseline reevaluation (Appendix I), thus dates of the first and last images are now 1984-06-29 and 2019-04-05, the time span is thus 12, 698 days in total.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	t_{PL}
Data unit	Days
Description	Length of project crediting period
Source of data	PDD
Value applied	10,957
Justification of choice of data or description of measurement methods and procedures applied	The project crediting period stretches from 1 October 2009 to 30 September 2039. This complies with the minimum project lifespan of AFOLU projects as stipulated by the VCS.
Purpose of data	Calculation of baseline emissions
Comments	

Data / Parameter	w_i
Data unit	Unitless
Description	weight applied to the i^{th} sample point in the reference area
Source of data	Remote sensing image interpretation based on 11 time steps in the historic reference period which is related to availability of suitable imagery.
Value applied	0.000034965

Justification of choice of data or description of measurement methods and procedures applied	GIS layers and expert knowledge - BioCarbon Partners Carbon Accounting department - Appendix H. Calculated as specified in VM0009.
Purpose of data	Calculation of baseline emissions
Comments	Initially 6 time steps, increased to 11 at the 10 years baseline reevaluation

4.2 Data and Parameters Monitored

Data / Parameter	$A_{P1}^{[m=0]}$
Data unit	Ha
Description	Area of project accounting area stratum 1 prior to first verification event
Source of data	GIS analysis prior to sampling
Description of measurement methods and procedures to be applied	Supervised land cover classification employing the Support Vector Machine algorithm (Landsat 5 TM Image). Classification accuracy was 76.84% with a kappa value of 0.745
Frequency of monitoring/recording	First monitoring period / 10 years
Value monitored	27,322
Monitoring equipment	Landsat TM satellite
QA/QC procedures to be applied	Classification accuracy using training and validation data. Classification error matrix
Purpose of the data	Calculation of baseline emissions
Calculation method	GIS area calculation
Comments	

Data / Parameter	$A_{P2}^{[m=0]}$
Data unit	Ha

Description	Area of project accounting area stratum 2 prior to first verification event
Source of data	GIS analysis prior to sampling
Description of measurement methods and procedures to be applied	Supervised land cover classification employing the Support Vector Machine algorithm (Landsat 5 TM Image). Classification accuracy was 76.84% with a kappa value of 0.745
Frequency of monitoring/recording	First monitoring period / 10 years
Value monitored	6,016
Monitoring equipment	Landsat TM satellite
QA/QC procedures to be applied	Classification accuracy using training and validation data. Classification error matrix
Purpose of the data	Calculation of baseline emissions
Calculation method	GIS area calculation
Comments	

Data / Parameter	$C_B^{[m]}$
Data unit	tCO2e/ha
Description	Baseline carbon stocks at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	Proxy area sampling as per the protocol Appendix E.
Frequency of monitoring/recording	20% of plots measured annually.
Value monitored	10.6
Monitoring equipment	See Appendix E. Standard vegetation quantification equipment.
QA/QC procedures to be applied	See Appendix E and description in monitoring report.

Purpose of the data	Calculation of baseline emissions
Calculation method	Using standard vegetation ecology plot sampling techniques and subsequent quantification of biomass using allometric equations.
Comments	The value was updated in the current monitoring , a year before the 5-year scheduled updates of the carbon stock dataset. See Appendix C.

Data / Parameter	$C_{B\ BGB}^{[m]}$
Data unit	tCO ₂ e
Description	Carbon not decayed in BGB at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	Ongoing forest monitoring as per Appendix E
Frequency of monitoring/recording	Every monitoring period
Value monitored	1
Monitoring equipment	See Appendix E
QA/QC procedures to be applied	See Appendix E
Purpose of the data	Calculation of baseline emissions
Calculation method	Applied equation F.29 in VM0009, v3.0
Comments	

Data / Parameter	$C_{B\ SOC}^{[m]}$
Data unit	tCO ₂ e
Description	Carbon not decayed in SOC at the end of the current monitoring period
Source of data	Proxy area sampling

Description of measurement methods and procedures to be applied	Proxy area sampling as per the protocol in Appendix E and application of equation F.32, VM0009, v3.0
Frequency of monitoring/recording	Fixed once off sampling, monitored every monitoring period
Value monitored	-490,235
Monitoring equipment	See Appendix E standard soil sampling procedures and equipment.
QA/QC procedures to be applied	See Appendix E. The soils were analysed at a reputable laboratory – The Institute of Soil, Water and Climate in South Africa.
Purpose of the data	Calculation of baseline emissions
Calculation method	Application of equation F.32 VM0009, v3.0 using SOC values
Comments	

Data / Parameter	$C_{Bb}^{[m]}$
Data unit	tCO ₂ e / ha
Description	Baseline scenario average carbon stock in selected carbon pools
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	Proxy area sampling as per the protocol in Appendix E
Frequency of monitoring/recording	Every time measured (≤ 5 yrs)
Value monitored	10.6
Monitoring equipment	See Appendix E
QA/QC procedures to be applied	Review of monitoring records and re-sampling of 20% of plots
Purpose of the data	Calculation of baseline emissions

Calculation method	Using standard vegetation ecology plot sampling techniques and subsequent quantification of biomass using allometric equations.
Comments	The value was updated in the current monitoring , a year before the 5-year scheduled updates of the carbon stock dataset. See Appendix C.

Data / Parameter	$C_{B\ BM}^{[m]}$
Data unit	tCO ₂ e / ha
Description	Baseline carbon stocks in biomass at the end of the current monitoring period
Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	Proxy area sampling as per the protocol in Appendix E
Frequency of monitoring/recording	At first verification and baseline revision
Value monitored	10.6
Monitoring equipment	See Appendix E
QA/QC procedures to be applied	Review of monitoring records as described in Appendix E and re-sampling of 20% of plots
Purpose of the data	Calculation of baseline emissions
Calculation method	Using standard vegetation ecology plot sampling techniques and subsequent quantification of biomass using allometric equations. Averages calculated as per equation B.9 VM0009, v3.0
Comments	The value was updated in the current monitoring , a year before the 5-year scheduled updates of the carbon stock dataset. See Appendix C.

Data / Parameter	$C_{B\ SOC}^{[m]}$
Data unit	tCO ₂ e / ha
Description	Baseline soil carbon stocks at the end of the current monitoring period

Source of data	Proxy area sampling
Description of measurement methods and procedures to be applied	Proxy area sampling as per the protocol in Appendix E
Frequency of monitoring/recording	Once off measurement as per VM0009, v3.0
Value monitored	131.7
Monitoring equipment	See Appendix E, standard soil sampling equipment
QA/QC procedures to be applied	Review of monitoring records at next baseline re-evaluation
Purpose of the data	Calculation of baseline emissions
Calculation method	Quantification of SOC done according to Annex B, VM0009, v3.0
Comments	

Data / Parameter	$C_P^{[m]}$
Data unit	tCO ₂ e / ha
Description	Project carbon stocks at the end of the current monitoring period
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	Appendix E describes the plot based monitoring procedure.
Frequency of monitoring/recording	20% of plots monitored annually. Inventory revised during this monitoring period.
Value monitored	179.5 Dense Tree Stratum, 168.4 Light Tree Stratum
Monitoring equipment	See Appendix E, standard vegetation sampling equipment
QA/QC procedures to be applied	Review of monitoring records, see Appendix C.
Purpose of the data	Calculation of baseline emissions

Calculation method	Standard plot sampling techniques to quantify vegetation and application of allometric equations. Averages calculated using equation B.9 VM0009, v3.0
Comments	See Appendix C.

Data / Parameter	$C_P^{[m-1]}$
Data unit	tCO ₂ e / ha
Description	Project carbon stocks at the beginning of the current monitoring period
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	See Appendix E, standard vegetation sampling equipment.
Frequency of monitoring/recording	Prior monitoring period
Value monitored	179.5 Dense Tree Stratum, 168.4 Light Tree Stratum
Monitoring equipment	Review of monitoring records, see Appendix C.
QA/QC procedures to be applied	Review of monitoring records, re-sampling of 20% of plots
Purpose of the data	Calculation of baseline emissions
Calculation method	Standard plot sampling techniques to quantify vegetation and application of allometric equations. Averages calculated using equation B.9 VM0009, v3.0
Comments	

Data / Parameter	$C_P^{[m=0]}$
Data unit	tCO ₂ e / ha
Description	Project carbon stocks prior to first verification event
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	Appendix E describes the plot based monitoring procedure.

Frequency of monitoring/recording	First monitoring period
Value monitored	233.8 Dense Tree Stratum, 225 Light Tree Stratum
Monitoring equipment	See Appendix E, standard vegetation sampling equipment
QA/QC procedures to be applied	Review of monitoring records, see Appendix C.
Purpose of the data	Calculation of baseline emissions
Calculation method	Standard plot sampling techniques to quantify vegetation and application of allometric equations. Averages calculated using equation B.9 VM0009, v3.0
Comments	

Data / Parameter	$C_{P1BM}^{[m=0]}$
Data unit	tCO ₂ e / ha
Description	Project carbon stocks in stratum 1 prior to first verification event
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	Appendix E describes the plot based monitoring procedure.
Frequency of monitoring/recording	First monitoring period
Value monitored	225
Monitoring equipment	See Appendix E, standard vegetation sampling equipment
QA/QC procedures to be applied	Review of monitoring records, see Appendix C.
Purpose of the data	Calculation of baseline emissions
Calculation method	Standard plot sampling techniques to quantify vegetation and application of allometric equations. Averages calculated using equation B.9 VM0009, v3.0
Comments	$C_{P1BM}^{[m=0]}$

Data / Parameter	$C_{P2BM}^{[m=0]}$
Data unit	tCO ₂ e / ha
Description	Project carbon stocks in stratum 2 prior to first verification event
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	Appendix E describes the plot based monitoring procedure.
Frequency of monitoring/recording	First monitoring period
Value monitored	233.8
Monitoring equipment	See Appendix E, standard vegetation sampling equipment
QA/QC procedures to be applied	Review of monitoring records, see Appendix C.
Purpose of the data	Calculation of baseline emissions
Calculation method	Standard plot sampling techniques to quantify vegetation and application of allometric equations. Averages calculated using equation B.9 VM0009, v3.0
Comments	

Data / Parameter	$C_{PBM}^{[m=0]}$
Data unit	tCO ₂ e
Description	Project carbon stocks in biomass prior to first verification event
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	Appendix E describes the plot based monitoring procedure.
Frequency of monitoring/recording	First monitoring period
Value monitored	7,554,258
Monitoring equipment	See Appendix E, standard vegetation sampling equipment

QA/QC procedures to be applied	Review of monitoring records, see Appendix C
Purpose of the data	Calculation of baseline emissions
Calculation method	Standard plot sampling techniques to quantify vegetation and application of allometric equations. Averages calculated using equation B.9 VM0009, v3.0.
Comments	

Data / Parameter	$C_{Pb}^{[m]}$
Data unit	tCO ₂ e / ha
Description	Average carbon in biomass in the project accounting area
Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	Appendix E describes the plot based monitoring procedure.
Frequency of monitoring/recording	20% of all plots sampled annually, revised in 3rd monitoring period
Value monitored	168.4 in Stratum 1 and 179.5 in Stratum 2
Monitoring equipment	See Appendix E, standard vegetation sampling equipment
QA/QC procedures to be applied	Review of monitoring records, see Appendix C and Appendix E
Purpose of the data	Calculation of baseline emissions
Calculation method	Standard plot sampling techniques to quantify vegetation and application of allometric equations. Averages calculated using 1equation B.9 VM0009, v3.0 multiplied by area of each stratum.
Comments	The value was updated in the current monitoring report after completion of the 5-years carbon stocks inventory cycle. See Appendix C.

Data / Parameter	$C_{P\text{SOC}}^{[m=0]}$
Data unit	tCO ₂ e / ha
Description	Project soil carbon stocks prior to first verification event

Source of data	Project accounting area sampling
Description of measurement methods and procedures to be applied	See Appendix E
Frequency of monitoring/recording	First monitoring period
Value monitored	192.6
Monitoring equipment	See Appendix E, standard soil sampling equipment
QA/QC procedures to be applied	Soil analysed at a reputable laboratory – Institute for Soil, Water and Climate in South Africa.
Purpose of the data	Calculation of baseline emissions.
Calculation method	Standard soil sampling techniques. Averages calculated using equation B.9 VM0009, v3.0
Comments	

Data / Parameter	$E_{\Delta GER}^{[m]}$
Data unit	tCO ₂ e
Description	GERs for the current monitoring period
Source of data	Area measurements
Description of measurement methods and procedures to be applied	See Appendix E
Frequency of monitoring/recording	Every monitoring period
Value monitored	243,495
Monitoring equipment	See Appendix E, standard plot sampling equipment
QA/QC procedures to be applied	Review of GER calculations
Purpose of the data	Calculation of project emissions
Calculation method	Calculated with equation F.53 as per section 8.4.1 of VM0009, v3.0.

Comments	
Data / Parameter	$E_{\Delta GER}^{[i]}$
Data unit	tCO2e
Description	GERs for monitoring period
Source of data	Area measurements
Description of measurement methods and procedures to be applied	Accounting area plots monitoring as per Appendix E.
Frequency of monitoring/recording	Every monitoring period
Value monitored	2,641,747
Monitoring equipment	See Appendix E, standard plot sampling equipment
QA/QC procedures to be applied	Review of GER calculations
Purpose of the data	Calculation of baseline emissions
Calculation method	Calculated with equation F.53 as per section 8.4.1 of VM0009, v3.0.
Comments	

Data / Parameter	$E_{\Delta NER}^{[i]}$
Data unit	tCO2e
Description	NERs for monitoring period
Source of data	Area measurements
Description of measurement methods and procedures to be applied	Accounting area plots monitoring as per Appendix E
Frequency of monitoring/recording	Every monitoring period
Value monitored	2,297,696
Monitoring equipment	See Appendix E, standard plot sampling equipment

QA/QC procedures to be applied	Review of NER calculations and non-permanence risk assessment
Purpose of the data	Calculation of baseline emissions
Calculation method	Calculated with VCS AFOLU Non-Permanence Risk Tool and equation F.55 as per section 8.4.3 of VM0009, v3.0
Comments	

Data / Parameter	$E_B^{[m]}$
Data unit	tCO2e
Description	Cumulative baseline emissions at the end of the current monitoring period
Source of data	Proxy area measurements
Description of measurement methods and procedures to be applied	Proxy area plots monitoring as per Appendix E and equation F.16
Frequency of monitoring/recording	Every monitoring period - annually
Value monitored	2,661,149
Monitoring equipment	Standard vegetation and soil sampling equipment, see Appendix E
QA/QC procedures to be applied	Annual monitoring of proxy area, see Appendix E for error correction procedures.
Purpose of the data	Calculation of baseline emissions
Calculation method	Equation F.16 from VM0009, v3.0
Comments	

Data / Parameter	$E_B^{[m-1]}$
Data unit	tCO2e
Description	Cumulative baseline emissions at the beginning of the current monitoring period
Source of data	Proxy area measurements

Description of measurement methods and procedures to be applied	Proxy area plots monitoring as per Appendix E and equation F.16
Frequency of monitoring/recording	Prior monitoring period
Value monitored	2,416,974
Monitoring equipment	Standard vegetation and soil sampling equipment, see Appendix E
QA/QC procedures to be applied	Annual monitoring of proxy area, see Appendix E for error correction procedures.
Purpose of the data	Calculation of baseline emissions
Calculation method	Equation F.16 from VM0009, v3.0
Comments	

Data / Parameter	$E_{B\Delta}^{(m)}$
Data unit	tCO ₂ e
Description	Change in baseline emissions
Source of data	Proxy area measurements
Description of measurement methods and procedures to be applied	Proxy area plots monitoring as per Appendix E and equation F.15
Frequency of monitoring/recording	Every monitoring period - annually
Value monitored	244,175
Monitoring equipment	Standard vegetation and soil sampling equipment, see Appendix E
QA/QC procedures to be applied	Annual monitoring of proxy area, see Appendix E for error correction procedures.
Purpose of the data	Calculation of baseline emissions
Calculation method	Equation F.15 from VM0009, v3.0
Comments	

Data / Parameter	$E_{B\Delta BGB}^{[i]}$
Data unit	tCO2e
Description	Change in baseline emissions from below-ground biomass during monitoring period i
Source of data	Monitoring the proxy area
Description of measurement methods and procedures to be applied	See Appendix E
Frequency of monitoring/recording	Every monitoring period
Value monitored	808,656
Monitoring equipment	See Appendix E
QA/QC procedures to be applied	See Appendix E
Purpose of the data	Calculation of baseline emissions
Calculation method	Calculation of above ground biomass using standard vegetation sampling techniques and application of an acceptable root: shoot ratio and application of equation F.29 of VM0009, v3.0, the decay emissions model
Comments	

Data / Parameter	$E_{B\Delta SOC}^{[m]}$
Data unit	tCO2e
Description	Baseline change in emissions from soil carbon
Source of data	Measurement in the project area
Description of measurement methods and procedures to be applied	See Appendix E
Frequency of monitoring/recording	Once off measurement
Value monitored	78,407

Monitoring equipment	See Appendix E
QA/QC procedures to be applied	See Appendix E
Purpose of the data	Calculation of baseline emissions
Calculation method	Calculation of SOC using standard soil sampling techniques and application of equation F.26 of VM0009, v3.0, the SOC decay emissions model
Comments	

Data / Parameter	$E_{B\Delta SOC}^{[i]}$
Data unit	tCO ₂ e
Description	Baseline emissions from soil carbon in monitoring period i
Source of data	Measurement in the project area
Description of measurement methods and procedures to be applied	See Appendix E
Frequency of monitoring/recording	Once off measurement
Value monitored	845,215
Monitoring equipment	See Appendix E
QA/QC procedures to be applied	See Appendix E
Purpose of the data	Calculation of baseline emissions
Calculation method	Calculation of SOC using standard soil sampling techniques and application of equation F26 of VM0009, v3.0, the SOC decay emissions model
Comments	

Data / Parameter	$E_{BBGB}^{[m]}$
Data unit	tCO ₂ e
Description	Cumulative baseline emissions from below-ground biomass at the end of the current monitoring period

Source of data	Measurement in the proxy area
Description of measurement methods and procedures to be applied	Standard vegetation sampling techniques to quantify above ground biomass, application of a root-shoot ratio and a decay emissions model.
Frequency of monitoring/recording	Every monitoring period
Value monitored	808,656
Monitoring equipment	See Appendix E
QA/QC procedures to be applied	See Appendix E
Purpose of the data	Calculation of baseline emissions
Calculation method	Calculation of above ground biomass using standard vegetation sampling techniques and application of an acceptable root: shoot ratio and application of equation F.29 of VM0009, v3.0, the decay emissions model
Comments	

Data / Parameter	$E_{BBGB}^{[m-1]}$
Data unit	tCO ₂ e
Description	Cumulative baseline emissions from below-ground biomass at the beginning of the current monitoring period
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	Standard vegetation sampling techniques to quantify above ground biomass, application of a root-shoot ratio and a decay emissions model.
Frequency of monitoring/recording	Prior monitoring period
Value monitored	738,074
Monitoring equipment	See Appendix E
QA/QC procedures to be applied	See Appendix E

Purpose of the data	Calculation of baseline emissions
Calculation method	Calculation of above ground biomass using standard vegetation sampling techniques and application of an acceptable root: shoot ratio and application of equation F.29 of VM0009, v3.0, the decay emissions model
Comments	

Data / Parameter	$E_{BBM}^{[m]}$
Data unit	tCO2e
Description	Cumulative baseline emissions from biomass at the end of the current monitoring period
Source of data	Measurements in the proxy area
Description of measurement methods and procedures to be applied	See Appendix E
Frequency of monitoring/recording	Every monitoring period
Value monitored	2,306,169
Monitoring equipment	See Appendix E
QA/QC procedures to be applied	See Appendix E
Purpose of the data	Calculation of baseline emissions
Calculation method	Standard vegetation sampling techniques, quantification of deforestation in the reference area and application of equation F.4 and F.21, VM0009, v3.0
Comments	

Data / Parameter	$E_{BSOC}^{[m]}$
Data unit	tCO2e
Description	Cumulative baseline emissions from soil carbon at the end of the current monitoring period
Source of data	Measurements in the proxy area

Description of measurement methods and procedures to be applied	Standard soil sampling techniques in the proxy area, laboratory analysis and application of the soil decay model.
Frequency of monitoring/recording	Soil carbon is only quantified once at the first verification event as per VM0009.
Value monitored	845,215
Monitoring equipment	Standard soil sampling equipment, see Appendix E
QA/QC procedures to be applied	Soil analyzed at a reputable laboratory – Institute of Soil, Climate and Water in South Africa.
Purpose of the data	Calculation of baseline emissions
Calculation method	Quantification of soil carbon and application of equation F.7 and F.28, VM0009, v3.0
Comments	

Data / Parameter	$E_{BA}^{(m)}$
Data unit	tCO ₂ e
Description	Cumulative emissions allocated to the buffer account at the end of the current monitoring period
Source of data	VCS Non-Permanence Risk Report, See Appendix G
Description of measurement methods and procedures to be applied	See Appendix G – standard VCS procedure used
Frequency of monitoring/recording	Non-permanence risk revised at every baseline re-assessment.
Value monitored	-344,046
Monitoring equipment	None
QA/QC procedures to be applied	Annual review of risk criteria and disturbance monitoring
Purpose of the data	Calculation of emissions submitted to VCS buffer account
Calculation method	Procedure followed in VCS non-permanence risk tool and emissions allocated to buffer account subtracted from GERs.

Comments	
Data / Parameter	$E_L^{[m]}$
Data unit	tCO2e
Description	Cumulative emissions from leakage at the end of the current monitoring period
Source of data	Measurements in the leakage area(s)
Description of measurement methods and procedures to be applied	Plot based sampling of leakage area and estimation of degradation.
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	See Appendix F, standard vegetation sampling equipment
QA/QC procedures to be applied	See Appendix F, all evidence of tree-felling by humans are geo-referenced and plots photographed
Purpose of the data	Calculation of activity shifting leakage
Calculation method	Application of equation F.44 and F.45 to field data collected.
Comments	Leakage in this monitoring period is considered insignificant. No significant deforestation has taken place in the leakage area, only minor degradation.

Data / Parameter	$E_L^{[m-1]}$
Data unit	tCO2e
Description	Cumulative emissions from leakage at the beginning of the current monitoring period
Source of data	Measurements in the leakage area(s)
Description of measurement methods and procedures to be applied	Plot based sampling of leakage area and estimation of degradation.
Frequency of monitoring/recording	Every monitoring period

Value monitored	0
Monitoring equipment	See Appendix F, standard vegetation sampling equipment
QA/QC procedures to be applied	See Appendix F, all evidence of tree-felling by humans are geo-referenced and plots photographed
Purpose of the data	Calculation of project emissions
Calculation method	Application of equation F.44 and F.45 to field data collected.
Comments	Leakage in this monitoring period is considered insignificant. No significant deforestation has taken place in the leakage area, only minor degradation.

Data / Parameter	$E_{L,\Delta}^{[m]}$
Data unit	tCO ₂ e
Description	Change in emissions due to leakage
Source of data	See Appendix F
Description of measurement methods and procedures to be applied	Plot based sampling of leakage area and estimation of degradation.
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	See Appendix F, standard vegetation sampling equipment
QA/QC procedures to be applied	See Appendix F, all evidence of tree-felling by humans are geo-referenced and plots photographed
Purpose of the data	Calculation of leakage
Calculation method	Application of equation F.44 and F.45 to field data collected.
Comments	Leakage in this monitoring period is considered insignificant. No significant deforestation has taken place in the leakage area, only minor degradation.

Data / Parameter	$E_{L,ASF}^{[m]}$
Data unit	tCO ₂ e

Description	Cumulative emissions from activity-shifting leakage in forested strata at the end of the current monitoring period
Source of data	Measurements in the activity-shifting leakage area
Description of measurement methods and procedures to be applied	Plot based sampling of leakage area and estimation of degradation.
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	See Appendix F, standard vegetation sampling equipment
QA/QC procedures to be applied	See Appendix F, all evidence of tree-felling by humans are geo-referenced and plots photographed
Purpose of the data	Calculation of leakage
Calculation method	Application of equation F.44 and F.45 to field data collected.
Comments	Leakage in this monitoring period is considered insignificant. No significant deforestation has taken place in the leakage area, only minor degradation.

Data / Parameter	$E_{LME}^{(m)}$
Data unit	tCO ₂ e
Description	Cumulative emissions from market effects leakage at the end of the current monitoring period
Source of data	Measurements in the market-effects leakage area
Description of measurement methods and procedures to be applied	Market and activity shifting leakage are the same for the LZRP
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	See Appendix F
QA/QC procedures to be applied	See Appendix F

Purpose of the data	Calculation of leakage
Calculation method	See calculations for activity-shifting leakage above
Comments	

Data / Parameter	$E_{LME}^{[m]}$
Data unit	tCO2e
Description	Cumulative emissions from market effects leakage at the end of the current monitoring period
Source of data	Measurements in the market-effects leakage area
Description of measurement methods and procedures to be applied	Market and activity shifting leakage are the same for the LZRP
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	See Appendix F
QA/QC procedures to be applied	See Appendix F
Purpose of the data	Calculation of leakage
Calculation method	See calculations for activity-shifting leakage above
Comments	

Data / Parameter	$E_{P\Delta}^{[m]}$
Data unit	tCO2e
Description	Change in project emissions
Source of data	Monitoring records for Forest Fire, Burning, logging, wood products, and natural disturbance events
Description of measurement methods and procedures to be applied	Standard vegetation sampling techniques and remote sensing to determine the extent of fires.

Frequency of monitoring/recording	Every monitoring period
Value monitored	-680
Monitoring equipment	Standard vegetation sampling equipment and satellite imagery.
QA/QC procedures to be applied	Remote sensing, patrols and field measurements
Purpose of the data	Calculation of project emissions
Calculation method	Monitoring of burnt wood in the project accounting area and equation F.41 VM0009, v3.0.
Comments	

Data / Parameter	$E_{P\Delta BRN}^{[m]}$
Data unit	tCO ₂ e
Description	Cumulative project emissions due to burning at the end of the current monitoring period
Source of data	Monitoring plots in the project accounting area
Description of measurement methods and procedures to be applied	Standard vegetation sampling techniques and remote sensing to determine the extent of fires.
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	Standard vegetation sampling equipment and satellite imagery.
QA/QC procedures to be applied	Review of monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Calculation of project emissions
Comments	

Data / Parameter	$E_U^{[m]}$
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Data unit	tCO ₂ e
Description	Cumulative confidence deduction at the end of the current monitoring period
Source of data	Biomass and soil carbon inventory data, Appendix C
Description of measurement methods and procedures to be applied	Calculation of the standard error of the total of the baseline emissions model, proxy area carbon stocks and accounting area carbon stocks
Frequency of monitoring/recording	Every monitoring period
Value monitored	0
Monitoring equipment	See Appendix C
QA/QC procedures to be applied	See Appendix C
Purpose of the data	Calculation of baseline emissions Calculation of project emissions Calculation of leakage
Calculation method	Equation F.57 from VM0009. v3.0
Comments	There were no confidence deductions as the uncertainty was insignificant.

Data / Parameter	$P_{L\ DEG}^{[m]}$
Data unit	Proportion (unitless)
Description	Portion of leakage due to degradation at the end of the current monitoring period
Source of data	Monitoring in the leakage area
Description of measurement methods and procedures to be applied	Plot based sampling of leakage area and estimation of degradation.
Frequency of monitoring/recording	Every monitoring period
Value monitored	0.04
Monitoring equipment	See Appendix F, standard vegetation sampling equipment

QA/QC procedures to be applied	See Appendix F, all evidence of tree-felling by humans are geo-referenced and plots photographed
Purpose of the data	Calculation of leakage
Calculation method	Calculated using equation B.9, VM0009, v3.0. Minimum sample size determined using equation B.31, VM0009, v3.0
Comments	Leakage in this monitoring period is considered insignificant. No significant deforestation has taken place in the leakage area, only minor degradation.

Data / Parameter	$P_{L\ DEG}^{[m=0]}$
Data unit	Proportion (unitless)
Description	Portion of leakage due to degradation prior to first verification event
Source of data	Monitoring in the leakage area
Description of measurement methods and procedures to be applied	Plot based sampling of leakage area and estimation of degradation.
Frequency of monitoring/recording	First monitoring period
Value monitored	0.087
Monitoring equipment	See Appendix F, standard vegetation sampling equipment
QA/QC procedures to be applied	See Appendix F, all evidence of tree-felling by humans are geo-referenced and plots photographed
Purpose of the data	Calculation of leakage
Calculation method	Calculated using equation B.9, VM0009, v3.0. Minimum sample size determined using equation B.31, VM0009, v3.0
Comments	

Data / Parameter	$t^{[i-1]}$
Data unit	Days
Description	Time from the project start date to beginning of monitoring period i

Source of data	Monitoring records
Description of measurement methods and procedures to be applied	NA
Frequency of monitoring/recording	NA
Value monitored	0
Monitoring equipment	NA
QA/QC procedures to be applied	NA
Purpose of the data	Calculation of baseline emissions
Calculation method	Count of days in project crediting period
Comments	

Data / Parameter	$t^{[m]}$
Data unit	Days
Description	Time from project start date to end of current monitoring period
Source of data	Monitoring records
Description of measurement methods and procedures to be applied	NA
Frequency of monitoring/recording	Every monitoring period
Value monitored	5,571
Monitoring equipment	NA
QA/QC procedures to be applied	Monitoring records
Purpose of the data	Calculation of baseline emissions
Calculation method	Deduct project start date from end of date of current monitoring period.

Comments	
Data / Parameter	$t^{[m-1]}$
Data unit	Days
Description	Time from project start date to beginning of current monitoring period
Source of data	Monitoring records
Description of measurement methods and procedures to be applied	NA
Frequency of monitoring/recording	Prior monitoring period
Value monitored	5,205
Monitoring equipment	NA
QA/QC procedures to be applied	Monitoring records, Appendix C
Purpose of the data	Calculation of baseline emissions and compliance with VM0009, v3.0 minimum monitoring intervals.
Calculation method	NA
Comments	

Data / Parameter	$U_B^{[m]}$
Data unit	tCO2e
Description	Total uncertainty in proxy area carbon stock estimate
Source of data	Biomass and soil carbon inventory data
Description of measurement methods and procedures to be applied	Calculation of the standard error of the total of the baseline emissions model, proxy area carbon stocks and accounting area carbon stocks
Frequency of monitoring/recording	Every monitoring period
Value monitored	60,520
Monitoring equipment	NA

QA/QC procedures to be applied	NA
Purpose of the data	Calculation of baseline emissions
Calculation method	Equation B.10, VM0009, v3.0.
Comments	

Data / Parameter	$U_{EM}^{[M]}$
Data unit	tCO2e
Description	Total uncertainty in Baseline Emissions Models
Source of data	Forest State Interpretation
Description of measurement methods and procedures to be applied	Calculation of the standard error of the total of the baseline emissions model, proxy area carbon stocks and accounting area carbon stocks
Frequency of monitoring/recording	Every baseline revision
Value monitored	5,542
Monitoring equipment	Appendix H
QA/QC procedures to be applied	Appendix H
Purpose of the data	Calculation of baseline emissions
Calculation method	Equation B.14, VM0009, 3.0
Comments	

Data / Parameter	$U_P^{[m]}$
Data unit	tCO2e
Description	Total uncertainty in project accounting area carbon stock estimate
Source of data	Forest State Interpretation
Description of measurement methods and	Calculation of the standard error of the total of the baseline emissions model, proxy area carbon stocks and accounting area carbon stocks

procedures to be applied	
Frequency of monitoring/recording	Every monitoring period
Value monitored	877,833
Monitoring equipment	Appendix E
QA/QC procedures to be applied	Appendix E
Purpose of the data	Calculation of baseline emissions
Calculation method	Equation B.10, VM0009, v3.0
Comments	

4.3 Monitoring Plan

Table 4. Summary of monitoring activities.

Monitoring Activity	Timing	Methods
Conservancy trespassing and boundary transgressions	Monthly patrols	Scouts patrol the conservancy on an ongoing basis, it is their core duty
Leakage monitoring	Annually	Forest Inventory team following VM0009
Plot measurements	Annually	Forest Inventory Team following VM0009, re-sample 20% of plots in project accounting.
Disturbance monitoring	Monthly in the fire season and otherwise as BCP becomes aware of disturbances.	Remote sensing (Visible Infrared Imaging Radiometer Suite (VIIRS) fire hotspots), followed by ground-based inspections, bi-monthly aerial surveys.

Charcoal production	Monthly	Charcoal operations managers record all charcoal production on an ongoing basis.
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PDR.122

The principle means of monitoring project emissions is with inventory plots in project accounting areas where above ground biomass is measured by recording tree's diameter at breast height (DBH). Algometric equations are used to convert the measures to above and below ground biomass. Soil samples are also collected during the first monitoring period to establish the soil carbon stocks for the project accounting area. VM0009 requires that all such plots must be measured during the first monitoring period and then 20% measured during each subsequent monitoring period.

MR.91

The monitoring strategy for the LZRP followed a stratified random approach for the accounting area. The vegetation in the project accounting area is fairly homogeneous Miombo woodland, but two different strata, namely light and dense tree covers were distinguished using remote sensing techniques (Figure 2).

A total of 186 permanent circular inventory plots are located in Rufunsa Conservancy, and soil was sampled at 59 of these plots during M1. Twenty-six (26) plots fell within the dense tree stratum; the remainder were in the light tree stratum which incidentally covers the majority of the accounting area.

Twenty percent of plots are re-measured every year. Two of the 160 plots in the light tree stratum could not be located due to a GPS waypoint transcription error during the first inventory and they were thus not re-sampled and excluded from calculations. Therefore, LZRP has a total of 184 plots (158 – Light tree stratum and 26 plots in the dense tree stratum)

As per methodological guidance (VCS approved methodology VM0009), the carbon stock measurement at the scale of the project should be taking place and updated maximum every 5 years. As such, the carbon stock monitoring of the LZRP is conducted through the sampling of 184 plots over a 5-years cycle, 20% of them being sampled every year (see section 4.3). This monitoring plan was designed to take into consideration the spatial and temporal limitation in plot accessibility, limited road network, rough terrain and prolonged rainy seasons. It is imperative to acknowledge that despite the sampling plan design taking into consideration the stated factors, forest monitoring teams still persistently encounter a series of obstacles related to plot accessibility. The challenges include prolonged rainy seasons, bad road networks, damaged bridges due to prolonged rainy seasons, rough terrain and

dangerous wildlife among others. Regrettably, these circumstances have, on occasion, disrupted the implementation of field audit visit plans in previous years.

MR.92

GPS coordinates for all the accounting area, proxy, and leakage plots can be found in Appendix H.

MR.93

Biomass monitoring is conducted according to the BCP field sampling manual (copy provided to VVB, Appendix E). Optimum plot size and minimum tree diameter were determined during a trial sampling run in February 2012. Circular plots (12m radius) were used due to their simplicity, ease of layout and reduced measurement error. A randomly generated plot location was navigated-to using a handheld GPS unit or Android Smartphone. When the plot location was reached, the center was permanently marked with a steel rebar driven into the ground. If, for some reason, a plot could not be reached due to terrain, the location was moved following a predetermined deviation that led to the location of another plot. Very few plots could not be reached. The plot layout is shown in Figure 8.

Trees were identified to species level as far as possible, noting that there are several Miombo species (some common) that require taxonomic revision (M. Bingham. Pers Comm⁶). The use of a generic allometric equation to calculate AGOT mass fortunately negated mistakes or uncertainties with tree species identification. As explained above, plots are re-measured on a rotating basis, with 20% re-measured per year, however stock estimates are only updated every 5 years when all plots would have been re-measured.

In addition to the inventory plots, human and natural disturbances in the project accounting area are mapped using visual interpretation of Sentinel-2 and if needed Landsat data. This is done once a year using the most cloud-free imagery from April-May. This represents the end of the rainy season and the beginning of the dry season. This is generally the best time of the year for mapping woodlands in Zambia as there is less cloud cover, trees generally still have leaves, and the understory grass has started to dry out providing better contrast between grassy and wooded areas. The woodlands in the project area are fire-adapted and fires generally don't cause a massive disturbance. April-May imagery helps avoid mistakenly mapping fire scars as a disturbance when the fire likely only burned the understory grass. With April-May imagery, only permanently damaging fires will be mapped as a disturbance.

6

Mike Bingham, Zambian Miombo Ecosystem Authority.

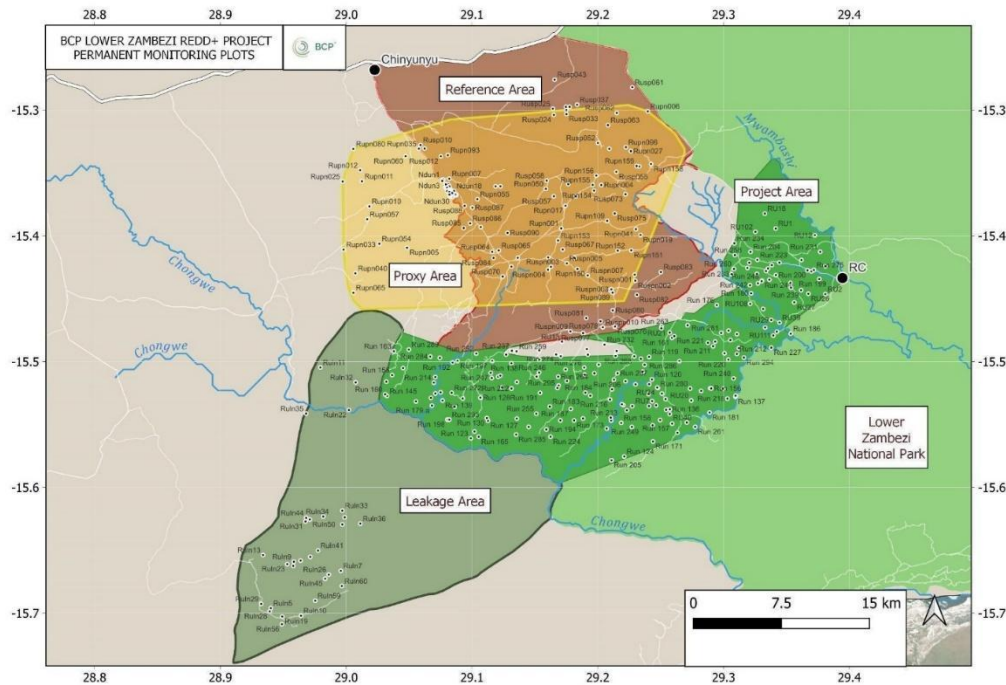


Figure 8. Permanent carbon stock monitoring plots for the Lower Zambezi REDD+ Project.

PDR.123

Proxy plots are used to estimate residual biomass after conversion and the end point for soil carbon decay. For estimating residual biomass, after mapping the proxy areas as described in the project design document, the project generated a random sample of 46 points within the proxy areas. One plot was inaccessible, therefore, only 45 are monitored.

Since proxy soil carbon is only measured once, it is important to select samples from areas that represent the end point of conversion. Soil data was collected from 16 soil in the proxy area. The same biomass and soil sampling protocols used for accounting areas (Appendix E) were used for proxy areas as well.

PDR.124

Leakage plots in the leakage area are used to estimate activity-shifting leakage from the project accounting areas. The project generated a random sample of 30 points within the leakage area where 1 ha leakage plots could be established. Equation B.31 as per VM0009, suggested the minimum number of plots required was 23. The leakage plot protocol is described in Appendix F.

MR.98

All accounting area, proxy, and leakage plots were measured during monitoring period 1. The project verifies on an annual basis therefore measures all leakage plots each year and 20 % of accounting area and proxy plots each year.

Organizational Structure, responsibilities and competencies

BioCarbon Partners has a team of experts responsible for the carbon inventory and standards compliance. There is a dedicated carbon accounting department that oversees all inventory data collection, processing, storage, GIS and remote sensing and electronic data capture systems (Figure 8).

Both the carbon accounting manager and remote sensing and GIS specialist have post graduate degrees with a strong focus on ecology and collectively have more than 20 years' experience in biological inventories, remote sensing and GIS.

A field team consisting of local residents from neighboring communities have been trained in forest monitoring (see below) in line with BCP's policy of local capacity building and investment. The team has intimate knowledge of local flora and fauna and their knowledge of the area enables them to locate inventory plots with limited difficulty.

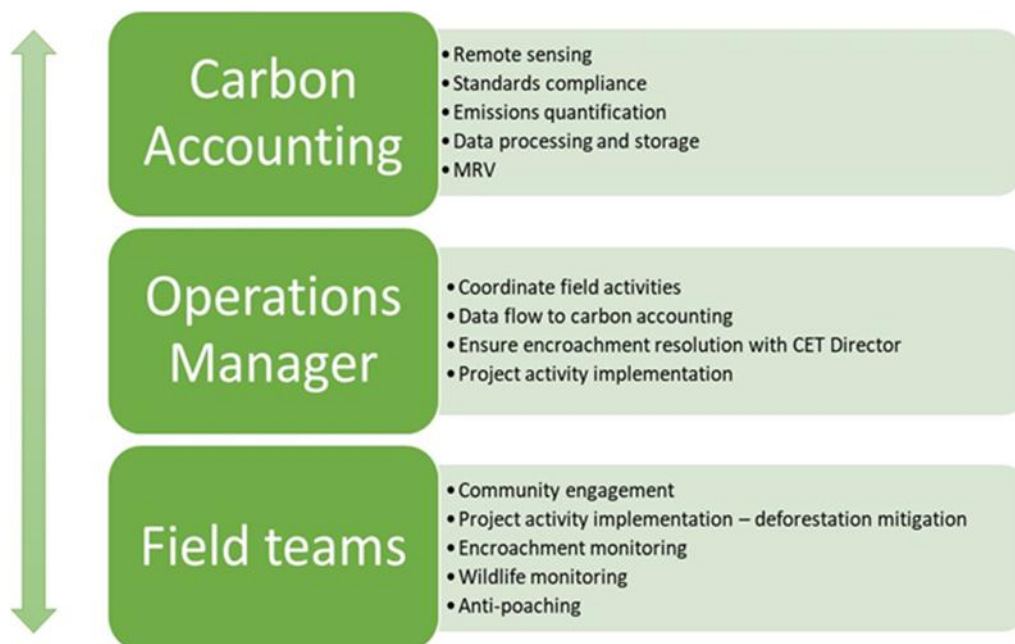


Figure 9. BioCarbon Partners carbon monitoring organizational structure.

The inventory team's day-to-day activities are monitored by the Rufunsa Conservancy Operations Manager who is based on site at the conservation centre. The operations manager sees to the logistical needs of the plot team, ensures that deadlines are adhered to, assists with any equipment failures and transfers data to the carbon accounting department.

Data Management

The initial inventory data for the project accounting area was collected using pen and paper, transferred to BCP HQ for copying, storage and entry. The data was entered by an experienced data capturer with specific experience in collating and capturing ecological data. Data was captured in spreadsheets and original data sheets are kept in a safe place at the BCP HQ. The data was then error checked by the carbon accounting manager to identify any obvious errors. Following this process, an intensive error checking was conducted with the data capturer and two of the senior inventory team members.

Subsequently, BCP developed a digital data capturing system using Android Smartphones. The advantage of this system is that it dramatically reduces errors and adds a significant element of quality control to data collection as start and end times plus location are recorded for all plots. Furthermore, the digital system allows for restrictions in data collection by using drop down menus and upper and lower bounds for figures. It also guides the data collector through the process with a series of text prompts and diagrams.

The process followed for data collection is outlined in Figure 10 and a spot error check SOP can be found in Appendix E. It is a feedback system that relies heavily on training, review and good communication. All training is followed by trial runs of the sampling procedure and then actual data collection under supervision. Data is continuously submitted from the field to the carbon accounting department, and feedback is provided if any corrective actions are required. Furthermore, plots are visited in the field periodically and subjected to an internal audit process.

Once data has been error checked and cleaned it is safely stored online using Google Drive.

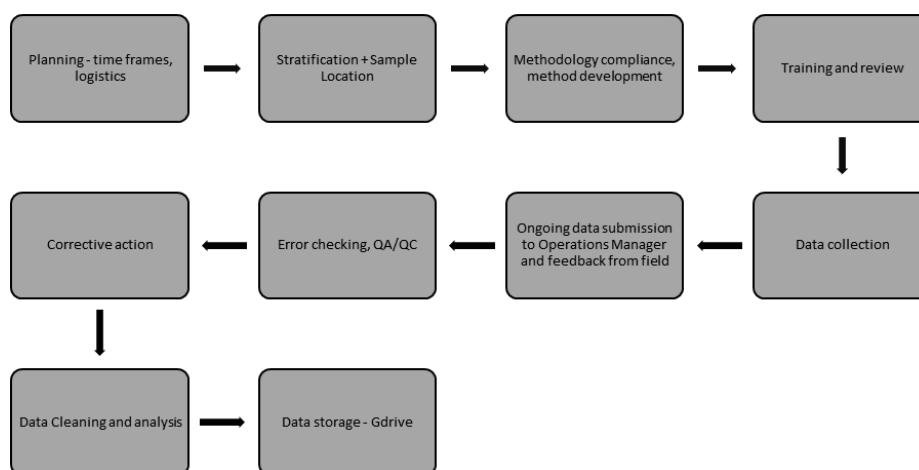


Figure 10. BioCarbon Partners data collection, QA/QC and storage process.

MR.90

Quality Assurance and Quality Control

A set of Standard Operating Procedures and Field Manuals have been developed for all the various aspects of the carbon inventory. As indicated above, BCP has strong systems in place to ensure all carbon-related data is collected according to the required quality standards. Quality Control is embedded in the organizational structure of the Carbon Accounting department (Figure 10).

Continuous feedback from the field, coupled with field visits from senior staff, ensure that errors are identified in a timely fashion and corrected (Figure 10). Spot checks and internal audits are conducted to make sure all data collected is of the highest standard. The new digital data capture system furthermore ensures that errors are identified and rectified immediately, unlike paper based systems where data often takes weeks to enter and error-check. Spot errors are dealt with as per Appendix E. During the current monitoring period a senior person was on site for the enumeration of all plots re-sampled. Corrections were done in the field.

With regards to GIS and RS, similar procedures are followed although this role resides mainly within the senior management's responsibility. The Remote Sensing aspect of the Cumulative Deforestation Model was undertaken independently by two associates from a South African tertiary institution. The CDM point interpretation was then submitted to a rigorous third party audit by BCP staff.

MR.88

Local capacity building and employment creation is one of the core focus points of BioCarbon Partners and this is clearly reflected in our approach to field based carbon accounting practices. Table 5 is a summary of all forest inventory training undertaken for the first monitoring period. BCP initially trained a group of 19 local residents consisting of neighboring villagers, officials from the Department of Forestry and local post graduate ecology students in basic forest enumeration techniques followed by hands-on sampling and data collection according to our carbon stock assessment field manual (Appendix E).

Table 5. Summary of early-staged field based carbon accounting training for the LZRP

Date	Training course	No. of trainees	Duration of training (days)	Venue	Trainers
Feb 2012	Biomass Inventory	19	8	Rufunsa Conservancy	L. Theron & H. Sachedina

Sep 2012	Biomass Inventory Advanced Training	5	4	Rufunsa Conservancy	L. Theron, W. Roberts & M. Bingham
Dec 2012	Biomass Inventory refresher course including use of improved bulk density corer	4	2	Rufunsa Conservancy	L. Theron
Jan 2013	Charcoal Inventory and Soil Proxy Sampling and electronic data capture	4	4	LRZP Eco-Charcoal Forest	L. Theron, W. Roberts, E. Chidumayo
Apr 2013	Tree allometry equation development	3	1 and 5 sampling under supervision	LRZP Eco-Charcoal Forest	L. Theron, W. Roberts
Jun 2013	NT and DW allometry development, Residual Biomass Sampling, Leakage Monitoring	4	3 and 4 sampling	Rufunsa Conservancy and Leakage Area	L. Theron
June 2014	Biomass Inventory refresher course	5	2	Rufunsa Conservancy	L. Theron
May 2016	Biomass Inventory refresher course	6	2	Rufunsa Conservancy	L. Theron
June 2016	Biodiversity Monitoring Course	15	6	Rufunsa Conservancy	A. Cotterill and L. McDonald

Following the viability phase of the project, five people were selected from the 19 originally trained, to undertake the required monitoring in preparation for the verification under the VCS of the project and one additional member selected from a local village. The forest inventory team members were:

- Pythias Sebente
- Collins Jere Kaoma
- Andrew Tembo
- Christopher Wanga
- Elvin Muchimba

The inventory team then underwent refresher and advanced training during September 2012 (Figure 11). The training particularly focused on correct data capture and measurement techniques, use of clinometers, GPS use and advanced tree identification presented by local Zambian expert Mike Bingham. Plots were then enumerated under supervision until a satisfactory level of proficiency was achieved.

Pythias Sebente resigned in November 2013 due to the physical nature of the work and was replaced as team leader by Andrew Tembo. The team were by that time well versed in the sampling method and did not need five people to complete the inventory.

BCP in the interim developed an electronic data capture system using Android smartphones and the Open Data Kit (ODK) software. This software allows for the design of custom data capture forms, capturing geographic data and images. It allows for the introduction of stringent data quality control features. A trial version was developed and in January 2013 the team was trained on it and it was piloted in the eco-charcoal forest to quantify the biomass available for charcoal. Since then all new data has been captured using this system.

The soil sampling procedure was also revised during this time; it included training in collecting metadata required for collecting data on residual soil carbon stocks and soil decay rates.

A refresher training course was again held in June 2014. It included a review of the upcoming leakage monitoring and planning for leakage monitoring.



Figure 11. Copy of certificate issued to Forest Monitoring Team members after completion of the advanced training course.

The current Forest Monitoring Team comprise Elvin Muchimba (Team Leader), Lawrence Msoni, Liason Chiyakamba, and Nchimunya Simwendengwe.

MR.89

During the *M5* monitoring period biomass available for charcoal production was estimated following the BCP carbon stock assessment field manual in the eco-charcoal forest located to the North of the project accounting area, the Ndubalula eco-charcoal forest. The Ndubalula eco-charcoal area is approximately 93 ha in size and would have been deforested in the baseline scenario. The area was identified by local community leaders and charcoal producers who agreed to harvest it in a sustainable manner. Biomass was enumerated in 30 plots. There is currently 484 ha under eco-charcoal management. Charcoal is harvested using a coup & shelter belt system (eco-charcoal harvesting and production system documents have been made available to the VVB), on a rotational basis, returning to the first strip after approximately 18 years. Charcoal production and sales are carefully monitored by BCP staff and project participants.

MR.99

A generic Miombo equation developed by Chidumayo (2013) at a study site very close to the reference area was used: Wood Biomass (kg) = $0.0446 \times \text{DBH}^{2.765}$

The Diameter at Breast Height (DBH) range for the model was 2-39 cm and it was developed from a sample size of 113 destructively sampled trees covering 19 species, including the common species in this project.

BCP has the original data from the author and has made it available to the VVB. BCP destructively sampled another seven trees of various species to extend the diameter range of the equation to 55cm (Table 6). The procedures followed for destructive harvesting are described in Annex F and was developed under the guidance of Professor Chidumayo.

Table 6. Results of allometry validation and diameter range expansion.

Species	DBH (cm)	Total dry mass (kg)	Mass Predicted by equation (kg) (Chidumayo 2013)	Latitude	Longitude
<i>Brachystegia boehmii</i>	49	2,750	2,143	-15.3672	29.08735
<i>Brachystegia boehmii</i>	48	2,838	1,957	-15.3654	29.08534
<i>Brachystegia boehmii</i>	42	1,236	1,346	-15.3627	29.08307
<i>Brachystegia spiciformis</i>	41	1,141	1,318	-15.3678	29.08696
<i>Brachystegia utilis</i>	43	2,212	1,462	-15.3627	29.08266
<i>Brachystegia utilis</i>	48	2,006	2,030	-15.3635	29.08613
<i>Parinari curatellifolia</i>	55	3,823	2,950	-15.3654	29.08537
Total Mass		16,006	13,206		

MR.100

The equation is generic and predicts biomass at a stand level. It is applied to all the species in the inventory and predicts 100% of the biomass.

MR.101

The equation was applied to the first monitoring event for which physical measurements spanned 2012-2013.

MR.102

The cumulative biomass of all felled trees both in the original data set of Chidumayo and sampled by BCP are 10% greater than that predicted by the equation (Table 6). The equation is thus conservative. In addition, the equation was capped at 55cm DBH, although there were very few trees in the inventory that had a DBH greater than 55cm.

MR.103

Chidumayo (2013) developed the equation through destructive harvesting of study plots located between latitudes 15.2167° and 15.2833°S and longitudes 29.1500° and 29.2333°E, which was Miombo woodland in Lusaka province. The sample consisted of 113 trees spanning 19 species, all of which occur in the project and proxy areas.

The seven additional specimens harvested to expand the diameter range were located in the proxy area in the Eco-Charcoal forest (Table 6).

MR.104

See MR.99 above.

MR.105

The location of the 7 trees destructively sampled to expand the range is listed in Table 6 and they were located in the proxy area in the Eco-Charcoal forest.

MR.106

The field protocol was made available to the VVB when the equations were validated in the *M1* monitoring period. See the *M1* monitoring report on the Verra projects website.

MR.107

The field protocol was based on the methods used by Chidumayo (2013) to develop the original equation. It is a methodical and robust approach that is conservative. The same wet-dry mass ratio as used by Chidumayo (2013) was applied.

MR.108

The results of actual vs. predicted mass are summarized in Table 6 and the data from the 113 original trees and seven additional trees harvested to develop the equation was provided to the VVB at the M1 verification.

Disturbance Monitoring

In addition to the inventory plots, human and natural disturbances in the project accounting area are mapped using visual interpretation of Sentinel-2 and if needed Landsat data. This is done once a year using the most cloud free imagery from April-May. This represents the end of the rainy season and beginning of the dry season. This is generally the best time of year for mapping woodlands in Zambia as there is less cloud cover, trees generally still have leaves, and the under story grass has started to dry out providing better contrast between grassy and wooded areas. The woodlands in the project area are fire adapted and fires generally don't cause massive disturbance. April-May imagery helps avoid mistakenly mapping fire scars as disturbance, when the fire likely only burned the under story grass. With April-May imagery, only permanently damaging fires will be mapped as disturbance.

When significant disturbances are detected in an area not covered by an inventory plot, a polygon is drawn around the area and the per hectare emissions factors determined from the plot inventory work will be applied to the area to calculate project emissions.

The result of the imagery processing is double-checked by peers from the carbon team. In case of discrepancy in visual interpretation, ground and aerial verification are conducted. Likewise, the emissions calculations are always double-checked by several members of the carbon team.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

MR.95

Table 7. Estimated carbon stock, standard error of the total for each stock, and the sample size for each stratum in the areas selected.

Parameter	Project Accounting Area			Proxy Area	
	Dense Tree OT	Light Tree OT	Soil (Dense + Light)	Proxy Area OT	Proxy Area Soil
Plots (P)	26	158	48	46	16

Total Possible plots ($N_{p,k}$)	132,986	603,954	736,941	945,964	945,964
C	1,079,962	4,602,162	6,420,888	452,497	5,634,230
U (B.10) per stratum	104,703	226,616	841,589	137,680	283,500

MR.10

Baseline emissions for the current monitoring period (January 1st, 2024 to December 31st, 2024) are summarized in Table 8. Equation F.15 was used to calculate these baseline emissions. Cumulative baseline emissions were calculated using a logistic deforestation model, based upon a point interpretation of forest state in the reference area applying equation F.16 from VM0009, v3.0.

Table 8. Baseline emissions summary for the tenth monitoring period (see Appendix D for calculations).

Monitoring Period	Carbon Pool	Baseline Emissions (tCO ₂ e)
M12	AGOT	130,708
M12	BGOT	70,583
M12	SOC	42,884
Total		244,175

MR.11

Cumulative baseline emissions from prior monitoring periods were calculated using equation F.16 of VM0009, v3. 0. Refer to Appendix D for calculations.

$$E_{B\Delta}^{[m-1]} = 2,416,974 \text{ tCO}_2\text{e}$$

MR.12

Cumulative baseline emissions for each selected pool and non-decayed carbon as of the current monitoring period are summarized below.

See Appendix D for calculations.

$$E_{B\ BM}^{[m]} = 2,661,149\text{tCO}_2\text{e}$$

$$E_{B\ SOC}^{[m]} = 845,215\text{tCO}_2\text{e}$$

$$C_{B\ BGB}^{[m]} = 0\ \text{tCO}_2\text{e}$$

$$C_{B\ SOC}^{[m]} = -490,235\ \text{tCO}_2\text{e}$$

MR.15-17

Baseline emissions from biomass for the current monitoring period are based on the average per hectare carbon stocks in selected carbon pools from AGOT, BGOT given by equation F.17 for the accounting area and F.18 for the proxy area. The light tree carbon stratum has a carbon stock of 168.4 tCO₂e while the dense tree stratum has a stock of 179.5 tCO₂e. The proxy area (baseline scenario) carbon stocks are 10.6 tCO₂e. The value was updated after completion of the 5-years carbon stocks inventory cycle. See Appendix C. The proxy area carbon stocks increased mainly because of inventory mistakes made in the previous cycle, which were corrected in the current 5-years cycle.

Cumulative baseline emissions from biomass for the current monitoring period were:

$$E_{B\ BM}^{[m]} = 2,306,169\text{tCO}_2\text{e} \text{ (See Appendix D for calculations).}$$

Current baseline emissions from SOC as of the current monitoring period were:

$$E_{(B\ \Delta\ SOC)}^{[m]} = 78,407\ \text{tCO}_2\text{e} \text{ (See Appendix D for calculations).}$$

Cumulative baseline emissions from SOC for the current monitoring period were:

$$E_{(B\ SOC)}^{[m]} = 845,215\ \text{tCO}_2\text{e} \text{ (See Appendix D for calculations).}$$

Cumulative baseline emissions from biomass for prior monitoring periods were:

$$E_{B\ BM}^{[m]} = 2,104,878\text{tCO}_2\text{e} \text{ (See Appendix D for calculations).}$$

MR.26

Carbon stored in non-decayed BGB ($C_{B\ BGB}^{[m]}$) for the current monitoring period was 0 tCO₂e (See Appendix D for calculations).

MR.27

Cumulative baseline emissions from BGB for the current monitoring period ($E_{B\ BGB}^{[m]}$) were 808,656tCO₂e (See Appendix D for calculations).

MR.28

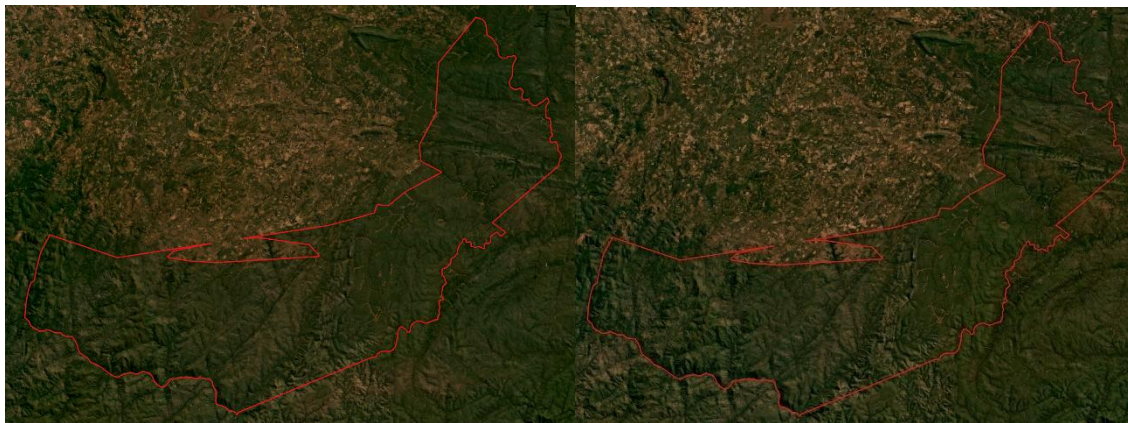
Cumulative baseline emissions from BGB ($E_{B\ BGB}^{[m]}$) for all prior monitoring periods were 738,074tCO₂e (See Appendix D for calculations).

MR.29

Carbon stored in non-decayed SOC for the current monitoring period ($C_{B\ SOC}^{[m]}$) was - 490,235 tCO₂e (See Appendix D for calculations).

5.2 Project Emissions

The Remote Sensing/GIS analysis explained in section 3.2 and 4.3 above was done for the current monitoring period. The Images shown below i.e. May 2023 and May 2024, were visually compared and areas of change from forest to no forest above 0.5ha were manually digitized.



April/May 2023 Sentinel2 Image
Sentinel2 Image

April/May 2024
Sentinel2 Image

The visual image analysis shows minor clearing in the Northern part of the project area near the encroached area (Figure 12). The clearing was for illegal agricultural expansion. The total area disturbed was 2.94 ha. It is conservatively assumed that the entire area disturbed was forested before the clearing. It is also conservatively assumed that all the cleared land is in the dense tree class. Therefore, the emissions were estimated to be $2.96 * 229.9$ (a combined disturbance-emissions factor for ABG+BGB+soil for the LZRP) = 680 tCO₂e. Figure 12 below shows the disturbed area.

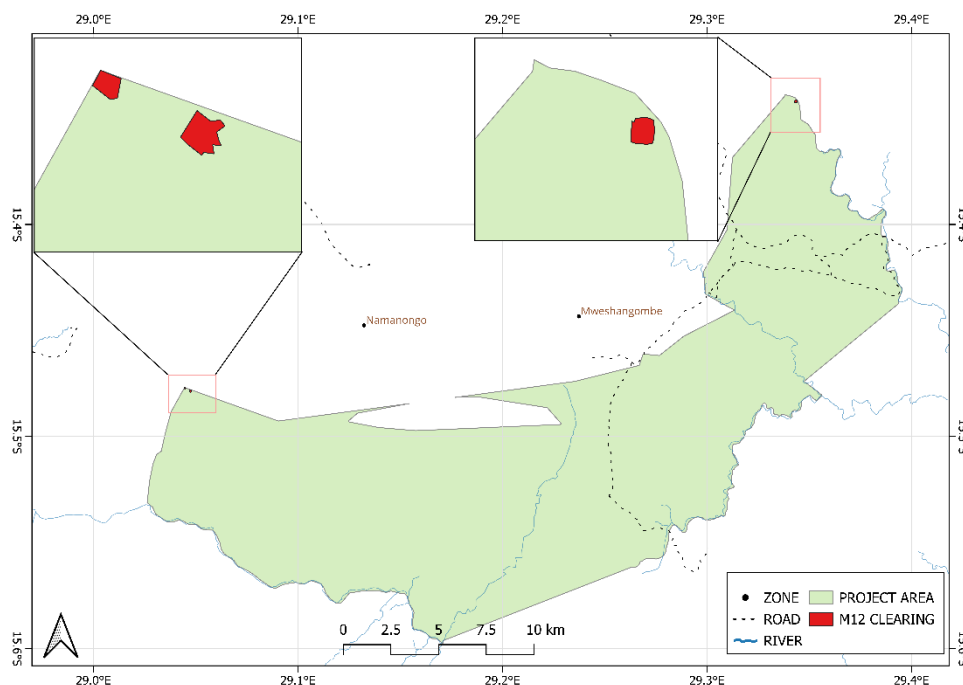


Figure12: Cleared area detected and mapped in M12 (2024)

An evaluation of the accuracy of the manually digitized deforested area map (Figure 12) was conducted.

The analysis used polygons as the spatial assessment unit and involved comparing the final dataset reported in this monitoring report which was generated by using sentinel 2 (with spatial resolution of 10m) as per the validated PD and reference dataset generated using NICFI imagery with a finer resolution of 4.77m.

The assessment involved the initial 2 assessors

that both used sentinel 2 (the 2nd double checked the 1st assessors work) and the last and final assessor that used NICFI. All the three assessors possess extensive expertise in visual image interpretation, identifying forest loss.

The results, i.e. deforest area reported in this monitoring report, are derived from the 1st and 2nd assessor's final dataset. The third assessor's results were used to evaluate the accuracy of the reported dataset.

The sampling design encompassed a comprehensive examination of 100% of the digitized area, as well as the remainder of the project area, to detect any omission (as per Olofsson et al. 2020) or commission errors (as per Ming Lu et al. 2017). An agreement of equal or greater than 95% between the 2 datasets is considered acceptable. The accuracy assessment yielded the following results:

- Total area of initial dataset (Reported Dataset) - 2.96 ha
- Total area of final dataset (Reference dataset) - 2.90 ha
- Total Area covered: 2.99 ha
- Commission error: 0.08 ha
- Omission error: 0.02 ha
- Overall agreement(Intersection): 2.88 ha
- Overall accuracy: 96.321%

Overall accuracy: 96.321% The results show acceptable agreement between the 2 datasets and therefore the reported deforested areas are considered accurate. The reported dataset and the reference dataset are both provided in appendix J.

See Appendix C for the carbon stock calculations spreadsheet with the emissions from disturbance calculations for the current monitoring period (M12).

5.3 Leakage Emissions

MR.44

The primary leakage mitigation strategies of the project are improving agricultural techniques with conservation farming and agroforestry, and promoting alternative livelihoods that don't depend on forest clearing such as beekeeping. See section 3.1 of this report for a detailed description of the leakage mitigation activities employed by this project. The leakage monitoring results for the current monitoring period are presented in Table 9.

See section 3.1 for a summary of project leakage mitigation activities and a detailed description of how these projects will achieve leakage mitigation can be found in the Project Design Document.

During the 12th monitoring period(M12), a total of 30 leakage plots were sampled using a predefined leakage monitoring strategy. Observed degradation was calculated from these plots as being 0.04 using equation B.9 VM0009, v3.0 (see Appendix C for calculations). This value is lower than 0.2 therefore, leakage emissions in the current monitoring period (M12) is equal to 0.

Table 9. Monitoring results for the activity shifting leakage area for the 12th monitoring period.

Plot no	Stump count	Leakage score	Degradation Factor
Ruln11	31	5.31%	0.2
Ruln13	2	0.34%	0.2
Ruln22	5	0.86%	0.2
Ruln23	0	0.00%	0

Ruln26	0	0.00%	0
Ruln31	0	0.00%	0
Ruln35	8	1.37%	0.2
Ruln48	10	1.71%	0.2
Ruln60	0	0.00%	0
Ruln9	0	0.00%	0
Ruln8	0	0.00%	0
Ruln6	0	0.00%	0
Ruln41	0	0.00%	0
Ruln12	0	0.00%	0
Ruln33	0	0.00%	0
Ruln36	0	0.00%	0
Ruln38	0	0.00%	0
Ruln34	0	0.00%	0
Ruln50	0	0.00%	0
Ruln44	0	0.00%	0
Ruln7	0	0.00%	0
Ruln45	0	0.00%	0
Ruln59	0	0.00%	0
Ruln10	0	0.00%	0
Ruln56	0	0.00%	0
Ruln19	0	0.00%	0
Ruln28	0	0.00%	0
Ruln5	0	0.00%	0
Ruln29	0	0.00%	0
Ruln32	1	0.17%	0.2
Plddeg	57		0.04

MR.48

Under VM0009, v3.0, cumulative emissions from activity-shifting leakage ($E_{(L\ ASF)}^{[m]}$) for the current monitoring period are 0.

MR.49

Cumulative emissions from activity-shifting ($E_{(L\ AS)}^{[m]}$) for the prior monitoring periods are 0.

MR.56

The parameter ($p_{(L\ DEG)}^{[m]}$) for the current monitoring period (M12) was estimated using equation B.9. The calculations can be found in Appendix C.

$$p_{(L\ DEG)}^{[m]} = 0.04$$

MR.57

For the first monitoring period, $p_{(L\ DEG)}^{[m=0]} = 0.087$

MR.63

BCP doesn't own any land but is a project proponent representing the private landowner in this project. The management plans and land-use of land in that REDD+ project have not changed because of this project.

5.4 GHG Emission Reductions and Carbon Dioxide Removals

MR.65

GERs (Net GHG emissions or removals in Table 10) were calculated with equation F.53 as per section 8.4.1 of VM0009, v3.0 (see Appendix D).

MR.66

GERs (Net GHG emissions or removals) for the prior monitoring period were calculated with equation F.53 as per section 8.4.1 of VM0009, v3.0 (see Appendix D).

240,197tCO₂e

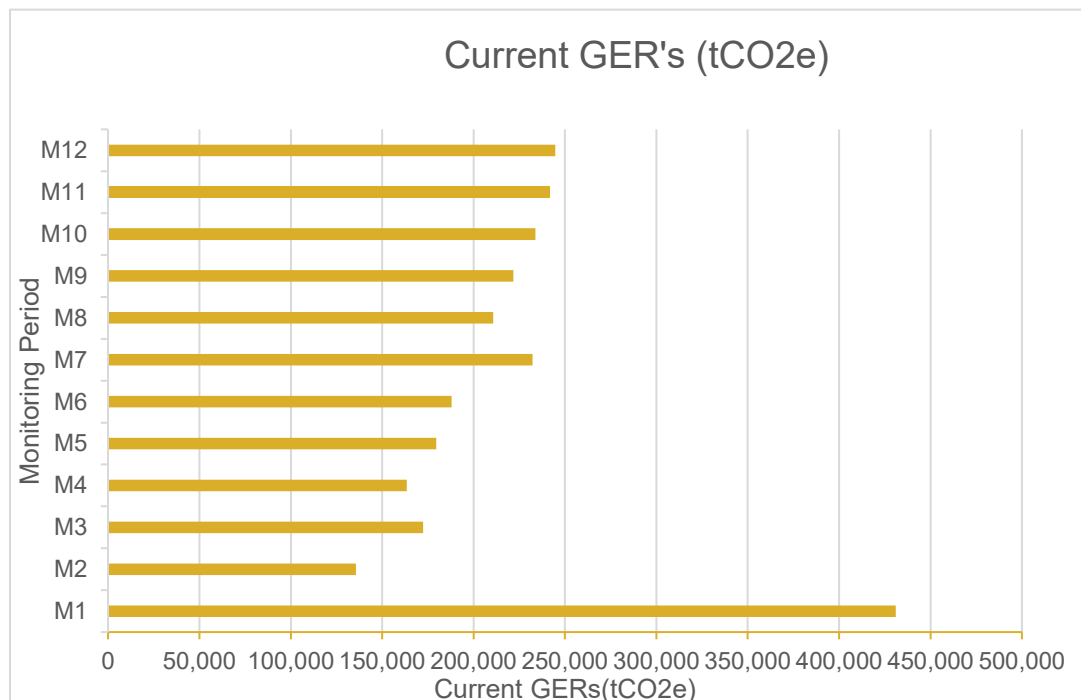


Figure 13. Current GERs by monitoring period for the LZRP.

State the non-permanence risk rating (%)	21%
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 ₂ e, the Long-term Average (LTA).	N/A (This is REDD+ project)
Has the LTA been updated based on monitored data, if applicable?	N/A (This is REDD+ project)

State, in tCO ₂ e, the expected total GHG benefit to date.	2,641,751
If a loss occurred (including a loss event or reversal), state the amount of tCO ₂ e lost:	N/A - No loss event or reversal occurred in the current monitoring period (M12)

Table 10: Net GHG emissions reductions or removals for the current monitoring period

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Buffer pool allocation (tCO ₂ e)	Reductions VCU (tCO ₂ e)	Removals VCU (tCO ₂ e)	Total VCU issuance (tCO ₂ e)
01-01-2024 to 31-Dec-2024	244,175	-680	0	-51,134	243,495	0	192,361
Total	244,175	-680	0	-51,134	243,495	0	192,361

Table 11: Ex-ante Vs Achieved Reductions/Removals

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01-01-2024 to 31-Dec-2024	244,175	243,495	0.28%	During the current monitoring period, the project lost 2.94 ha of forest because of illegal agricultural expansion. Consequently, the Ex-Ante Emissions Reductions are lower compared to the Ex-Post/Achieved Emissions Reductions.
TOTAL	244,175	243,495	0.28%	

MR.68 $U_B^{[m]}$ – Total uncertainty in proxy area carbon stock estimate = 60,520 tCO₂e

$U_{EM}^{[m]}$ – Total uncertainty in Baseline Emissions Models = 5,542 tCO₂e

$U_P^{[m]}$ – Total uncertainty in project accounting area carbon stock estimate = 877,833 tCO₂e

E_u – Total uncertainty = -41,379 tCO₂e = 0

There were no confidence deductions as the uncertainty was insignificant.

MR.69

$U_B^{[m]}$ was calculated with equation B.10 VM0009, v3.0

$U_{EM}^{[m]}$ was calculated with equation F.14 VM0009, v3.0

$U_P^{[m]}$ was calculated with equation B.10 VM0009, v3.0

$E_u^{[m]}$ was calculated with equation F.57 VM0009, v3.0

Please see Appendix C for calculations.

MR.74

NERs (VCUs as per VCS) generated for the current monitoring period were calculated with equation F.55 from VM0009, v3.0 and are reported in Table 12. For calculations, please see Appendix D.

MR.75

NERs for the prior (M12) monitoring period are 243,499 tCO₂e (Appendix D).

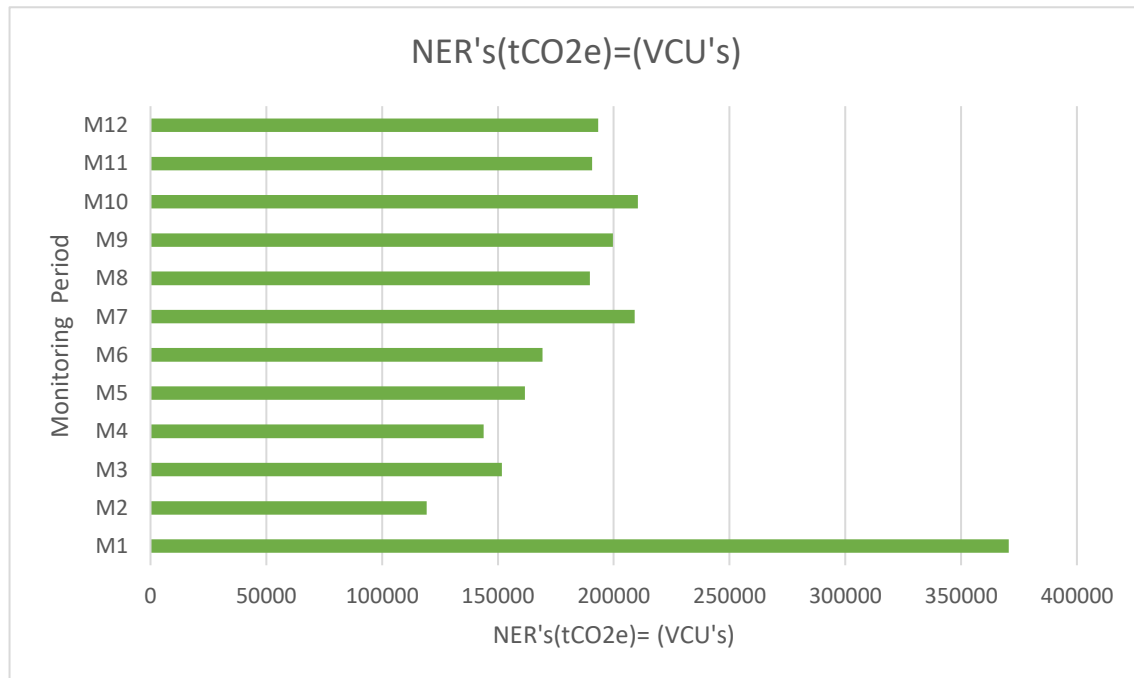


Figure 14. Graph of NERs by monitoring period for the LZRP

MR.77

VCS Non-Permanence Risk Assessment Tool V4.2 (Appendix G) was used to calculate buffer account release / allocation, calculated as GERs x Non-Permanence Risk score (21%) = -51,134tCO₂e.

MR.78

Please see Appendix G for non-permanence risk calculations using the VCS Non-Permanence Risk Assessment Tool V4.2.

MR.82

See Table 10 for quantified NERs by vintage year for the current monitoring period. See Appendix D for calculations.

MR.83

The ex-ante estimated NERs for this monitoring period were 244,175tCO₂e compared to an ex-post estimate of 243,495tCO₂e.

MR.84

There was a difference of 680 tCO₂e between the ex-ante and ex-post NERs for this monitoring period due to project emissions recorded during this monitoring period.

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APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

No confidential information has been included in this monitoring report.

APPENDICES AVAILABLE UPON REQUEST

Appendix A Environmental Management Plan. Public

Appendix B BCP Community Engagement SOPs and Monitoring Systems. Confidential (The protocol includes methodologies that were specifically developed and customized by the company. Revealing this information could compromise our competitive edge).

Appendix C Carbon Inventory. Confidential (The data entitles almost 10 years of field campaigns across the entire project area resulting in a comprehensive data set with high operational value)

Appendix D Emissions Reductions Calculations. Public

Appendix E Biomass and soil monitoring protocol. Confidential (The protocol includes methodologies that were specifically developed and customized by the company. Revealing this information could compromise our competitive edge).

Appendix F Leakage monitoring protocol. Confidential (The protocol includes methodologies that were specifically developed and customized by the company. Revealing this information could compromise our competitive edge).

Appendix G VCS Non-permanence risk assessment. Public

Appendix H Spatial Data. Confidential (Some of the spatial data entitles the location of permanent biomass plots which can be used to identify areas to be encroached / or remove tags, threatening the integrity of the plots)

Appendix J Project Implementation Status Support Documents. Confidential (The evidence comprises, personal information from community members which can be used for fraudulent activities)

Appendix K Other Project Support Documents. Confidential ((The evidence comprises sensitive commercial information which can be used for fraudulent activities)

Appendix L Title Deed. Confidential (Title deeds contain personal information about the property owner, which can be used for fraudulent activities)

Appendix M Social Economic Surveys. Public

ANNEX 1: LIST OF MONITORING REQUIREMENTS APPLICABLE TO F-U3 BASELINE TYPE (VM009, V3.0)

MR#	Category	Applicable to Project
MR.1	Spatial Project Boundaries	Yes
MR.2	Temporal Project Boundaries	Yes
MR.3	Temporal Project Boundaries	Yes
MR.4	Grouped Projects	No. This is not a grouped project
MR.5	Grouped Projects	No. This is not a grouped project
MR.6	Project Accounting Areas	Yes
MR.7	Determining t_{PAI}	No. This is not a grouped project
MR.8	Determining t_{PAI}	No. This is not a grouped project
MR.9	Determining x_{PAI}	No. This is not a grouped project
MR.10	Baseline Emissions	Yes
MR.11	Baseline Emissions	Yes
MR.12	Baseline Emissions	Yes
MR.15	Applying the Spatial Algorithm	Yes

MR.16	Applying the Spatial Algorithm	Yes
MR.17	Applying the Spatial Algorithm	Yes
MR.21	Carbon Not Decayed in DW	No. All biomass is burned in baseline scenarios
MR.22	Carbon Not Decayed in DW	No. All biomass is burned in baseline scenarios
MR.23	Carbon Not Decayed in DW	No. All biomass is burned in baseline scenarios
MR.24	Carbon Not Decayed in DW	No. All biomass is burned in baseline scenarios
MR.25	Carbon Not Decayed in DW	No. All biomass is burned in baseline scenarios
MR.26	Carbon Not Decayed in BGB	Yes
MR.27	Carbon Not Decayed in BGB	Yes
MR.28	Carbon Not Decayed in BGB	Yes
MR.29	Carbon Not Decayed in SOC	Yes
MR.30	Carbon Stored in Wood Products	No. No timber harvesting in baseline
MR.31	Carbon Stored in Wood Products	No. No timber harvesting in baseline
MR.32	Emissions Events in Project Area	Yes
MR.33	Emissions Events in Project Area	Yes
MR.34	Emissions from Burning from Project Activities	No. No biomass burning in project activities
MR.35	Carbon Stored in Wood Products from Project Activities	No. Timber harvesting is not a project activity
MR.36	Carbon Stored in Wood Products from Project Activities	No. Timber harvesting is not a project activity
MR.37	Carbon Stored in Wood Products from Project Activities	No. Timber harvesting is not a project activity
MR.38	Livestock Grazed in the Project Area	No. Livestock grazing is not permitted in the project area and unpermitted grazing was determined to be de minimus.

MR.39	Livestock Grazed in the Project Area	No. Livestock grazing is not permitted in the project area and unpermitted grazing was determined to be de minimus.
MR.40	Livestock Grazed in the Project Area	No. Livestock grazing is not permitted in the project area and unpermitted grazing was determined to be insignificant.
MR.41	Synthetic Fertilizer in the Project Area	No. Project activities do not include the use of synthetic fertilizers.
MR.42	Synthetic Fertilizer in the Project Area	No. Project activities do not include the use of synthetic fertilizers.
MR.43	Synthetic Fertilizer in the Project Area	No. Project activities do not include the use of synthetic fertilizers.
MR.44	Leakage Mitigation Strategies	Yes
MR.45	Commodity Production for Leakage Mitigation	No. The baseline scenario is subsistence
MR.46	Commodity Production for Leakage Mitigation	No. The baseline scenario is subsistence
MR.47	Commodity Production for Leakage Mitigation	No. The baseline scenario is subsistence
MR.48	Estimating Emissions from Activity-Shifting Leakage	Yes
MR.49	Estimating Emissions from Activity-Shifting Leakage	Yes
MR.50	Change to the Activity-Shifting Leakage Area	No. No change to activity-shifting leakage area
MR.51	Change to the Activity-Shifting Leakage Area	No. No change to activity-shifting leakage area
MR.52	Change to the Activity-Shifting Leakage Area	No. No change to activity-shifting leakage area
MR.53	Change to the Activity-Shifting Leakage Area	No. No change to activity-shifting leakage area
MR.54	Change to the Activity-Shifting Leakage Area	No. No change to activity-shifting leakage area
MR.55	Change to the Activity-Shifting Leakage Area	No. No change to activity-shifting leakage area

MR.56	Estimating $p_{L\text{DEG}}$	Yes
MR.57	Estimating $p_{L\text{DEG}}$	Yes
MR.58	Estimating $p_{L\text{CONG}}$	No. No grassland in project area
MR.59	Estimating $p_{L\text{CONG}}$	No. No grassland in project area
MR.60	Determining Emissions from Market Leakage	No. The baseline scenario is subsistence
MR.61	Determining Emissions from Market Leakage	No. The baseline scenario is subsistence
MR.62	Determining Emissions from Market Leakage	No. The baseline scenario is subsistence
MR.63	Ensuring No Leakage Within Project Proponent's Ownership	Yes
MR.65	Quantification of GERs	Yes
MR.66	Quantification of GERs	Yes
MR.67	Quantification of GERs	Yes
MR.68	Confidence Deduction	Yes
MR.69	Confidence Deduction	Yes
MR.70	Quantification of GERs	No. A linear model was not used in this project
MR.71	Quantification of GERs	No. A linear model was not used in this project
MR.72	Reversal Event	No. No reversal occurred
MR.73	Reversal Event as a Result of Baseline Reevaluation	No. No baseline reevaluation occurred
MR.74	Quantification of NERs for a PAA	Yes
MR.75	Quantification of NERs for a PAA	Yes
MR.76	Quantification of NERs for a PAA	Yes
MR.77	Buffer Account	Yes

MR.78	Buffer Account	Yes
MR.79	Quantification of NERs across PAAs	No. There is currently only 1 PAA
MR.80	Quantification of NERs across PAAs	No. There is currently only 1 PAA
MR.81	Quantification of NERs across PAAs	No. There is currently only 1 PAA
MR.82	Vintages	Yes
MR.83	Evaluating Project Performance	Yes
MR.84	Evaluating Project Performance	Yes
MR.85	Data and Parameters Monitored	Yes
MR.86	Data and Parameters Monitored	Yes
MR.87	Data and Parameters Monitored	Yes
MR.88	Description of the Monitoring Plan	Yes
MR.89	Description of the Monitoring Plan	Yes
MR.90	Description of the Monitoring Plan	Yes
MR.91	Description of the Monitoring Plan	Yes
MR.92	Description of the Monitoring Plan	Yes
MR.93	Description of the Monitoring Plan	Yes
MR.94	Description of the Monitoring Plan	No. No new equations were developed
MR.95	Description of the Monitoring Plan	Yes

MR.96	Description of the Monitoring Plan	No. Timber harvesting is not a project activity
MR.97	Description of the Monitoring Plan	Yes
MR.98	Description of the Monitoring Plan	Yes
MR.99	Sources of Allometry	Yes
MR.100	Sources of Allometry	Yes
MR.101	Sources of Allometry	Yes
MR.102	Sources of Allometry	Yes
MR.103	Sources of Allometry	Yes
MR.104	Validating Previously Developed Allometry	Yes
MR.105	Validating Previously Developed Allometry	Yes
MR.106	Validating Previously Developed Allometry	Yes
MR.107	Validating Previously Developed Allometry	Yes
MR.108	Validating Previously Developed Allometry	Yes
MR.109	Validating Newly Developed Allometry	No. No new allometric equations were developed.
MR.110	Validating Newly Developed Allometry	No. No new allometric equations were developed.
MR.111	Validating Newly Developed Allometry	No. No new allometric equations were developed.
MR.112	Validating Newly Developed Allometry	No. No new allometric equations were developed.

MR.113	Validating Newly Developed Allometry	No. No new allometric equations were developed.
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