ASES ON-CHAIN PROTOCOL

PROPOSED PROJECT ACTIVITY ALIGNMENT ASSESSMENT

Creating green fences and increasing biodiversity at La Junquera farm, Murcia (Spain)

LT-018-SPA-2402024 JUNQUERA PHASE II, MURCIA, SPAIN

Life Terra

Modality B

May 3, 2024

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ases

On-Chain Protocol

ALIGNMENT ASSESSMENT FOR THE PROJECT SUBMITTED BY LIFE TERRA, "CREATING GREEN FENCES AND INCREASING BIODIVERSITY AT LA JUNQUERA FARM, MURCIA (SPAIN)", WITH AOCP IDENTIFIER LT-018-SPA-2402024.

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" submitted the project "Creating green fences and increasing biodiversity at La Junquera farm, Murcia (Spain)". This Project activity is in the onboarding stage with the aOCP identification code **LT-018-SPA-2402024 JUNQUERA PHASE II, MURCIA, SPAIN**. It is a Forest management project in, Murcia, Spain, and project activities were implemented on April 16th, 2024. Compliance with the principles, values, standards and requirements of the aOCP is a fundamental requirement to participate in the program. This evaluation takes place during the onboarding phase, prior to the registration of the project activities, as stipulated in the aOCP Procedures document, which describes all the stages that a Project goes through from its inception to the issuance, sale and purchase.

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 Procedures* document, Modality B projects shall go through the following process be registered:

1. Application via the Project Submission Form (PSF), done by 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, done by aOCP Operations Team.
5. On- site Validate of the implemented Project activities, done by aOCP Operations Team.
6. Elaboration of Baseline report, Monitoring plan, 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 Afforestation, Reforestation, and Revegetation (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 5 years 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;
8. For Projects requesting *Biodiversity Credits for Species Conservation,* a positive alignment assessment also confirms that the proposed Project area has a high conservation value due to its commendable state of preservation.
9. Areas where the Mean Species Abundance indicator (also reported as Biodiversity intactness) is lower than 0.90, indicating that biodiversity is at risk and requires restoration action are eligible for Biodiversity restoration credits.
10. The Key species for biodiversity conservation reported by the Project proponent, are recognized as Key species according to the criteria established in the *aOCP Methodology for biodiversity assessment for species conservation V1.0.*

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 plot at La Junquera farm in Murcia, Spain, consists of 5 different species of 50,000 trees planted within the area. These trees are planted as green barriers and hedgerows dividing the cropfields. The objective is to boost the biodiversity levels, create wildlife corridors, provide shelter for wildlife and create wind barriers for the protection of the main crops. This approach combines perfectly and adds more value to the regenerative practices that this farmer is already implementing in his production (mainly almond production, but also wine and lavender). By replanting all the fields boundaries he is helping to create a more resilient landscape, one that harbors wildlife, retains soil and helps infiltrate water.

The Project area and sampling points used for the present analysis are shown in Figure 1.

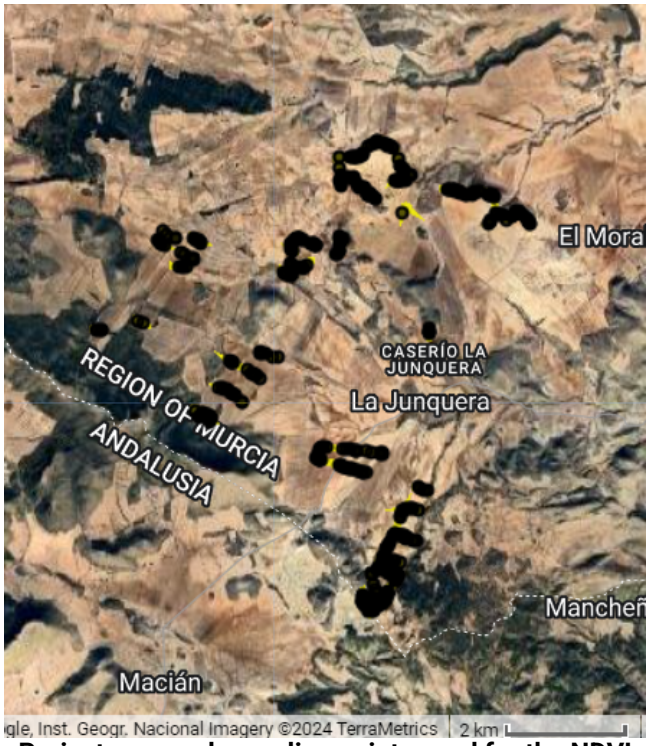

Figure 1. Project area and sampling points used for the NDVI analysis.

METHOD OF ANALYSIS

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

Alignment criteria	Y: yes N: no P: partially N.A.: not applicable	Comments
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?	*	Financial information to be provided by P.developer
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**	
For biodiversity conservation credits, Biodiversity intactness indicator is > 80%	**Y**	Biodiversity intactness as of 2020 is 80.7%
For biodiversity restoration credits, Biodiversity intactness indicator is < 80%	**N**	
Are the proposed key species aligned with the aOCP criteria for key species?	**Y**	

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 March 2024 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].

Biodiversity intactness quantifies the impact humans have had on the intactness of species communities. Anthropogenic pressures such as land use conversion cause dramatic changes to the composition of species communities and this layer illustrates these changes by focusing on the impact of forest change on biodiversity intactness[2]. This information was assessed via the Orbify platform.

RESULTS

The assessment of Google Earth images (Figure 2) reveals minimal changes in vegetation cover from 2020 to 2023. In the described project area of La Junquera Farm in the south of Spain, Murcia, the NDVI is likely to be relatively low due to several factors. Firstly, the region's high desertification problem suggests limited vegetation cover and sparse plant growth, resulting in lower NDVI values. Additionally, the harsh environmental conditions, such as arid climate and poor soil quality, further inhibit vegetation growth. The predominant farming activities in the project area, including almond, wine, and lavender production, may also contribute to the lower NDVI, as these crops require specific irrigation and management practices that might not fully support widespread vegetation. With the implementation of the project, it is expected that vegetation cover will progressively increase throughout the project's duration, contributing to the enhancement of ecosystem resilience within this area, as well as improving soil health and water infiltration.

[1] Galarnyk, M. Understanding Boxplots. https://builtin.com/data-science/boxplot

[2] Hill, S. L., Arnell, A., Maney, C., Butchart, S. H., Hilton-Taylor, C., Ciciarelli, C., ... & Burgess, N. D. (2019). Measuring forest biodiversity status and changes globally. Frontiers in Forests and Global Change, 2, 70.

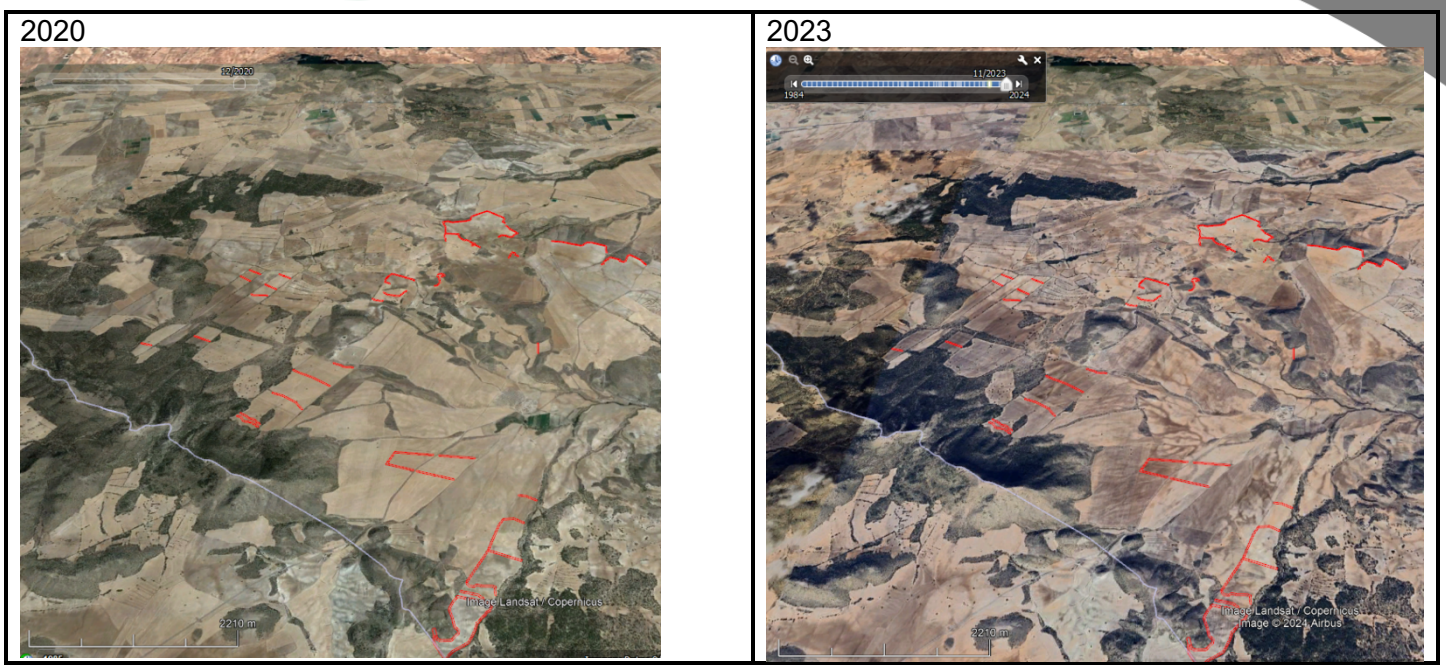

Figure 2. Google Earth images of the Project area from 2020 and 2023.

The monthly analysis of NDVI and rainfall is shown in Figure 3. The Normalized Difference Vegetation Index (NDVI) data spans from January 2019 to April 2024, revealing notable trends and fluctuations. Initially, from January 2019 to March 2020, NDVI values fluctuated around 0.30 without a discernible trend. However, from April 2020 to May 2021, there was a significant increase in vegetation activity, with NDVI consistently above 0.35. Following this peak, from June 2021 to August 2022, NDVI stabilizes around 0.30 before gradually declining. Seasonal patterns are evident, with NDVI typically peaking in mid-year months following a seasonal increase in rainfall and diminishing towards year-end. Notably, the 12-month moving average (MA) of NDVI values shows a sustained decline from April 2022 onwards, indicating a potential reduction in overall vegetation health. This trend continues into the data from December 2023 to April 2024, with NDVI values hovering around 0.22, highlighting persistent environmental challenges. No land cover changes were reported or observed during this period, therefore, the decrease in NDVI can likely be attributed to less rainfall during this period than in previous years. These findings underscore the importance of ongoing monitoring and management efforts to mitigate environmental degradation and preserve ecosystem vitality.

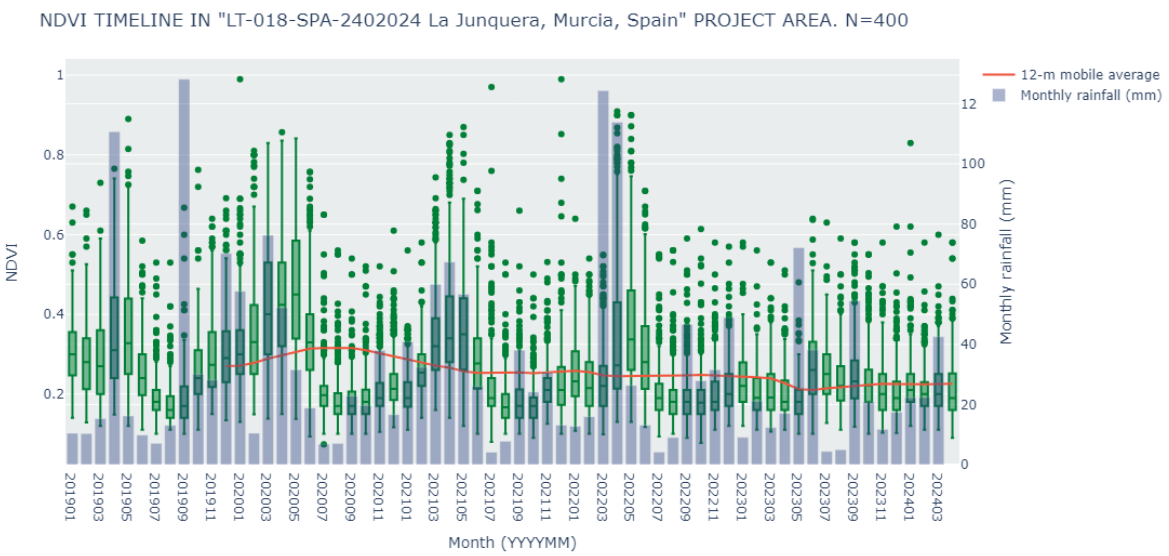

Figure 3. Monthly NDVI and rainfall since January 2019.

Biodiversity intactness decreased between 2017 and 2019 and had a slight average increase to 80.7% as of 2020 (Figure 4). This value is compatible with the biodiversity restoration objectives, however, this analysis precedes the project timeline, and the goal of this ecological restoration is to improve conditions in a harsh and desertified region in the south of Spain. More detailed information on the ecological status of the project area and its risks can be consulted in the *Preliminary assessment* document.

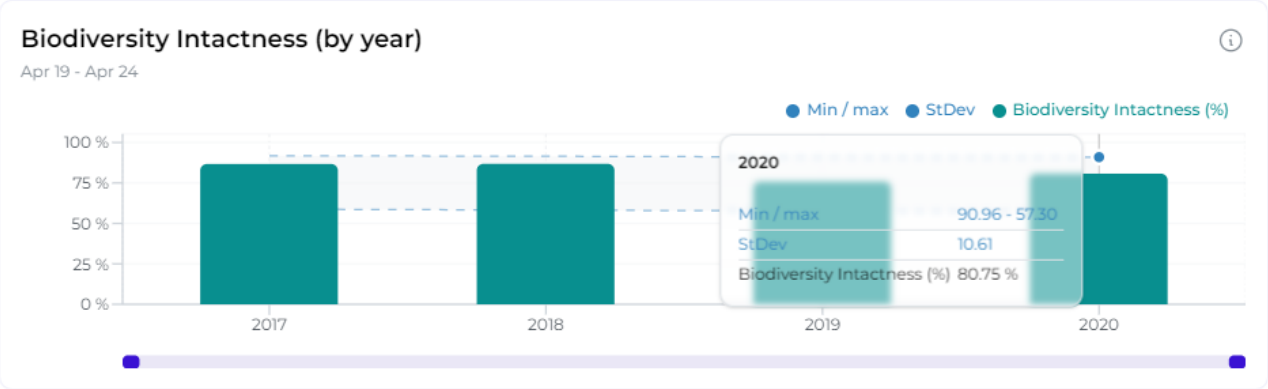

Figure 4. Biodiversity intactness.

The project focuses on the conservation of key species and their habitats, giving priority to the preservation of biodiversity. This prolonged effort aims to catalog meticulously and understand ecological dynamics, providing valuable data for strategies-informed conservation policies and management practices aimed at safeguarding the delicate balance of ecosystems. Therefore, the planned activities of the project represent an important step towards forestry and biodiversity management in the area of the project, while bringing crucial environmental benefits to the local community.

Some of the species are considered key because they are endemic or in some category of risk, and their potential distribution according to bibliographic information covers the project area, these

are presented in Table 1. However, the proponent must present the complete list of species inventoried in the project area and the corresponding evidence (photographs with camera traps, sensors, etc.) as established by the aOCP Methodology for biodiversity assessment for species conservation V1.0. in section III.2.1. Recompilation of data will be done, with which the aOCP team of technical experts will determine the species applicable to be considered "key" based on the criteria of the standard.

Table 1. Key species with potential distribution

Class	Scientific name	Common name	National Status	World status	Distribution Spain
Fauna					
Insecta	*Coenagrion mercuriale*	Southern Damselfly	NT	NT	Native
Insecta	*Onychogomphus costae*	Costa's Pincertail		NT	
Aves	*Aegypius monachus*	Cinereous Vulture	VU	NT	Native
Aves	Lanius senator	Woodchat Shrike		NT	Native
Reptilia	Mauremys leprosa	Mediterranean Turtle	VU	VU	
Reptilia	Testudo graeca	Greek Tortoise		VU	
Mammalia	Ammotragus lervia	Aoudad		VU	
Mammalia	Oryctolagus cuniculus	European Rabbit	EN	EN	
Reptilia	Timon lepidus	Ocellated Lizard		NT	Native
Gastropoda	Chondrina granatensis			NT	
Insecta	Kurtharzia sulcata			EN	Endemic
Aves	Lanius meridionalis	Iberian Grey Shrike		VU	Native
Insecta	Pycnogaster sanchezgomezi			NT	
Flora					
Liliopsida	*Macrochloa tenacissima*	Alfa Grass		VU	Native
Liliopsida	*Allium melananthum*			NT	
Magnoliopsida	*Lactuca singularis*			VU	Native
Magnoliopsida	*Santolina elegans*			VU	Native
Magnoliopsida	*Teucrium balthazaris*			NT	
Magnoliopsida	*Tamarix boveana*			VU	
Magnoliopsida	*Echium flavum*			EN	Native

Global status IUCN Red List: (CO) Collapsed, (CR) Critically Endangered, (EN) Endangered, (VU) Vulnerable, (NT) Near Threatened, (LC) Least Concern, (DD) Data Deficient, (NE) Not Evaluated.

The establishment of green fences will be strategically aligned with site restoration objectives and economic requirements within the Forest management project. Consequently, the planned project activities represent a significant step toward expanding forest coverage in the project area as these trees are planted to serve as green barriers and hedgerows, dividing the crop fields to enhance biodiversity, establish wildlife corridors, offering shelter for wildlife, and creating wind barriers to protect the main crops on the rest of the farm.

CONCLUSIONS

- The Project area has a biodiversity intactness of 80.7%, which is aligned with biodiversity conservation objectives.
- The potential distribution of at least 13 species of fauna and 7 species of flora, in some category of risk and/or endemic, highlights the importance of biodiversity conservation activities in the project area
- In addition to positively impacting biodiversity, the project is expected to increase carbon dioxide removal and sequestration by enhancing vegetation cover, as well as safeguarding the soil from erosion and sustaining rainfall water infiltration.
- The aOCP rules and requirements establish that at least 5 plant species should be included to further enhance biodiversity. The planting of 5 different species native to the region meets this requirement.
- The project implementation was completed in April 2024, which meets the requirement of projects not more than 5 years old at the time this alignment assessment is carried out. Additionally, satellite assessment reveals the project area has not been cleared in the past two years.
- Having assessed all these criteria for the aOCP Modality B project alignment criteria, this project “Creating green fences and increasing biodiversity at La Junquera farm, Murcia (Spain)” with key identifier LT-018-SPA-2402024 is deemed eligible to be registered as a Modality B, Forest management project and can proceed unto the next steps of assessment for VCCs.