ASES ON-CHAIN PROTOCOL

PROPOSED PROJECT ACTIVITY ALIGNMENT ASSESSMENT

Ecological Restoration in Santa Clara a Velha, Odemira (Portugal), Phase II

LT-015-POR-25012024 LUZIANES-GARE PHASE 2, PORTUGAL

Stichting Life Terra

Type B Project

February 15, 2024

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On-Chain Protocol

Alignment assessment for the project submitted by Life Terra Foundation, Ecological Restoration in Santa Clara a Velha, Odemira (Portugal) Phase II, with aOCP identifier LT-015-Por-25012024 Luzianes-Gare phase 2, Portugal

Context

As part of the process for the certification of nature-positive projects and the consequent issuance of Verified Nature-Positive Credits (VNPCs) under the ASES on-chain protocol, the Project developer "Life Terra Foundation" submitted the project "Ecological Restoration in Santa Clara a Velha, Odemira (Portugal). Phase II". This Project activity is in the onboarding stage with the aOCP identification code LT-015-POR-25012024. The proposed Project activity consists of the removal of Eucalyptus trees (exotic and invasive species), soil works, and the planting of a mix of autochthonous species to enhance biodiversity and recover the fertility of soils. Project activities were completed on 15/01/2024.

Since Project activities have been implemented before the start of the onboarding process, it participates as a project of Modality B. According to the aOCP rules and procedures, Modality B projects shall go through the following process to be registered:

1. Application via the Project Submission Form (PSF), done by the Project proponent.
2. Documentation review and alignment assessment, done by aOCP Operations Team.
3. Payment of onboarding fee by the project proponent.
4. Project pre-registration is done by aOCP Operations Team.
5. On-site validation of the implemented Project activities, done by aOCP Operations Team.
6. Elaboration of Baseline report, Monitoring plan, and Contingent table of credits issuance, done by aOCP Operations Team.
7. Project proponent agreement.
8. Project Verification by an external, independent, 3rd-party Verifier, delivering a Project Verification Report.
9. Project registration letter and first credits issuance, done by aOCP Operations Team.

This report corresponds to step 2, alignment assessment. The methodology and data gathered on-site are presented here.

Alignment assessment

The aOCP is founded on robust principles aimed at ensuring that Project activities seeking registration and accreditation with Verified Nature Positive Credits (VNPCs) demonstrably and positively impact ecosystems in a real, measurable, permanent and additional manner, while avoiding any harm to ecosystems and/or society.

Conformity with the aOCP's principles, values, rules, and requirements is a fundamental prerequisite for participation in the program. This evaluation occurs during the onboarding phase, prior to the registration of Project activities. This mandate is stipulated in the aOCP Procedures

document, which outlines all the stages a Project undergoes from its inception to the issuance, trading, and retirement of VNPCs.

A positive result of the alignment assessment with aOCP's principles, values, rules, and requirements confirms that the proposed Project activity:

1. Falls into one of the following project types:
    a. Forest management, including ARR
    b. Regenerative agriculture
    c. Silvopastoral management
    d. Urban forests / individual tree climate action
    e. Biochar
2. Adheres to the environmental and social no-harm prerequisites,
3. Is anticipated to yield positive impacts on biodiversity,
4. The Project was developed less than 24 months ago;
5. Conforms to the additionality criteria for the requested VNPCs,
6. Possesses documentation substantiating land ownership or an agreement for the project's duration,
7. The Project area has not been degraded, deforested, or burned in the last 24 months;

Certain circumstances may result in an unfavorable assessment and, if not rectified or clarified satisfactorily, could lead to the rejection of the Project activity's registration within the aOCP.

These circumstances include:

*   Non-compliance with aOCP's principles, values, rules, and requirements,
*   Issuance of contradictory and/or false declarations by the Project proponent or Project developer,
*   Diminished confidence in the Project activity's ability to yield anticipated ecosystem and/or social benefits due to an inadequate risk management plan, which encompasses a comprehensive assessment of internal, external, and natural risks, as well as risk mitigation and contingency planning.

According to the information provided by the Project proponent in the Project Submission Form (PSF), the proposed Project activity belongs to the aOCP category of *Forest management.* The information provided in the PSF states that "*Continuing the work done in previous seasons, 38.000 trees of 6 different species were planted. This area, characterized by its extreme temperature conditions and low rainfall, has also suffered from the invasion of Eucalyptus. When in monoculture, this species can exhaust soils and leave little to no space for natural regeneration.*

During this plantation, 10 workers participated in removing Eucalyptus individuals and planting a mix of autochthonous species to enhance biodiversity and recover the fertility of soils. This plantation also allows for native plants to colonize the space between the lines, doubling the restoration efforts. To ensure a high survival rate for the new saplings, the land was previously prepared using machinery, while the plantation was done by hand by the workers.

Furthermore, as part of our long-term commitment to restoration, we planted a mixture of species that provide fruits and pines to the landowner to provide economic revenue. This revenue can be

then used to assure proper maintance of the plantation". The project area declared in the PSF is 438,786 m^2. However, the Project proponent updated the polygons on January 25th, 2024, with a new area of 550,363.5 m^2. Soil works included land preparation "*with machinery, creating small terraces in the slopes in order to reduce surface runoff and maximize water retention*". Implementation was completed on 15/01/2024.

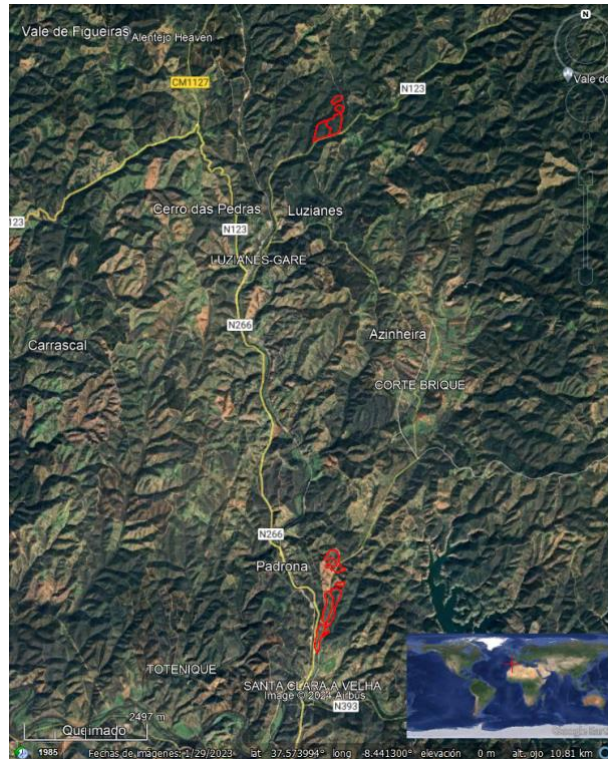Figure 1 shows the location of the Project area.

Figure 1. Project area location.

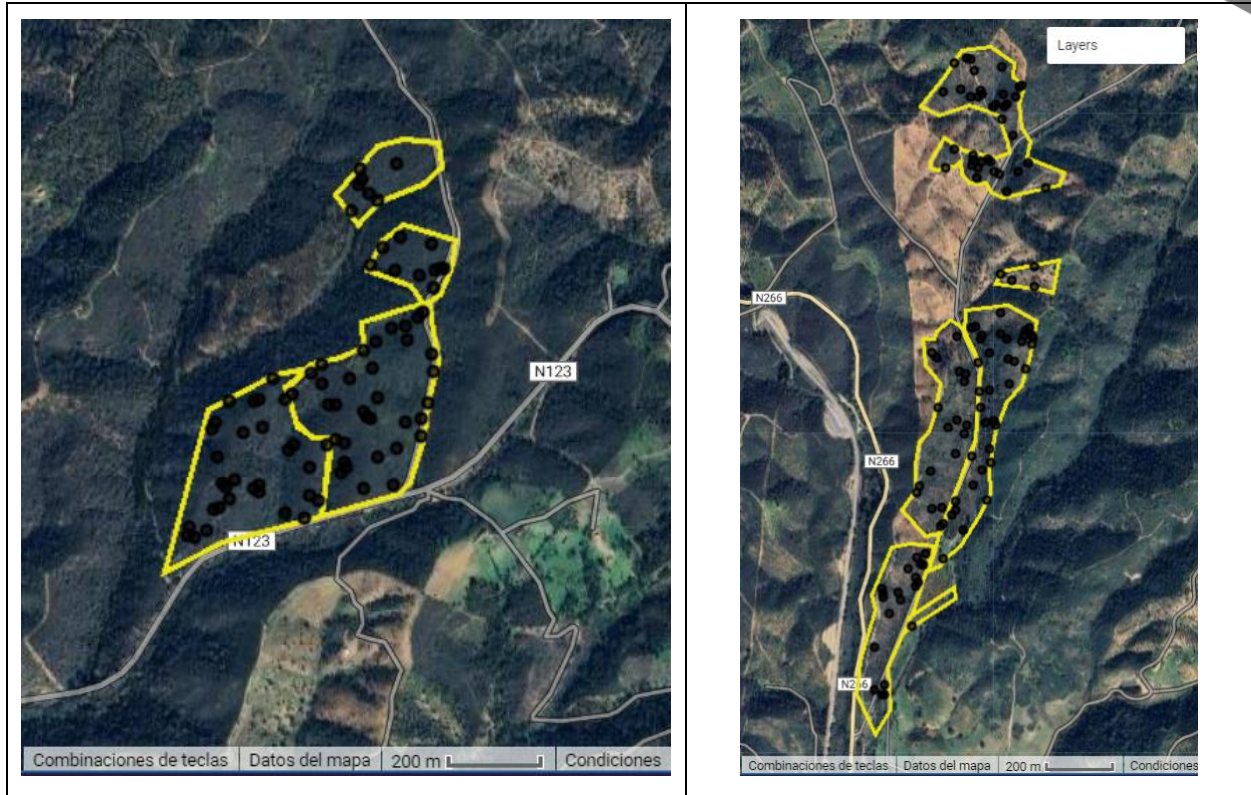Project area polygons and sampling points used for the present analysis are shown in figure 2.

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Figure 2. Project area and sampling points used for the NDVI analysis.

METHOD OF ANALYSIS

The proposed Project activity was assessed for its alignment with the aOCP rules and requirements, using the following checklist.

Alignment criteria	Yes	No
Does the project belong to one of the following types: • Forest management, including ARR • Regenerative agriculture • Silvopastoral management • Urban forests / individual climate action • Biochar	Y	
Does the project comply with the environmental and social no-harm requirement?	Y	
Is the project expected to have positive impacts on biodiversity?	Y	
If the project has already started, is it less than 5 years old?	Y	
Do the requested VNPCs comply with the additionality criteria?	Y	
Has documentation establishing land ownership or an agreement for the project's duration been provided?	Y	
Have any trees or shrubs been cleared in the project area in the last 2 years?		N

Historical land cover dynamics was analyzed using Google Earth high-resolution images as well as NDVI (Normalized Difference Vegetation Index) analysis. The NDVI is a widely used remote sensing metric that provides information about the density and health of vegetation in a specific area. It is calculated from the difference between near-infrared and red light reflectance from the Earth's surface.

When analyzing historic land cover, NDVI can be used to track changes in vegetation over time. By examining archived NDVI data, it is possible to observe trends in vegetation density, identify shifts in land use patterns, and monitor the effects of factors like urbanization, deforestation, or natural disasters.

NDVI provides information on the quantity and quality of vegetation in a given area. It varies from -1 to +1, where values closer to +1 indicate dense and healthy vegetation, while values close to -1 suggest a lack of vegetation or presence of artificial surfaces.

In Google Earth Engine, the maximum monthly NDVI from January 2019 to October 2023 was calculated using Sentinel-2 satellite imagery. Random control points were then plotted in each property (Figure 1) and the monthly NDVI value at each point was extracted.

Google Colab was used to generate a box plot showing the distribution of NDVI values at the control points. A box plot is a standardized way of displaying the distribution of a data set based on its summary of five numbers of data points: the "minimum", the first quartile [Q1], the median,

the third quartile [Q3], and the "maximum". Box plots provide information on outliers, symmetry of the data, degree of clustering, and whether and how the data are skewed [1].

RESULTS

Satellite images (figures 3 and 4) show that no trees have been removed in the Project area between March 2021 and January 2023.
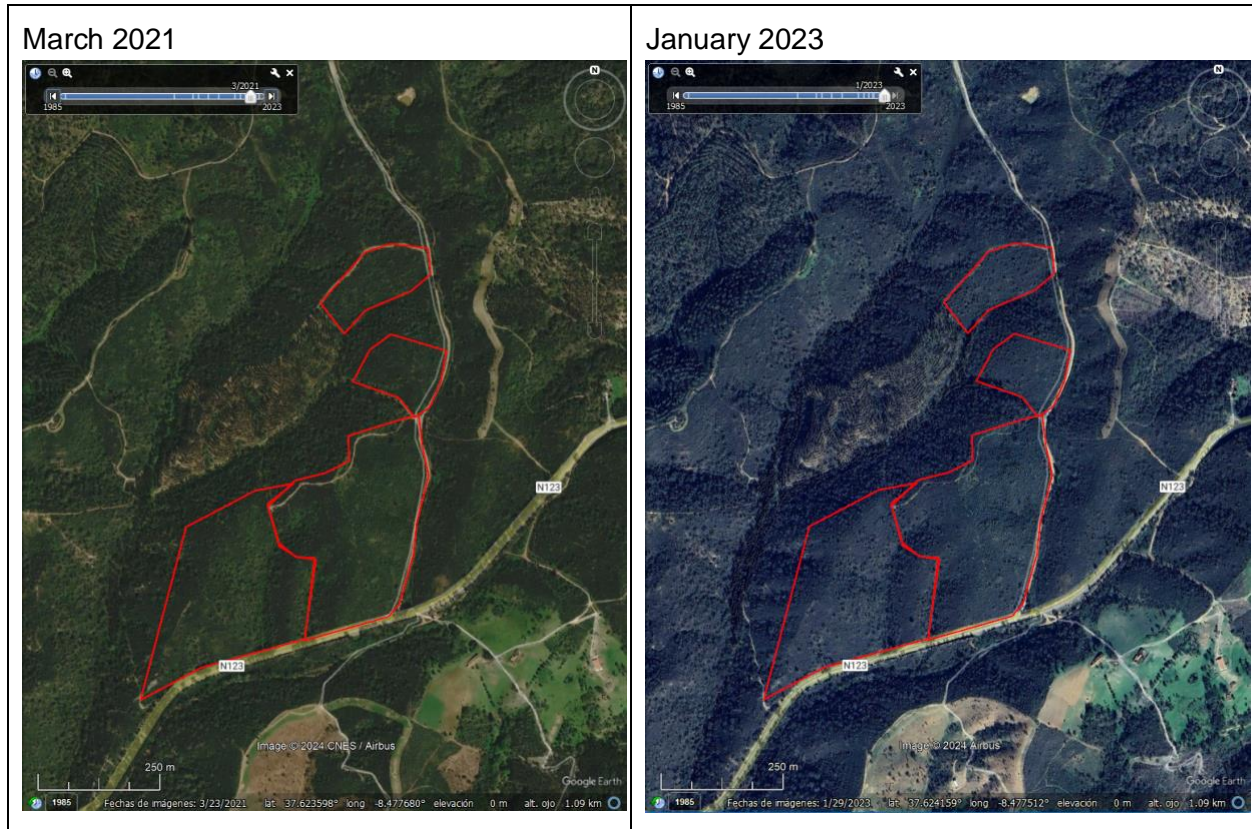

Figure 3. Google Earth images from different dates from 2020 and 2023 in northern section polygons.

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[1] Galarnyk, M. Understanding Boxplots. https://builtin.com/data-science/boxplot
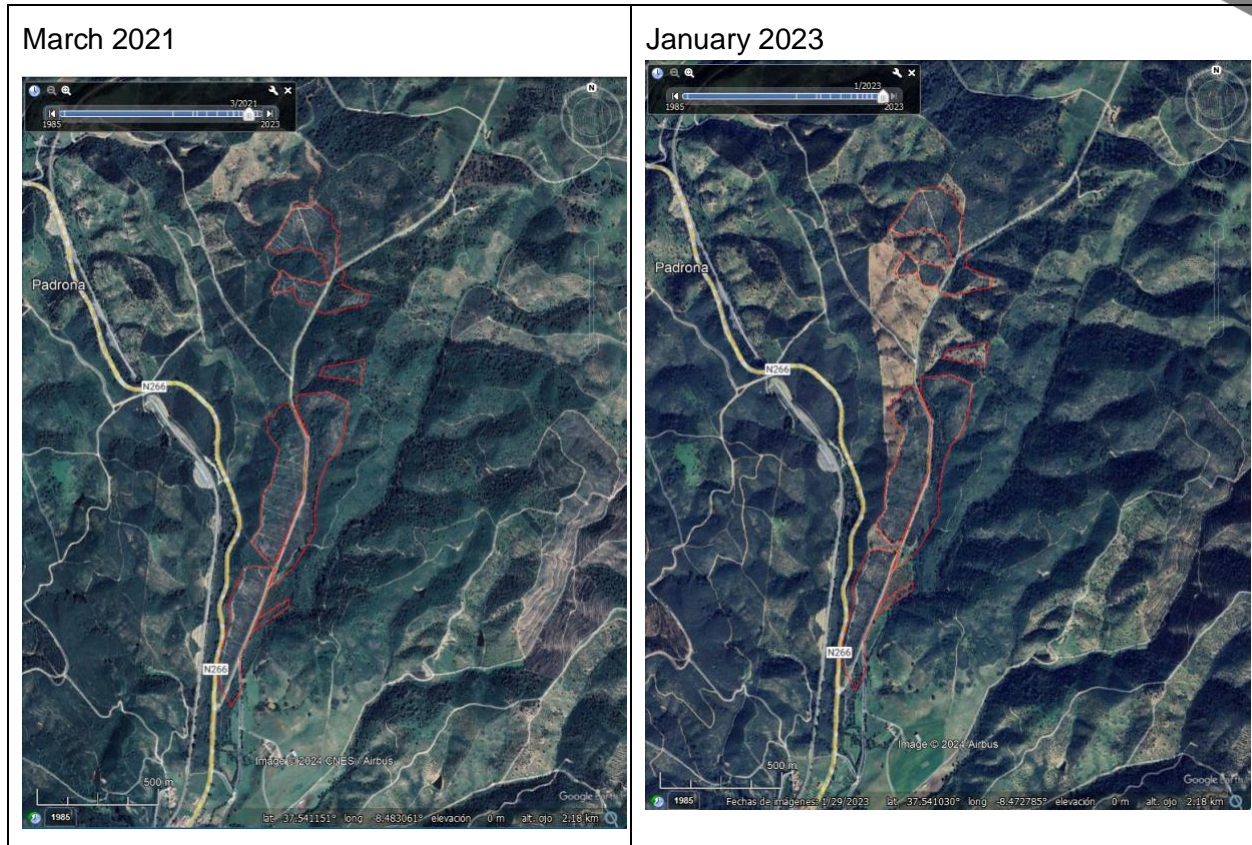
Figure 4. Google Earth images from different dates from 2021 and 2023 in southern section polygons.

Figure 5 shows monthly NDVI and rain in the project area. NDVI analysis shows average yearly values have remained constant since 2019, with values between 0.5 and 0.6. Regular oscillations follow precipitation patterns. No drastic changes in NDVI are observed before the second half of 2023. NDVI decrease starting in August 2023 reflect the removal of eucalyptus trees as part of the ecological restoration project. The large size of the boxes in the chart indicate that some areas loss vegetation cover (eucalyptus) resulting in low NDVI, while other areas kept the vegetation cover constant as in previoius years, i.e. high NDVI.

NDVI TIMELINE IN "LT-015-POR-25012024 LUZIANES-GARE PHASE 2, PORTUGAL" PROJECT AREA. N=200
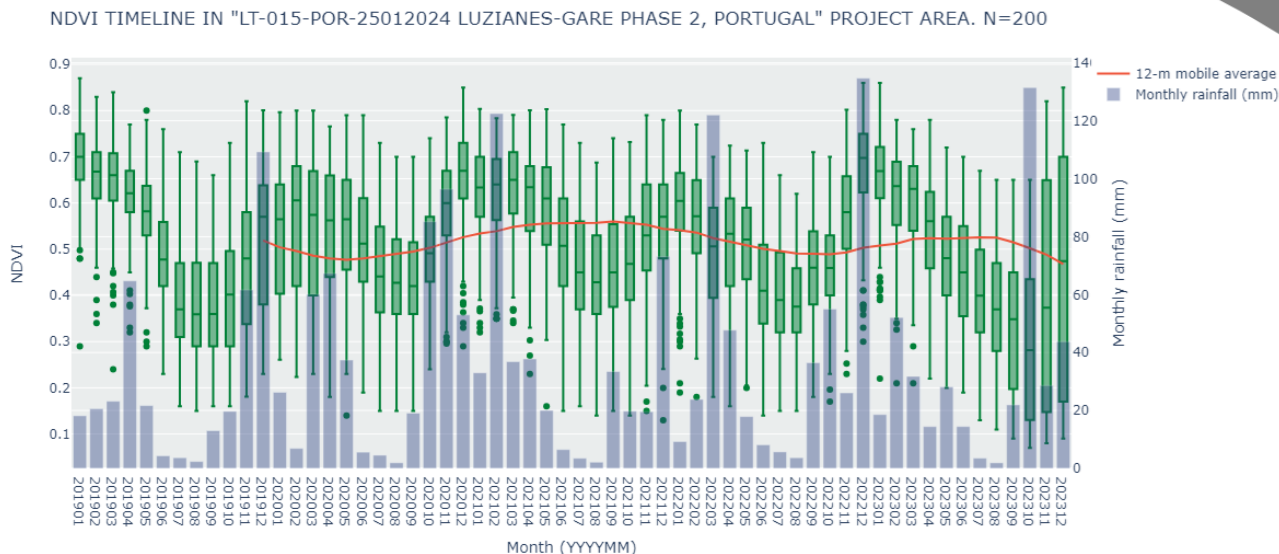

Figure 5. Monthly NDVI and rainfall since January 2019.

Terracing, implemented as a strategy to reduce runoff and increase water retention, provides multiple ecological benefits including soil loss reduction and increased water availability. This leads to increased soil health, and fire and flood risks reduction.

CONCLUSIONS

- The Project activities, consisting in the plantation of 6 native species, are aligned with the aOCP's principles and criteria. Furthermore, in addition to capturing carbon dioxide from the atmosphere, by increasing vegetation cover, the project is likely to positively impact biodiversity, protect the soil from erosion and sustain rainfall water infiltration.
- The Project activities have not caused net-harm to ecosystems or society, on the contrary, they are expected to create ecological, social and economic benefits, being a driver of sustainable development. Labelling of VNPCs for their contribution to SDGs will be subject to the assessment of SDG-specific indicators.
- The Project area has not experienced deforestation and anthropogenic soil degradation within the 24 months preceding the commencement of Project activities.
- The proposed Project activity is in alignment with aOCP rules and requirements and is therefore eligible for registration as a Modality B aOCP Project.