HCSA indicative study - Ucayali Landscape
Ucayali, Perú

EXECUTIVE SUMMARY

The High Carbon Stocks (HCS) and High Conservation Values (HCV) approach aims to assist in the identification of social and biodiversity values in the landscapes that require consideration for conservation actions from companies and smallholders related to oil palm, cocoa, reforestation, among others, especially if they are aiming to become part of a supply chain with responsible sourcing commitments. This is done through the development of land use planning tools that use the information from HCS/HCV maps to guide users to conserve areas that this approach considers unsuitable for oil palm or another commodity development.

This indicative study map has been developed using the framework of the HCS Approach (HCSA toolkit & Modules) and is in line with the HCSA Trialing Protocol, which outlines the set of rules for governing the trialing process including scoping visits, field tests, and adaptation trials. The HCSA trials are registered with the HCSA network and in this case this indicative Ucayali study serve as input for a simplified HCS/HCV methodology in process of development by the HCSA network (*Ongoing and completed HCSA trials*)[1].

The scope of this protocol is applicable to trialing methodologies and procedures for incorporation into the HCSA's toolkit/guidance and other relevant HCSA outputs across different scales, commodities, regions and forest ecosystems, for instance, **at a level of landscapes with a predominance of smallholders**, such as the case of the Ucayali landscape.

This indicative HCSA study at a landscape level was carried out in a total area of 284,281 hectares, corresponding to two regions: Ucayali and Huanuco, with the highest percentage of the landscape surface in Ucayali (93%). In Ucayali, the landscape covers eight districts: Nueva Requena, Yarinacocha, Calleria, Manantay, Curimana, Neshuya, Alexander Humboldt, and Campo Verde. In Huanuco, it covers two districts: Honoria and Tournavista. Campo Verde and Neshuya are the districts with the largest area of the landscape.

The following is a summary of the key points from the Ucayali HCS/HCV indicative study.

Methodology

To determinate HCS areas, a preliminary HCS land cover map was developed in an initial phase, after that field validation of points was carried out to correct any error that may be generated in the initial

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[1] For more detail check here: https://highcarbonstock.org/wp-content/uploads/2021/08/HCSA-Trialling-Protocol-V1-Sep-2018.pdf and https://highcarbonstock.org/additional-resources/hcsa-application-and-trials-dashboard/

classification. The initial classification was made from secondary information, among which are highlighted satellite images that must be no older than 12 months and have a minimum spatial resolution of 10 m, less than 5% cloud cover within the Area of Interest (AOI), among others[2].

Subsequently, field work was carried evaluating 227 plots with the support of companies from the palm oil, cocoa and timber sectors. A total area of 284,281 was evaluated through a HCS forest inventory.

This forest inventory lasted 14 days, where five (5) field brigades, each one made up of four (4) professionals from areas of forest sciences, biology, dendrology, among others; evaluated a total of 227 circular plots (500 m2), located on farms of producers/suppliers of associations or companies.

During field truthing, the lead assessor (licensed assessor, according to guidelines of the methodology) makes an estimation of accuracy based on visual interpretation of forest structure, presence of secondary versus primary tree species and takes photos N, W, S, E and above as reference. These visual checks are conducted as they provide valuable ground-truthing of the indicative maps and allow the assessment team to cover more of the landscape area rather than if only complete HCSA plots are established).

With this validated land cover map, the decision tree was followed to determine areas to conserve or to develop. The decision tree is an instrument to identify and prioritize viable and valuable forest plots within a fragmented production landscape like this one[3].

Variables such as the size of the area, the connectivity that is generated between patches, the forest composition of the patch, HCV values, among others; are taken into consideration when ranking the patches. Flood ecosystems and their buffer zones, lakes, native communities, rivers buffer zones have been considered as HCV values (the buffer was given based on the width of the rivers and following the RSPO reference) and areas with a slope greater than 25° (following the RSPO reference). We had the support of a consultant specialized in GIS programs and land cover analysis.

Key Results:

- There is a variety of protected areas near the evaluation landscape, including two national parks: Cordillera Azul and Sierra del Divisor; a communal reserve: El Sira, and a regional conservation area (ACR, by its acronym in Spanish): El Cira. However, neither overlaps with the evaluation landscape. It should be noted that, during the process of preparing this document, it was observed that there is an Alto Tamaya-Abujao Communal ACR (CATA) in

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[2] This information is available in the HCSA toolkit v.2.0 Module 4 – Forest and vegetation stratification (2017). Website link: https://highcarbonstock.org/wp-content/uploads/2017/09/HCSA-Toolkit-v2.0-Module-4-Forest-and-vegetation-stratification-190917-web.pdf

[3] Modules: https://highcarbonstock.org/the-hcs-approach-toolkit/

the process of approval by the Presidency of the Council of Ministers of Peru; area close to the landscape, whose precise location will be announced once the ACR CATA (SPDA, 2021) is approved and will undergo an evaluation process within the framework of the HCS/HCV methodology.

- According to MIDAGRI (2020), there are three (3) native communities present in the landscape: San Francisco, Santa Teresita and San José de Tunuya. It is worth mentioning that the total extension of the San Francisco community is 1398.72 ha; however, only 6% (85.2 ha) of this extension is within the Landscape. San José de Tunuya belongs to the Ashaninka ethnic group; while Santa Teresita and San Francisco to the Shipibo-Conibo ethnic group. The total surfaces of these native communities were considered as HCV 6, according to the precautionary principle indicated by the methodology.

- Approximately 89,105 ha of HCS and HCV conserve areas were identified through HCSA patch analysis.

- According to the results of the study, there would be an underestimation of the remaining forest cover and other areas of high conservation value when compared to the Ecologic & Economic Zooning - ZEE (2016) of the Ucayali region. According to the ZEE, the areas to be conserved cover an approximate area of 61,053 ha, while the HCS/HCV indicative study results in 89,105 ha to be conserved; that is to say, almost 30,000 ha additional to what was estimated by the ZEE. We believe this is because of the level of precision (micro zooning level) this study carries, the methodology used and the available satellite images (Sentinel 2 and Planet).

The following table shows the results of the study.

Table 1. Results of the HCS/HCV indicative study in Ucayali

| Classification	Area		Description
	ha	%	
Areas to conserve	89,104.91	31%	Areas that have been identified as high conservation value or HCS forest that have been through the decision tree and warrant protection. These include all HPP, MPP, or LPP [4] forest patches that are connected to HPP.

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[4] HPP, MPP, or LPP: High Priority Patch, Medium Priority Patch, or Low Priority Patch. Classification according to HCSA methodology.

Areas indicative to conserve	11,727.10	4%	These are the patches that would help connect proposed conservation areas within conservation hubs, facilitating connectivity throughout the landscape. These correspond to both indicative development patches and "give and take".
Developed areas (non forest)	181,186.14	64%	Non HCS areas that include agriculture, roads, villages, among others. These areas also have potential to develop.
Areas of potential development (with wooded characteristics)	2,262.87	1%	In these areas, LPPs are not connected to HPPs, nor do they provide a potential landscape link. These patches are defined as having the potential to be developed in the land use planning process at the landscape level. However, as a precautionary principle, the result must be confirmed in the field.
Total	284,281	100	

The following map shows the location of areas resulting from the HCS/HCV study, where it can be noted that 64% of the landscape are already developed surfaces, that is, they are not forest areas and have potential for development. For its part, there are 2,262 ha with potential for development or expansion.

Legend

Study area

Results

Development

Proposed conservation areas

Proposed development areas
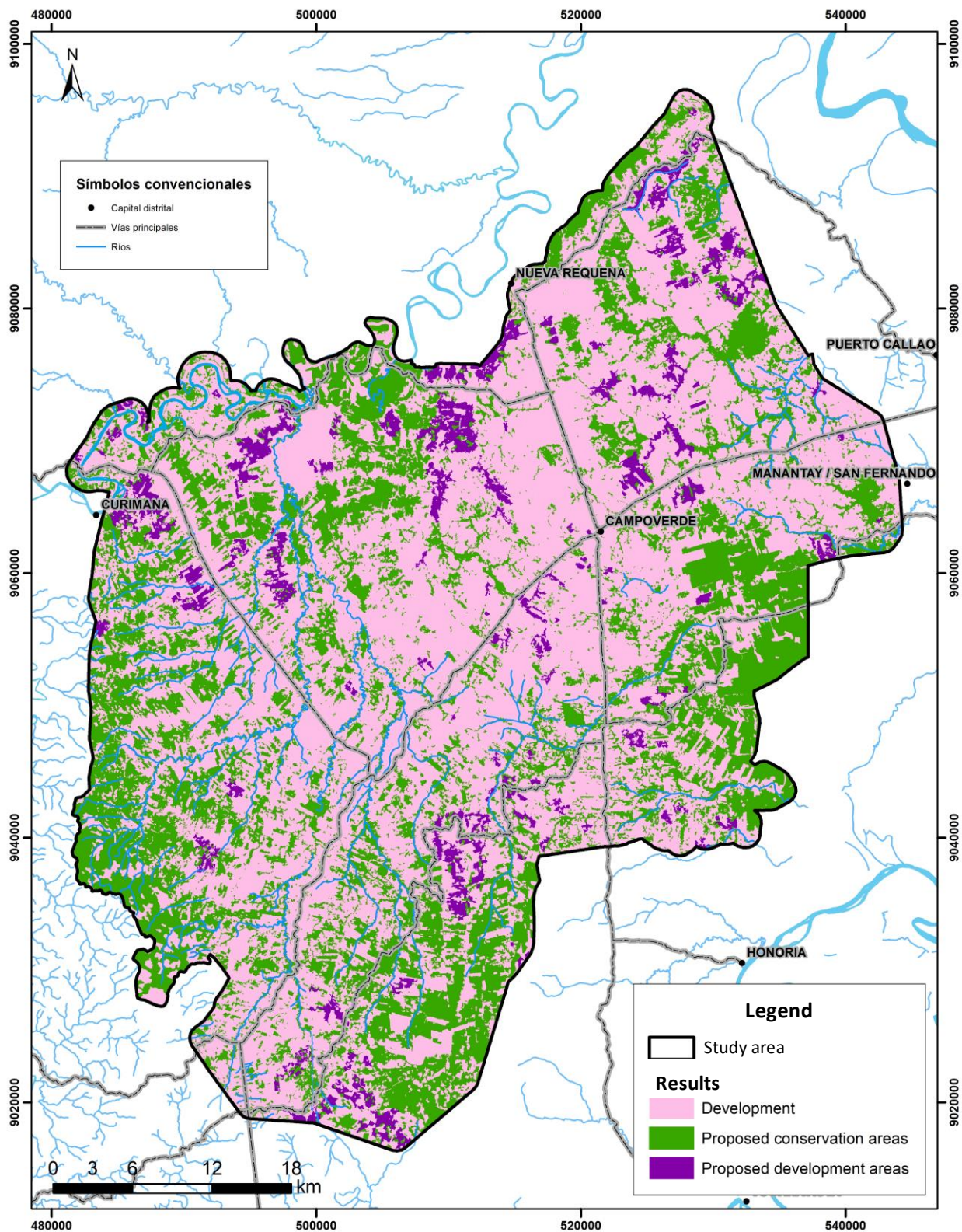
- Regarding HCV values, the assessment team identified three types of values in the landscape that were incorporated into the patch analysis (and the final HCS and HCV indicative map) as proposed conservation areas:
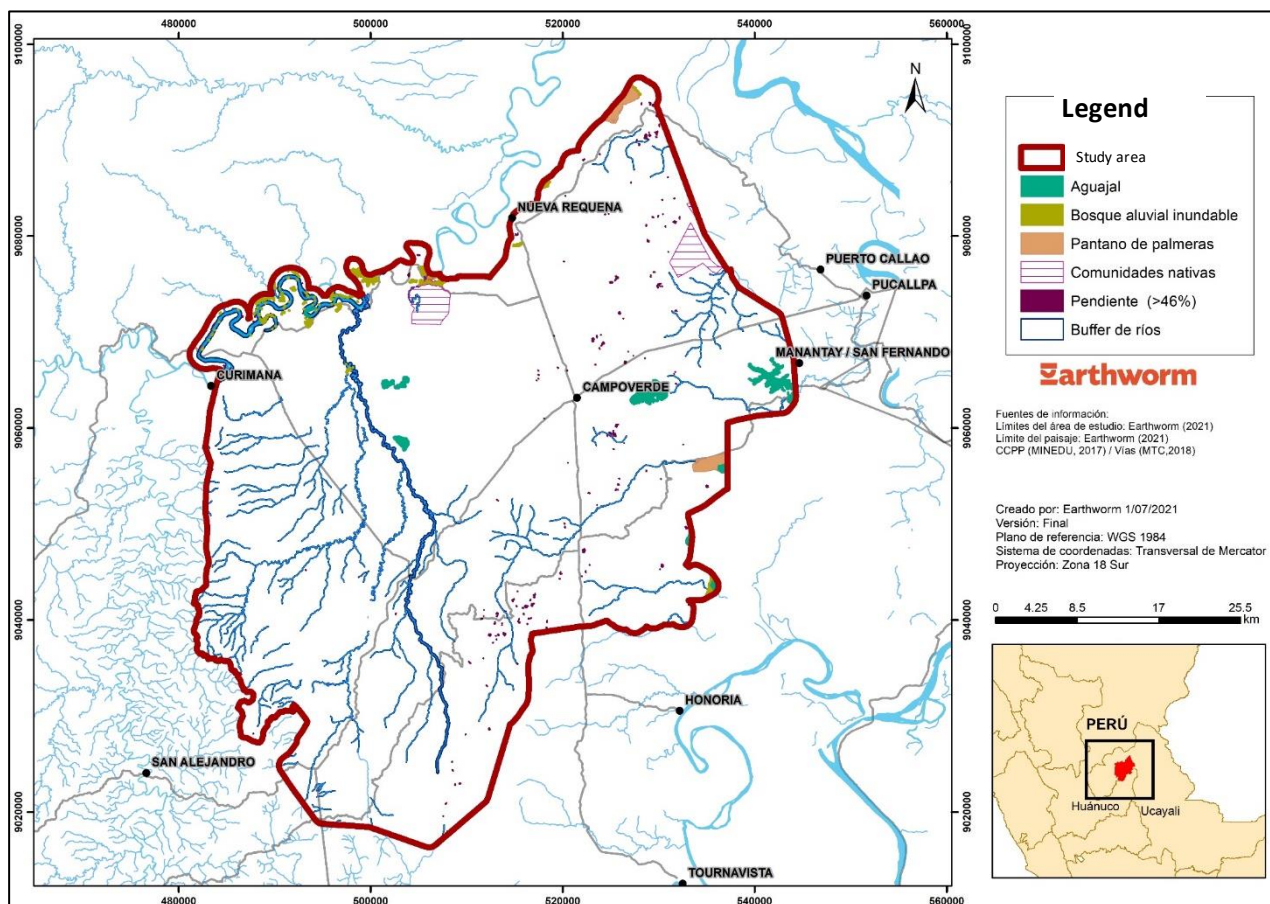
- **HCV 1, 3, 4 and 5:** 5,779 ha of flooding ecosystems and their buffer zones. Aguajales most likely represent important refuges for rare, threatened, or endangered animal and plant species, as well as alluvial floodplain forests: ecosystems, habitats, or refuges that are considered rare, threatened, or endangered. The team considers that the protection of *M. flexuosa* and other flood-prone ecosystems should be a high priority in Ucayali.
- **HCV 4:** 129 ha of slopes greater than 25 degrees within the landscape were identified using a GIS slope model.
- **HCV 4 and 5:** 5,411 ha of water bodies and their buffer zones. The largest aquatic systems were identified using spatial data obtained by Earthworm. In turn, a visual interpretation of the flow widths was performed to determine the buffer zone that was identified following the RSPO guidelines.
- **HCV 5 and 6:** native communities: 2,910 ha

Conclusions y recommendations

- The assessment team considers that the indicative HCS and HCV approach used for this study constitutes a valuable land use planning tool for small oil palm, cocoa, and other crops properties and an adequate guide for agricultural expansion, without affecting areas that harbor HCS and HCV values. It is based on detailed satellite imagery, field data and analysis,

leading us to a product that has a high level of accuracy. According to the HCSA methodology, for this type of studies, the land cover classification requires at least a thematic accuracy of 80% or above[5].

- The assessment team recommends that if the HCS and HCV indicative map exist already, this should be used as a first step to start the RSPO certification process for small producers, since it allows compliance with many of the principles and eligibility criteria, by being able to identify the HCS/HCV areas.

- In the case of new plantations, the HCS/HCV indicative study applied at the farm level, can provide criteria for decision-making on the expansion or not of plantations.

- The team proposes that the development and application of management plans for HCS and HCV areas at the farm level is necessary to promote conservation of HCV 1-6 and HCS values. These management plans, at the same time, are useful to meet milestones A and B of RSPO certification and due diligence in the traceability and monitoring processes.

- Additionally, the management plans at the farm level make it possible to identify those HCS/HCV values not captured by the indicative map (small streams, areas with steep slopes under forest canopy, etc.).

- This is particularly relevant for HCV 1, HCV 5 and HCV 6. The detailed biodiversity information needed to identify HCV 1, in particular, cannot be collected only at the landscape scale. However, because this is a forest landscape and the HCS forests will be protected, we assume that the HCV 1 values are related to the forest and therefore the risk of loss of that HCV is low. Therefore, to complement the indicative map, the preparation of HCS/HCV management plans is recommended, which includes a procedure to verify the presence of rare, endangered and threatened species.

- Regarding HCV 5 and 6, their identification is also included in the management plan. This approach is suggested here, in addition to spatial analysis of indigenous land presence and engagement with organizations representing indigenous peoples, as a reasonable way to identify AHCV values at the landscape level.

- Additionally, to ensure that HCS and HCV indicative results are used in an inclusive and transparent manner, the team recommends that HCS and HCV indicative studies be accompanied by a land use planning approach and multi-stakeholder outreach. In this sense, this study has been shared between 2021 and 2022, with different actors: local authorities (Economic and Environmental Development Directorates of the Regional Government of Ucayali, research institutes such as CIAT, IIAP, ICRAF[6]; national governments such as Environmental Ministry (MINAM) and Agricultural Ministry (MIDAGRI), private companies, cooperatives and producer associations; resulting in a wide acceptance of the usefulness of this study.

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[5] Module 4: FOREST AND VEGETATION STRATIFICATION (page 14-15): https://highcarbonstock.org/wp-content/uploads/2017/09/HCSA-Toolkit-v2.0-Module-4-Forest-and-vegetation-stratification-190917-web.pdf

[6] CIAT: The International Center for Tropical Agriculture, IIAP: Research Institute of the Peruvian Amazon, and ICRAF: World Agroforestry.