

JULY 2018

HIGH CONSERVATION VALUE ASSESSMENT SUMMARY (HCV)

REFORESTADORA DE PALMAS DE EL PETÉN S.A. (REPSA)



BIO Terra

Consultores Ambientales

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Licensed Advisor

Public Summary
High Conservation Value Assessment - HCV
Existing Farms

Prepared for:
REFORESTADORA DE PALMAS DE EL PETÉN S.A. (REPSA)

Location:

Municipalities: Sayaxché
Departments: Petén
Country: Guatemala



Name of the Advisor:

M.SC. DARIÉN ZÚÑIGA LEITÓN

Delivery date:

July 2018

PUBLIC SUMMARY

DATE	July 2018
NAME OF THE HCV ADVISOR	DARIÉN ZÚÑIGA LEITÓN
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CONSULTANT'S LICENSE	ALS14005DZ
TYPE OF LICENSE	Permanent
COMPANY REQUESTING THE ASSESSMENT	Reforestadora de palmas del Petén S.A. (REPSA) Carlos Enrique Arevalo García carevalo@olmeca.com.gt
LOCATION OF THE ASSESSMENT	Municipality: Sayaxché Department: Petén Country: Guatemala
ASSESSMENT DATE	February 2016 - July 2018
EXTENSION OF THE EVALUATION AREA	Total area: 20,545.13 ha Productive area: 19,422.44 ha
NUMBER OF HECTARES DESIGNATED AS HCV MANAGEMENT AREAS	Management areas: 1796.48 ha 167,04 KI
CURRENT LAND USE	The current land use is mainly oil palm plantations, livestock pasture, various crops and forest patches isolated and / or related mainly to bodies of water
CERTIFICATION METHOD	RSPO

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LIST OF ACRONYMS

<u>ACRONYMS</u>	<u>MEANING</u>
AICA	Important Bird Areas
AID	Area of Direct Influence
ANP	Natural Protected Area
HCV	High Conservation Value
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CONAP	National Council of Protected Areas
CONRED	National Council for Disaster Reduction
EER	Rapid Ecological Assessment
EN	Endangered
FSC	Forest Stewardship Council
GPS	Global Positioning System
HCV	High Conservation Value
ISCC	International Sustainability Carbon Certification
IBA	Important Birds Areas
IDAEH	Institute of Anthropology and History of Guatemala
INAB	National Forest Institute
LC	Least Concern
LEA	List of Endangered Species
MARN	Ministry of Environment and Natural Resources
MAGA	Ministry of Agriculture, Livestock and Food
NA	Not Applicable
NPP	New Planting Procedure
NT	Near Threatened
ONG	Non-Governmental Organization
PE	Endangered
PN	National Park
PNP	New Planting Procedure
PP	Precautionary Principle
SEGEPLAN	Secretariat on Planning and Programming of the Presidency of the Republic of Guatemala
SESAN	Secretariat of Food and Nutritional Safety
RAS	Rainforest Alliance
RAP	Rare, Threatened and Endangered Species
REA	Rapid Ecological Assessment
RSPO	Roundtable on Sustainable Palm Oil
SA	Public Limited Company
SI	Smithsonian Institute
SIG	Geographic Information System
SPG	Global Positioning System
UM	Management Unit
UICN	International Union for Conservation of Nature
UNESCO	The United Nations Educational and Cultural Organization
VES	Visual Encounter Surveys
VU	Vulnerable
WWF	World Wildlife Fund

1. INTRODUCTION

The details of the dates on which this HCV assessment was carried out are presented below.

1.1. DATES OF THE ASSESSMENT PROCEDURE

TABLE 1. DATES OF THE ASSESSMENT PROCEDURE.

<u>AGENDA OF ACTIVITIES CARRIED OUT</u>
JANUARY 2015
• Contact is established between the Company and Bio Terra, and negotiations begin to perform an HCV assessment of their farms. • The offer is made to carry out the REPSA HCV Assessment.
APRIL 2015
• The contract between Bio Terra and the Company for the performance of the HCV Assessment is finalized. • Bio Terra provides guidelines for the work required to perform the Rapid Ecological Assessment (REA) by the counterpart consultants in Guatemala.
NOVEMBER 2015
• The REA is performed in the area of study.
DECEMBER 2015
• REPSA receives the REA. • The Project is stopped by internal company issues.
AUGUST 2016
• The Project resumes. • The list of information requirements needed to carry out the HCV Assessment is sent to the Company. • The company sends first information on its farms and operations. • The company sends the REA that was generated on December 2015. • Field work coordination begins by the Bio Terra team.
SEPTEMBER 2016
• Field work coordination continues by the Bio Terra team. • The Company continues to send the information requested for performing the HCV Assessment.
OCTOBER 2016
• Field work coordination continues by Bio Terra. • The Company continues to send the information requested for performing the HCV Assessment. • Bio Terra sends the company the control points that will be checked in the field. • The work schedule for Bio Terra is created. • Bio Terra performs a study of the Project's location at a regional and local level, and preliminary maps of potential HCVs are created from a desktop analysis.
NOVEMBER 2016
• The last details are finalized for the Bio Terra team field work. • The field work is carried out by Bio Terra between November 6 and 13: ✓ General study area recognition by Bio Terra. ✓ Review of the company's documentation. ✓ Consultation with social actors (participatory mapping)

✓ Final consultation with social actors. • Additional information is requested from the Company after the visit. • The Company continues to send the information requested for performing the HCV Assessment. • A bibliographic review of existing information for the area is carried out. • The HCV Assessment creation begins • Creation of HCV Assessment maps begins.
DECEMBER 2016 AND JANUARY 2017
• The HCV Assessment creation continues. • Creation of HCV Assessment maps continues. • Bio Terra reviews the information provided by the Company. • The Project is again stopped by internal movements within the Company.
YEAR 2017
• The Project was stopped by internal movements within the Company.
MAY 2018
• The Project restarts again. • The Company is required to provide certain information to update data. • The Company sends the LUCA, and the updated table of farms. • The HCV Assessment creation continues. • Creation of HCV Assessment maps continues.
JUNE 2018
• The Company sends the updated farm shapes. • The HCV Assessment creation continues. • Creation of HCV Assessment maps continues.
JULY 2018
• The Company sends the information requested of the shapes received. • The HCV Assessment creation continues. • Creation of HCV Assessment maps continues.
AUGUST 2018
• The last concerns of the company about its farms, names, etc. are finalized. • The last details of the HCV maps are finalized. • The final details of the HCV Assessment are finalized. • The Final Evaluation of the HCV Assessment is delivered.

1.2. REFERENCE DOCUMENTS USED

Below are the main reference documents used for preparing this HCV assessment:

- HCV Assessment Manual (HCV Resource Network, September 2014)
- HCV Assessment Report Template (HCV Resource Network, June 2015)
- Template for Public Summaries of HCV Assessment Reports (HCV Resource Network, June 2015)
- Common Guidance for HCV Identification (HCV Resource Network, October 2013)
- Common Guidance for HCV Management and Monitoring (HCV Resource Network, September 2014)

1.3. PROJECT STATUS

The Project encompasses existing oil palm plantations, in predominantly agricultural areas.

The scope of the evaluated area includes 21 farms that cover a total area of 20,545.13 hectares, and a productive area of 19,422.44 hectares.

1.4. COMPANY INFORMATION

In January 1999, the agricultural project REPSA was born, focused on oil palm cultivation. The company starts operations, planting 317 hectares of palm, in the farm El Tamarindo, and settling its administrative office in a rented house in the urban area of the municipality of Sayaxché, Petén.

In view of the growth of the Project, in 2002 the raw oil extraction plant was built, with a capacity of 25 tons per hour. The first harvest was 829 tons, in the same year.

The establishment of the Extraction Plant II of the project, took place from 2003 to 2004, and began extraction in 2005, according to the productive growth of the palm fruit. In 2013 it began extraction operations in an annex of plant II.

Currently, on high production dates, 750 tons of fruit are processed daily per extractor, and fruit is received from both our own farms and from independent producers (Mercedes and Buenos Aires, S.A.).

Fresh fruit bunches harvested in the field are sent to the REPSA I or REPSA II plants in order to obtain raw oil, then the pipelines are filled which transport the raw oil to the refining plant located in Fraijanes in the Capital City, to finally obtain the Olmec oil product.

The Company's plantations are mostly located on its own farms, with the exception of 6 properties that are leased.

The total number of employees working for REPSA is 7405, distributed as follows:

Agricultural Area:

- 1679 permanent heads
- Crew 5480 heads

Industrial Area:

- Extractor I: 123 heads
- Extractor II: 123 heads

The following are the Good Environmental Practices implemented by the company:

- Integrated Pest Management.
- Integrated solid waste management
- Perimeter reforestation with native species of the area
- Zero wastewater discharge to water bodies.
- Conservation of local flora and fauna
- Protection of riparian areas

- Efficient use and management of water
- Greenhouse gas emission reduction plan
- Generation of clean energy through biomass produced from fresh fruit bunches.

Below is the Company's contact information:

TABLE 2. CONTACT INFORMATION OF THE COMPANY.

Company Information	Reforestadora de Palmas de el Peten, S.A.
Corporate ID	1690059-6
Name of Legal Representative	Carlos Enrique Arevalo García
Phone	24295555 ext. 7456
Email address	carevalo@olmeca.com.gt
Environmental manager or person in charge before the RSPO	Fritz George Versluys Martinez
Phone	30072913
Email address	fversluys@olmeca.com.gt

The company currently has the ISCC (International Sustainability Carbon Certification) and is in the process of obtaining the RSPO (Roundtable on Sustainable Palm Oil) certification.

1.5. DESCRIPTION OF THE ASSESSMENT AREA

The farms under study are planted with oil palms and are located in the municipality of Sayaxché in the department of Petén in Guatemala.

The following table shows the farms assessed, their total area, productive area, years of establishment and renovation, who manages them and their location.

TABLE 3. INFORMATION OF THE PROPERTIES UNDER STUDY.

Block	Year of establishment	Year of renewal	Administration	Total area (Ha)	Production area (Ha)	Location
UNPLANTED	0	0	Plantaciones de la República, S.A.	131.03	0.00	Sayaxché, Petén
A: NICTE	2000, 2010, 2011	2015	Plantaciones de la República, S.A.	526.62	463.51	Sayaxché, Petén
B: UNION B	2011, 2013	0	Plantaciones de la República, S.A.	175.18	172.17	Sayaxché, Petén
C: CHAMPEGUANO	2010, 2011	0	Plantaciones de la República, S.A.	123.07	121.48	Sayaxché, Petén
E: LA TORRE	2004	0	Plantaciones de la República, S.A.	168.83	156.68	Sayaxché, Petén
F: LA COLONIA	2009, 2010, 2011, 2012	0	Plantaciones de la República, S.A.	726.67	715.55	Sayaxché, Petén
G: EL TUCAN	2004, 2008, 2010, 2011, 2012, 2013	0	Plantaciones de la República, S.A.	1,566.86	1,491.96	Sayaxché, Petén
H: MIRADOR 1	2010, 2011, 2012, 2013	0	Plantaciones de la República, S.A.	1,075.58	1,058.41	Sayaxché, Petén
I: CUBIL	2008, 2009, 2010, 2013	0	Plantaciones de la República, S.A.	2,303.66	2,239.25	Sayaxché, Petén
J: GUADALUPE	2013	0	Plantaciones de la República, S.A.	59.20	58.55	Sayaxché, Petén
M: LAS CAMELIAS	2007, 2008, 2010, 2013	0	Plantaciones de la República, S.A.	559.53	551.86	Sayaxché, Petén
N: VALLE VERDE	2008, 2012	0	Plantaciones de la República, S.A.	330.53	326.98	Sayaxché, Petén
A: NICTE	2000, 2002	2013, 2015, 2017	Reforestadora Palmas de El Petén, S.A.	992.30	793.83	Sayaxché, Petén
B: UNION B	2001, 2002, 2003, 2005, 2007, 2008	2010, 2012	Reforestadora Palmas de El Petén, S.A.	2,074.95	2,026.78	Sayaxché, Petén
D: SANTA MARIA	2002, 2003, 2004, 2008	0	Reforestadora Palmas de El Petén, S.A.	1,826.44	1,777.63	Sayaxché, Petén
F: LA COLONIA	2001, 2004	2010, 2011, 2012	Reforestadora Palmas de El Petén, S.A.	598.09	587.05	Sayaxché, Petén
G: EL TUCAN	2003, 2005, 2005, 2008	0	Reforestadora Palmas de El Petén, S.A.	1,777.10	1,746.03	Sayaxché, Petén
H: MIRADOR 1	2005	0	Reforestadora Palmas de El Petén, S.A.	1,218.54	1,201.45	Sayaxché, Petén
J: GUADALUPE	2000, 2002, 2003	2012, 2013, 2015	Reforestadora Palmas de El Petén, S.A.	3,236.92	2,942.21	Sayaxché, Petén
M: LAS CAMELIAS	2007, 2008	0	Reforestadora Palmas de El Petén, S.A.	567.05	557.54	Sayaxché, Petén
N: TAMARINDO	1999	2011	Reforestadora Palmas de El Petén, S.A.	506.97	433.52	Sayaxché, Petén
Total				20,545.13	19,422.44	

The proposed Project is considered to be large scale, but low intensity because it is considered to be practically a single block.

It is important to mention, that the Project does not intend to perform any use conversion, since it is about existing plantations.

82% of the project's area is inserted in the La Pasi3n River Basin and 18% of its area in the Salinas River Basin. Most of the plantation area is located in the southwest of the municipality of Sayaxch3, while two blocks are located near the departmental capital, Sayaxch3. La Pasi3n River is the main body of water in the area.

The southwest of Pet3n, is characterized by its flat lands, predominantly agricultural and livestock, and currently with a tendency to expand agriculture in the form of monoculture. Notwithstanding the above, in terms of protected areas in the zone, the following stand out: The San Rom3n Biological Reserve and its buffer zone, the Aguateca and Ceibal Cultural Monuments, El Pucte and Petexbat3n Wildlife Refuges, and El Rosario National Park.

Some farms (M: Las Camelias, I: Cubil and H: Mirador 1), border the core zone of the San Rom3n Biological Reserve to the south and west, and are even located within the buffer zone of the Reserve, specifically in the agroforestry management zone designated by CONAP.

On the other hand, it should be noted that the Valle Verde farm is partly within the buffer zone of the Petexbat3n Wildlife Refuge, but most of it is actually within the core zone of the Refuge. The Tamarindo farm is also located within the buffer zone of the Petexbat3n Wildlife Refuge and 1km from the core zone of the refuge. While there is connectivity between the farm and the refuge's core through the Tamarindo River (located north of the farm) there is no bordering or overlap between the management unit and the refuge's core.

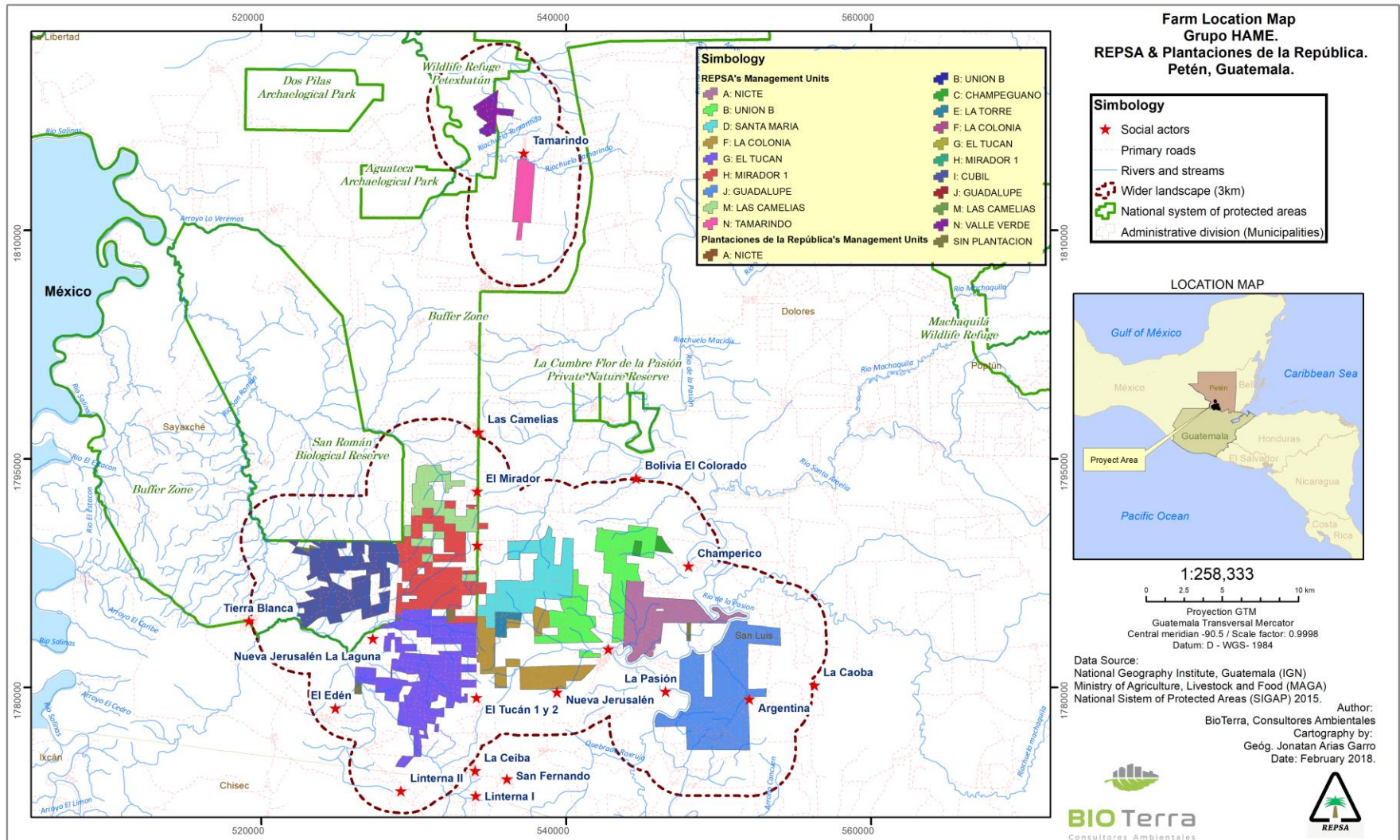
Agricultural activities have undermined the region for decades, which is why the remaining natural ecosystems are actually very few. Forests and woodlands in the area, although present, are dispersed and isolated in most cases, and are associated mainly with rivers and streams.

In the study area, several forest remnants were observed in different states of conservation, mostly secondary with intervention by extraction of timber species, fires or advance of the agricultural frontier. Due to the high degree of disturbance, colonizing species such as guarumo, cuje, and other creeping species prevail.

Within the farms under study, these forest patches are scarce, small and are mostly forests in recovery. There are some exceptions to the latter, with a forest mass of approximately 55.58 ha on the Tamarindo farm. This reserve (not registered before SIGAP) is a primary broadleaf forest, with species representative of the life zone. It harbors endangered species such as: saraguato, ocelot, wild pig, deer, among others. According to aerial photography, unfortunately there is no greater connection between this reserve and other blocks of forest. The Petexbat3n Wildlife Refuge is approximately 4 km away.

In many of the areas where the REPSA farms border the La Pasi3n River (and other bodies of water) there is a lack of gallery forests; oil palms in some areas reach the banks of the rivers and even in its course due to flooding of these lotic bodies. The fauna species refuge was notorious, especially of *Iguana* (garrobo) and *Allouta pigra* (saraguato) that were observed in abundance, even in reproduction (iguanas) and with young (saraguates).

FIGURE 1. FARM LOCATION MAP.



1.6. TECHNICAL TEAM THAT PARTICIPATED IN THE ASSESSMENT

The technical team that participated in the development of this HCV Assessment is presented below:

TABLE 4. TECHNICAL TEAM THAT PARTICIPATED IN THE ASSESSMENT.

<u>NAME</u>	<u>LICENSE OF THE ALS</u>	<u>INSTITUTION</u>	<u>FUNCTION</u>	<u>PROFESSIONAL COMPETENCE</u>
DARIÉN ZÚÑIGA L. MSc.	ALS14005DZ Complete	Bio Terra Environmental Consultants	Head Consultant Biologist	Biologist specialized on sustainable development, ecology, Master in Audits and Environmental Management specialized in integral water management and contaminated soil recovery. Experience in flora and fauna taxonomy Extensive experience in ecological assessments and analysis of water bodies using biological indicators. Participated in over 20 HCV studies throughout Central America and Mexico.
Marisol Zumbado B. MSc.	ALS14004MZ Complete	Bio Terra Environmental Consultants	Biologist	Professional in Biological Sciences with emphasis in ecology in sustainable development, Master in Audits and Environmental Management with specialization in management and conservation of natural areas and marine pollution. Specialist in Environmental Management Studies and Plans. Extensive experience in HCV studies with over 20 studies conducted in Central America and Mexico.
Lic. Jonathan Arias Garro	NA	Bio Terra Environmental Consultants	Geographer - GIS	Geographical sciences, specialized in Land Management. Knowledge in Environmental Management and Audits in Environmental Engineering and Technology. Experience in Urban Ecology and Interurban Biological Corridors. Extensive performance in thematic mapping and spatial analysis.
Cynthia Rosales Calvo, MSc.	NA	Bio Terra Environmental Consultants	Sociologist	Master's Degree in Housing and Social Equipment. Specialist in design, organization and implementation of participative processes for diverse study designs.
Ph.D Rosa Bustillos I.	NA	Bio Terra Environmental Consultants	Derecho Ambiental	Doctor in Environmental Law. More than 30 years of professional practice. Director of the Talamanca Caribe Biological Corridor for 20 years, consultant for the National Forestry Financing Fund (FONAFIFO) for 10 years, and Environmental Consultant for Conservation and Natural Resource Management Projects.

2. METHODOLOGY

The development of this report was carried out following a series of methodological procedures, which allowed to produce the data that reflect the current status most accurately.

Rapid Ecological Assessment (REA)

The methodological process included a preliminary visit in November 2015, along with the Rapid Ecological Assessment (REA), for which field work was carried out over a period of 10 days. This is a systematic and articulated methodology that quickly helps to provide the information needed for decision making regarding biodiversity conservation (Sayre *et al.*, 2000). It is also used to quickly determine the structure of the landscape, community and habitat and to integrate multiple levels of information, where the most outstanding is the fieldwork, focused on groups of organisms that allow us to obtain some knowledge of the biological diversity of the area (Sobrevilla & Bath, 1992).

Precisely, in order to know the diversity of the sampling area, a process was followed to obtain data, which was based on the main groups of flora and fauna (mammals, reptiles and birds). For this purpose, we had the support of biologist José Luis López, who was the counterpart for this project in Guatemala and who made the preliminary visit. In addition to collecting all environmental information, the consulting company Bio Terra, also conducted a field visit to the farms, in order to verify the data obtained from a random sampling and feedback the data obtained. For more detail on this methodology, see annexes 11.1.1, 11.1.2 and 11.1.3.

For the selection of sampling sites, a detailed and intensive analysis was carried out using inputs such as vegetation coverage maps and satellite images. The sampling points were chosen based on different criteria, seeking the suitability of these sites. Among the variables used are vegetation coverage, conservation areas, rivers, streams, boundaries with other natural areas, proximity to protected areas, patches or remains of forest and flood areas. Other criteria include ecologically strategic sites that may be subject to impact from the palm oil production cycle activities. Some farms that comprise the REPSA complex, border protected areas, bodies of water, as well as neighboring communities; these sites were also key in gathering information (López, 2015).

Therefore, sampling to characterize the area was done based on the representativeness of biotic components of the area and not for each farm. In this way it is possible to have an overview of the wealth and ecosystems that are influenced by REPSA's activities (López, 2015). As a final result, the design of the REA sampling campaign had 18 strategic sampling points, and additionally Bio Terra between November 6 and 13, 2016 visited 92 additional sampling points both within the farms and in their surroundings (see Annex 11.1.9), in which it used the same methodologies detailed in this section.

Social consultation

Likewise, a process of consultation and gathering information was carried out within the communities and with key social actors, to reinforce information on the absence or presence of HCVs in the area, hand in hand with existing information. This consultation and interview process were carried out by a professional team with experience in the social field. In this process, focus groups were mainly used, and some structured and semi-structured interviews were used in isolation.

The social consultation process was carried out between November 6 and 13, 2016, and consists of two stages, the first where primary research and information gathering is carried out and, the second (Final Consultation) in which preliminary HCV maps are shared with stakeholders, and these maps and management measures are discussed, to finally determine whether or not the stakeholders agree with them.

As part of the social consultation through focus groups, participatory workshops are held in which space and materials (maps, among others) are provided so that the same social actors can contribute to the location and identification of the HCVs present in the ADI.

For this social consultation we worked with various focus groups, which correspond to the social actors of the different sectors of analysis. For both the focus group consultation and the individual interviews that were conducted, the templates included in Annex 11.1.8 were used as a basis.

It is important to mention that as part of the stakeholder consultation process, participatory mapping is also carried out, in which the social actor focus group is sub-divided into smaller groups, so that each sub-group is made up of people from the same sector. The objective is that each sub-group creates a sketch or map on large flip chart paper, where they identify the main environmental and social elements of their communities, and then each group presents its results, and these results are analyzed and discussed by the entire group.

Participatory mapping is done at the board level and not on the field, because logistical and legal factors (such as access to private property, among others) make it impossible to tour the wider landscape with social actors. However, with the community, Argentina did make a field trip, because it was necessary for them to identify one water source in particular that they use which is within the REPSA cultivation block.

The isolated interviews mentioned above, correspond to some interviews that are conducted in the field during the visits and sampling on the farms, with strategic people that the team meets during the tour, in order to complement the information generated in the work with the focus groups.

With the information gathered during this social consultation process, the advisory team carries out a qualitative analysis, and complements it with research that is carried out through a bibliographic review and information available in different public institutions such as The National Council of Protected Areas (CONAP), National Council for Disaster Reduction (CONRED), Institute of Anthropology and History of Guatemala (IDAEH), National Forest Institute (INAB), Ministry of Environment and Natural Resources (MARN), Ministry of Agriculture, Livestock and Food (MAGA), Secretariat of Planning and Programming of the Presidency of the Republic of Guatemala (SEGEPLAN).

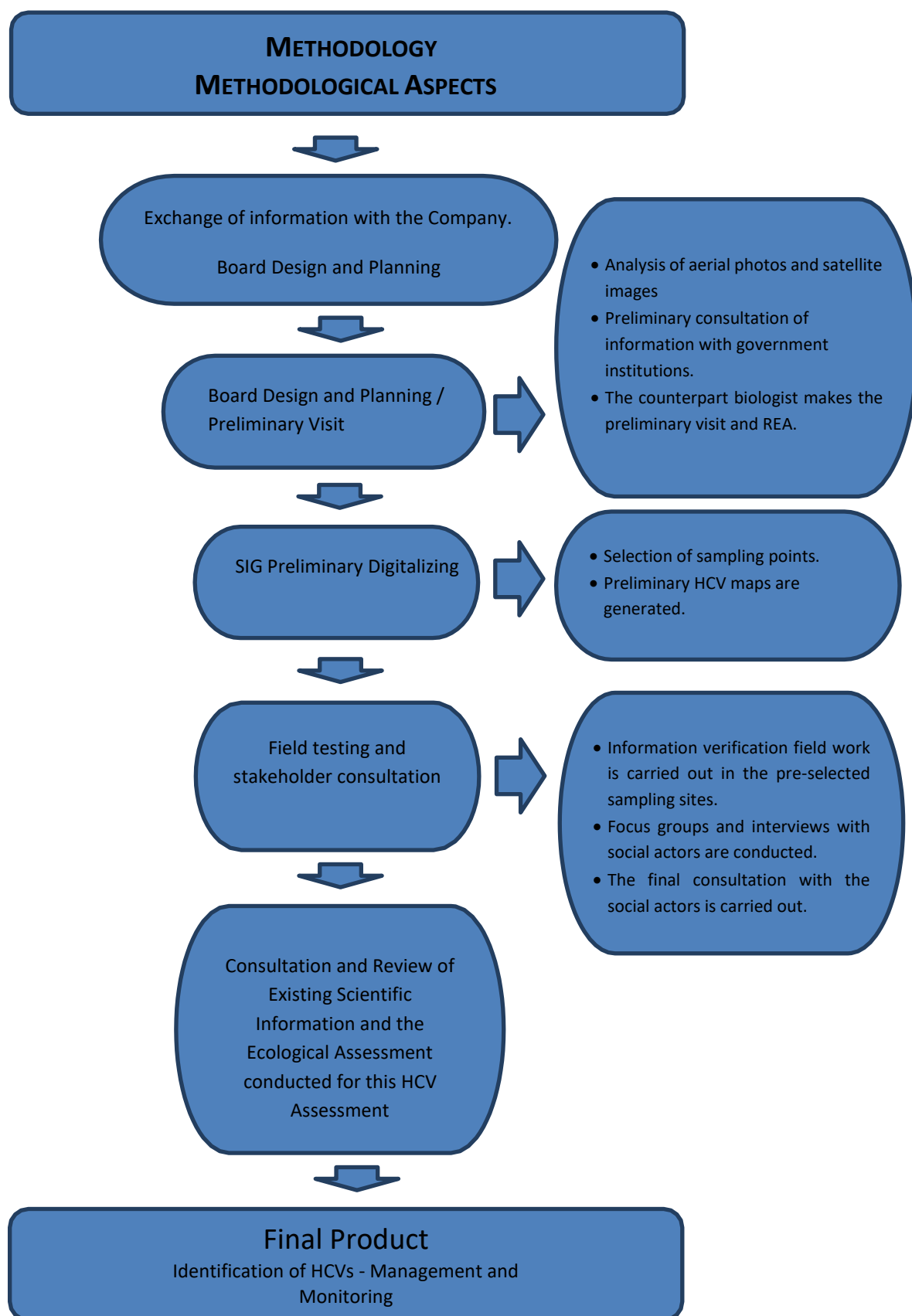
It is important to mention that Bio Terra has already conducted other HCV assessments in the area, so they have a good knowledge of the area and the HCVs there. This information is complemented with geospatial analysis, aerial photos, satellite images, coverage interpretation, etc., in order to generate preliminary HCV maps. These preliminary HCV maps are generated before the field work is carried out, and with them part of the work with the social actors is developed as indicated in advance. Similarly, the issue is handled with management and monitoring measures, where first the social actors present their concerns and recommendations, and then these are discussed based on the information previously generated by Bio Terra. The above, as part of the Final Consultation performed.

To incorporate the results from this process, a qualitative analysis was carried out. Evidence of this process was included in the annexes.

Complementarily, a bibliographic review was carried out on the existing information on the area under study, both at the level of formal scientific studies, and through informal consultation to gather local knowledge, which would enrich the information obtained directly through the field research process. In addition, it is reiterated that Bio Terra has conducted other HCV assessments in the area, so it already has much of the necessary information.

Annex 1 includes specific details of the methodologies used for the development of this study. The detail of the sampling points is also included.

2.1 GENERAL METHODOLOGY (ORGANIZATION CHART)



2.2 METHODOLOGY FOR IDENTIFYING HIGH CONSERVATION VALUES (HCV)

TABLE 5. METHODOLOGY FOR IDENTIFYING HCV.

HIGH CONSERVATION VALUES	METHODOLOGICAL PROCESS
HCV1: Species diversity	-SIG information ❖ Satellite image analysis. ❖ ASP maps, land use, etc. -Secondary information ❖ Listings of NGOs. ❖ Important Bird Areas, Guatemala. ❖ Socioeconomic Diagnosis of Sayaxché ❖ Development Plan for Sayaxché, Petén. ❖ Master Plan of Protected Areas of Southwest Petén. -Review of lists of species from national and international agreements ❖ CITES. ❖ UICN. ❖ Guatemalan regulations. ❖ Others.
-HCV2: Ecosystems and mosaics at a landscape scale -HCV3: Rare, threatened or endangered ecosystems and habitats	-Rapid Ecological Assessment (REA) conducted for the area of study. -Collection of field information / Field sampling ❖ Daytime terrestrial fauna. ❖ Daytime flying fauna. ❖ Flora -Consulting social actors through focus groups and/or individual interviews.
-HCV4: Ecosystem services	-SIG information ❖ Soil and vegetation maps. ❖ Hydrological maps ❖ ASP Maps ❖ Cartographic sheets. ❖ Satellite image analysis.
-HCV5: Community needs	-Secondary information ❖ Master Plan of Protected Areas of Southwest Petén. ❖ Analysis of government databases. -Consulting social actors through focus groups and/or individual interviews.
-HCV6: Cultural Values	UNESCO

TABLE 6. CHRONOGRAM CARRIED OUT DURING THE EVALUATION.

Date	Coordination to develop the HCV Assessment	Outreach visit is made	Fieldwork by counterpart in Guatemala (REA)	Board Work	Fieldwork by Bio Terra and consultation with social actors	Analysis of the information collected	Generation of the HCV Assessment
Jan - Oct 15							
Nov 15							
Dec 15 - Jul 16	Evaluation stopped by internal issues within the Company						
Aug - Oct 16							
Nov 16							
Dec 16 - Jan 17							
Feb 17 - April 18	Evaluation stopped by internal issues within the Company						
May 18							
Jun - Aug 18							

3. RESULTS

3.1. REGIONAL CONTEXT

Guatemala is located in the Neotropical biogeographical region, and in Guatemala itself the area of study is in the southern region of Petén.

Petén is the northernmost of the departments. Its extensive territory is considered one of the lungs of the planet, due to its exuberant vegetation. Currently, it has several protected areas such as the Mayan Biosphere Reserve, with more than one million hectares of subtropical rainforest. Its terrain is fairly even with altitudes ranging from 510 meters above sea level in Poptún to 81 meters in Melchor de Mencos, with some prominences caused by the branches of the Sierra de Chamá, which come from Alta Verapaz to Petén. One of these branches is the Mayan mountains and another is the Lacandón Sierra. There are some hills that separate the course of the Paxbán stream from the Azul River and other hills that form the framework of Lake Peten Itza, where the departmental capital, Flores, is located (*Municipal Dictionary of Guatemala*, 2001).

Peten has an unparalleled heritage of lakes and rivers. Among them are the San Pedro River, Usumacinta River, La Pasión River, Santa Isabel River, Machaquilá River, San Juan River, Río Azul, Río El Subín, Río Mopán and Río Chiquibul, navigable in many of their sections (*Municipal Dictionary of Guatemala*, 2001).

In the department of Petén, the type of ecosystem with the greatest coverage is the low altitude tropical forests, which are characterized by a high biological complexity and interdependence of species. Dominant, co-dominant trees and shrubs, grasses, vines and epiphytes live together in small areas serving as shelter and hundreds of large mammals, birds and reptiles, where each species plays a role in the stability of the forest. Of the 400 tree species reported in Guatemala, more than 300 are found in Petén.

Eco-regions of Guatemala

Guatemala is divided into 14 terrestrial eco-regions and each of them into diverse ecosystems. The area where the Company's farms are located belongs to the Peten-Veracruz Rainforests.

These are part of the tropical and subtropical humid broadleaf forests and in the country they cover 47,876 km² and can be identified in the physiographic regions of the northern highlands (90%) and northern lowlands (10%). This eco-region is typical of the humid tropical climate, with rainfall during seven months of the year. It is considered to be the largest tropical forest mass in North America and the natural boundary of tropical vegetation communities.

3.2. LANDSCAPE CONTEXT

3.2.1. TOPOGRAPHY AND GEOLOGY

The area encompasses the units of slightly rolling plains and rolling plains, of which the first is the most representative, as it covers the largest area of the territory.

Specifically, it includes the physiographic region of the great alluvial landscape of the La Pasión River, located in the southwest of the department, from the town of Santa Amelia in the south to the

vertex of El Ceibal and then Sayaxché to the north, it comprises adjacent to the La Pasión River with a minimum elevation of 125 meters above sea level and a maximum elevation of 150 meters above sea level, with a 4% slope, characterized by a meandering drainage. The area is located in the low plain of Petén, which extends along the rivers Salinas, San Román and Pasión; it has been subject to several tectonic deformation events, its strata appearing folded and faulted (Basterrechea, 2014). It is formed by land sediments from the Miocene to the Tertiary Pliocene and by marine sediments from the Paleocene-Eocene.

3.2.2. SOILS

According to Basterrechea (2014), the area has fertile and moderately fertile soils that allow for agricultural, livestock and forestry use. Among the 6 series of soils recognized are:

- Yaxhá (Yx): Shallow and well-drained, they are associated with terraces and limestone plains and karst hills, black in color and rich in organic matter.
- Chapayal (Chl): They have poor or slow drainage; they are deep soils, limestone shales, flat and rolling surface, gray color with clay texture, low erosion and moderate fertility.
- Sarstún (Sr): Low erosion and moderate fertility, slow drainage, capable of high humidity supply.
- Usumacinta (Us) and Petexbatún (Pe): Low plains along the La Pasión River, clayey and poorly drained, but with low erosion and high and moderate fertility, flat grayish-brown relief and clayey texture.
- Chacalté (Chh): Developed on limestone rocks, flat to rolling with slow drainage, erosion and high fertility.

3.2.3. HISTORICAL LAND USE

This area has witnessed the devastating effects of the rapid expansion of slash-and-burn agriculture, livestock farming, logging and palm plantations.

Historically, the study area has been predominantly agricultural and livestock, and currently the situation is more of agricultural expansion in the form of monoculture.

Coinciding with the above, and with what was indicated in the study carried out by biologist José Luis López, during Bio Terra Company's visit made to the region, it was possible to confirm that the area is indeed subject in its great majority to agriculture and livestock, with some very small patches of forest that are actually areas in disuse that are in natural regeneration processes, and some areas for reforestation, and river and lake banks.

3.2.4. CLIMATE

According to the Thornthwaite system, the area under study has a warm climate with a mild, humid winter without a well-defined dry season and natural forest vegetation.

According to Lopez (2015) and the information available from the Repsa rainfall measuring stations:

The average annual rainfall is 78.16 inches over the last 5 years. The years 2010 and 2013 show the highest annual averages with 99.50" and 93.24", respectively. The rainy season is from May to October; the dry season is from November to April.

Temperatures range from 13 to 39 degrees Celsius (°C); the maximum average over the five years

under analysis is 32°C and the minimum annual average is 20°C. The hottest months are from March to October, when temperatures drop with the rains. The month with the lowest temperatures is December.

3.2.5. HYDROLOGY

The area has three hydrographic basins that belong to the slope of the Gulf of Mexico, formed by the rivers: Usumacinta, La Pasión and Salinas; which at the same time form lagoons, streams and brooks, which are of vital importance for all productive activities, but essentially for agriculture and livestock (Basterrechea, 2014).

La Pasión river is the main body of water in the area, which in the low water season can have spontaneous flows of 73 m³/s and in the rainy season the maximum flows can reach 700 m³/s. It is 345 km long from its headwaters in the department of El Quiché to Peten. The Salinas or Chixoy River is also known for being a navigable body of water, being the third largest in the country. It is 539 km long, including the section where it is known as the Salinas River.

According to the Environmental Diagnosis from Basterrechea (2014) the rivers that cross the territory are the following: San Juan, Santa Amelia, El Subín, El Poxte, San Martín, Santa Isabel or Cancuén, Machaquilá, San Román; Creeks: Agua Caliente, Chapayal, El García, Maculis, Aguateca, El Azufre, El Mico, Bejucal, El Azufrito, El Rosario, Concordia, El Caldero, El Imperio, San Diego, El Charío, El Faisán, La Sombra, San Ignacio, San Pablo, San Simón, Santa Clara and Ucanal.

The streams are: Cantemó, El Caribe, El Puerquito, Pucté, El Curro, Itzán, San Félix, Comixtún, El Chorrillo, Ixcoché, Santa Marta, Covadonga, El Chorro, La Majagua, Santa Mónica, Chalchinij, El Macabillero, La Miseria, Yaxtunilá, El Achioté, El Porvenir, Loveremos and Yucateco.

The lagunes are: Agua Caliente, Chacrío, Iberia, San Juan Acul, Aguateca, Chiquihau, La Sombra, San Martín, Buena Vista, El Casco, Las Pozas, Soledad, Cantemó, El Chorro, Mangal, Tacistal, Caporales, El Rosario, Ojo de Agua, Tamarindito and the Petexbatún lagoon.

According to the Development Plan of the municipality of Sayaxche Petén, flooding is one of the main threats to the municipality, because the municipality is located on a plain with a low height above sea level and has a large number of rivers that tend to overflow during the rainy season. Also, its marshy soils, due to their characteristics, have a low capacity for infiltration, causing poor rainwater drainage. La Passion river, due to its large flow and number of tributaries, is one of the greatest threats during the rainy season (SEGEPLAN, 2010).

In the vicinity of the La Pasión river and the Petexbatún Lagoon there are areas subject to flooding that have been identified in the official cartographic information of the Guatemalan government, this with the intention of being useful environmental protection purposes. This is only a reference to the context, since the delimitation of these maps was done at a larger working scale than the one used for this assessment, so there may be imprecisions within these limits.

3.2.6. EROSION RISK

The type of soils in the area are prone to erosive phenomena especially if they are devoid of plant coverage (Basterrechea, 2014). However, as the wider landscape is located in extensive plains, there is a less intense hydraulic gradient which means that the rivers do not have a significant degree of

dissection, therefore there is no risk of mass slides or large-scale erosion.

3.2.7. BIOLOGY

The region harbors broad-leaved vegetation typical of low latitudes, mainly by broad-leaved species such as cedar (*Cedrela odorata* L) and mahogany (*Swietenia macrophylla* G), among others.

The forest remnants of the area are characterized by their presence along the courses of rivers, streams, creeks, etc. Their importance lies in the fact that they are functional forests for various biotic and abiotic factors, they preserve the soil and riverbanks, they regulate the hydrology of the area, they are a refuge for various species of terrestrial and aquatic fauna, they function as biological corridors for both flora and fauna species, among others. However, the region is now so devastated that these forest remnants are very few and far apart, and largely confined to the banks of water bodies.

Ecosystems and Life Zones

At a macro level, the Physiographic Region where the project is located is the Northern Limestone Lowlands. The area is then classified as an ecoregion, being the Peten-Veracruz rainforest. This ecoregion is typical of the humid tropical climate, with rainfall during seven months of the year. It is considered that this eco-region is the largest tropical forest mass in North America and the natural boundary of tropical vegetation communities.

Another way to classify the biotic and climatic characteristics of this area is by biomass, a concept that covers a larger territory than life zones. According to Villar (1997), the study area is located within the Tropical Rainforest Biome, which presents high rainfall and atmospheric humidity, with complex vegetation, and the influence of vegetation from the amazon region of South America. Rainfall takes place between the months of June and October, and there is not a very defined dry season.

According to the Holdridge Life Zone System, the farms are located in the life zone known as very humid warm subtropical forest (bmh-Sc). This classification is used by this study to characterize the biotic components of the area. This life zone is the largest in Guatemala, covering a strip of 40 to 50 km wide on the South Coast from Mexico to Oratoria and Santa Maria Ixtahuatan (both municipalities in the department of Santa Rosa). In the northern part of the country, it covers the departments of Izabal, northern Alta Verapaz, Quiché and a part of Huehuetenango, as well as the southern part of Petén. The total area is 40,700 km², which represents 37.41% of the country's surface.

This life zone is characterized for having a dry season that lasts from 2 to 4 months, with an average annual temperature of 22 degrees Celsius. This data agrees with that provided by REPSA. In this area rainfall lasts longer, which significantly influences the composition and floristic physiognomy. The average precipitation in this life zone is between 1,587 mm and 2,066 mm; REPSA's climatic data is in this range presenting an annual average of 1,950 mm. The average annual bio-temperature ranges between 21 and 25 degrees Celsius (°C) and the evapo-transpiration varies from 3 to 5 mm per day. The natural vegetation consists mainly of the following species: coastal pine (*Pinus caribea*), San Juan (*Vochysia guatemalensis*), corozo (*Orbignya cohune*), guarumo (*Cecropia* spp.), ramón blanco (*Brosimum alicastrum*), ceiba (*Ceiba pentandra*) and others (De la Cruz 1982).

3.2.8. PROTECTED AREAS

Within the study area are several protected areas in southwestern Petén, which are part of the Maya Biosphere Reserve (RBM). One of them was declared Archaeological Park in 1980, Aguateca (declared a Cultural Monument). The other areas are the San Roman Biological Reserve and the Petexbatun Wildlife Refuge, both located in the municipality of Sayaxché. These were recognized as protected areas in 1995.

These areas belong to the last significant patches of forest south of the Mayan Biosphere Reserve - RBM-, and they still keep land and water landscapes of great beauty with diversity of species, both flora and fauna and abundant water production that feeds the rivers La Pasión, Salinas and finally the Usumacinta River.

The following will provide a more detailed description of the characteristics of the San Román Biological Reserve and the Petexbatún Wildlife Refuge (both administered by CONAP), which are the two areas closest to REPSA, and over which the Company could have more influence.

San Román Biological Reserve

The Multiple Use Zone of the San Román Biological Reserve is the one with the least amount of forest remnants, since it has been seriously affected by forest fires, which in most cases are caused by slash and burn prior to the development of crops.

The multiple use zone of this Reserve, according to the Master Plan (Santizo 2008), establishes that the development of agricultural activities is possible, as long as it considers the sustainable management criteria.

The area of the San Román Biological Reserve is 18,646 ha and has a buffer zone of 42,232 ha.

The arboreal flora of San Román is largely made up of flooded forest associations that are characterized by low-lying broadleaf trees. Although it is a primary forest, its structure (low and sparse) is a consequence of frequent sustained flooding. In this reserve we find riparian vegetation on the banks of rivers and streams covered mainly with Jimbales (*Chusquea sp.*) and tintales (*Hematoxylum sp.*), a species protected by law, due to its intense use as fence posts.

San Román, is located within the basins of the Salinas and San Román rivers. This area covered what more than a decade ago was one of the largest blocks of forest in Southern Petén.

This type of forest makes up a good portion of the region's wetlands, whose benefits and ecological and economic functions are many, which is why it has been selected as a priority conservation element for the region.

Besides its importance for the conservation of the associated biodiversity, this type of system is key for maintaining hydrological balance and the production of water for maintaining the system, as well as for human consumption and the development of several economic-productive activities.

As for the region's water resources, two of the longest rivers and with greater flow in the country stand out, the La Pasión and Salinas Rivers, both of which make up a large part of the Usumacinta

River's flow. This water network also includes numerous rivers and an average of 48 streams and creeks that feed them, two lagoons, Petexbatún and Aguateca, 20 lakes and countless water sources, which together cover an area of 4,194 ha. and form one of the most outstanding and richest areas in water resources of the Petén.

The importance of these resources lies, besides their function as a habitat for aquatic life, in their high capacity as producers of water for human and animal consumption and as a means of transportation.

The San Román Biological Reserve and the El Pucté RVS (outside of the Wider Landscape), despite being heavily intervened by human activities, are the protected areas that due to their extension can guarantee the long-term viability of fauna populations that need large extensions of land. The presence of traces of large mammals such as the jaguar (*Panthera onca*), puma (*Puma concolor*), margay (*Leopardus pardalis*), tapir (*Tapirus bairdi*) and wild boar (*Tayassu tajacu*), justify the efforts to save and protect the forests that are still maintained in these areas.

In relation to the tapir, it is known to exist in San Román since 1992, later its presence was confirmed in 2000 by Carrillo's monitoring study, and finally in 2006 their presence was again confirmed by tracks. However, if this population of Tapirs still exists, it is isolated and with little chance of survival.

Other species of mammals found in the reserve are the spider monkey (*Ateles geoffroyi*), the black-bellied monkey (*Alouatta pigra*), and the white-tailed deer (*Odocoileus virginianus*).

San Román is characterized by being a protected area that has been invaded and intensely affected by forest fires in the last 17 years. Since 1998, there have been constant reports of extensive fires in the south and east of the reserve, which have almost completely destroyed the forests in this part, leaving only a very low percentage of the original forests in the entire protected area and mainly those around the San Román stream.

Only in 1998, 2334 ha were burned, and in 2005, 1497 ha were burned. It is currently estimated that 42% of the area of this reserve has been repeatedly affected by intentional fires mainly in the South. After the fires, the extraction of firewood and the preparation of land for agriculture have been intensified, which has almost completely destroyed the broadleaf forest that existed in this area.

Oil palm plantations are a strong threat to protected areas since entire communities, such as Las Arenas north of San Román, have sold their plots to convert them to palm plantations.

The land sales phenomenon has driven mobilization of the workers of these families within the core zone of San Román mainly, affecting one of the few areas that were still preserved in the heart of this protected area.

The reserve has also been highly affected by the expansion of cattle ranching, which in many cases was linked to other illegal activities due to its proximity to the Mexican border on the Salinas River side, as well as the lack of institutional presence.

Petexbatún Wildlife Refuge

Specifically, it is located in the municipality of Sayaxché, and includes the Petexbatún lagoon and stream, the Aguateca stream, and the adjacent wetlands to the east of these bodies of water, covering an area of 4,004 hectares.

In addition, the site represents a **sanctuary for water birds**, fish, turtles and crocodiles. In fact, it stands out for its great quantity and **richness of species** of resident and migratory birds, some **endangered**.

To the southwest it borders the Aguateca Archaeological Park and to the west it is very close to the Dos Pilas Archaeological Park.

Aguateca and Petexbatún Dos Pilas (outside the larger landscape) formed a set of protected areas that until 1994 were connected by corridors of well-conserved broadleaf forest. In the following years, this connectivity was lost rapidly, until it has been almost completely lost.

At present, only 57% of the protected area preserves forests and natural vegetation. Much of this is low flooded forest and riparian vegetation that makes up 32% (1300ha) of the protected area. Approximately 25% (1032ha) is covered by broadleaf forest under high pressure of change of use. In 2005 it suffered strong changes in coverage, enabling a large extension for the development of livestock and opening several roads that lead from the main road to the shore of the Petexbatún Lagoon.

The lagoon is surrounded by nearly 70% **forest area and is** fed by the Aguateca and El Faisán streams.

3.2.9. IMPORTANT BIRD AREAS (IBA)

Most of the farms are located within an IBA. This one has code GT-002 (La Pasión River). This area borders the areas of complexes I and II of the Protected Areas of Southern Petén, including the protected areas, San Román Biological Reserve, El Pucte and Petexbatún Wildlife Refuges, Aguateca Cultural Monuments, Dos Pilas and Ceibal, and El Rosario National Park, and the buffer zone of all of the above.

The extension of this IBA is 185,206.3 ha, of which 88,632.7 (47.9%) are primary habitats, 95,863.4 (51.9%) are altered habitats and 710.2 ha (0.4%) are urban areas.

This IBA complies with categories A1-NT2 (Globally Threatened Species) and A3 Species restricted to one biome, in this case Gulf and Caribbean Slope.

3.2.10. DEMOGRAPHIC CONTEXT

The wider landscape has a representative behavior in regard to the Sayaxché municipality in general. The population is predominantly indigenous (63%) and the rest non-indigenous (37%). Of the total population, 87% live in rural areas and the remaining 13% in urban areas (13%). Languages mostly spoken are Mayan and Spanish. 41% of the population is literate, of which 56% are men and 44% women.

At a specific level, it is important to note that there are communities that are completely covered by REPSA's palm farms, such as Santa Rosa, just as there are communities that are located on the limits of the farms with access routes through the farms as: Nueva Jerusalén, El Pato, Argentina, Champerico, Bolivia el Colorado, El Mirador, among others. These communities are considered to be of direct influence because of their link to the palm activity.

Likewise, because the towns are so close to or immersed in the REPSA company's plantation areas, their daily life revolves around palm production. Below is a table with the names of the main towns or villages that are surrounded by REPSA's main block:

TABLE 7. COMMUNITIES PRESENT IN THE WIDER LANDSCAPE.

No.	GROUP	MICRO REGION	COMMUNITY	FAMILIES	POPULATION	HOUSES	ETHNICITY		
							Q'EQC HI	SPANISH	OTHER
1	A	La Ceiba	La Ceiba	286	1,432	280	1350	52	32
2			El Tucán	156	787	140	600	98	89
3			Susan Meymy Mich Colony	21	82	18	50	32	0
4			La Torre	105	561	105	540	21	0
5			New Jerusalem La Laguna	46	230	45	230	0	0
6			El Canaleño	65	345	63	345	0	0
7			Santa Rosa	115	665	115	650	15	0
8			El Mirador	152	761	152	683	24	0
9			Las Camelias	240	1200	240	986	53	0
10			Bolivia El Colorado	60	285	60	118	121	0
11			Champerico	75	443	75	430	13	0
12	B	El Pato	El Pato	480	2265	480	1368	890	6
13			Nueva Jerusalén	38	189	38	12	173	0
14			La Pasión River	90	446	90	446	0	0
15			San Fernando	130	708	130	597	57	0
16			Chapayal	20	150	20	100	50	0
17	C	Santa Isabel	Argentina	120	589	112	589	0	0
18			La Caoba	105	489	105	489	0	0
19			Santa Isabel	160	702	160	687	12	0
20			El Zapote	150	751	148	751	0	0
21	D	Tierra Blanca	El Edén	215	1350	210	1250	65	35
22			Tierra Blanca	570	2855	565	1049	1623	0
23	E	El Paraíso	Tamarindo	156	780	154	32	98	0
24	F	Canlech	Linterna I	240	1200	240	1150	50	0
25			Linterna II	130	650	130	635	15	0
26			Cruce del Pato	75	456	75	456	0	0
27			Canlech	725	3625	696	3200	400	25
28	G	Yalpemech	Yalpemech	140	700	140	700	0	0
		Total	Communities of Influence	4865	24696	4786	19484	3862	187

	Communities present in the wider landscape that were consulted
	Communities outside the Wider Landscape, which were also consulted
	Communities present in the wider landscape, but which could not be consulted

3.2.11. ECONOMIC CONTEXT

The population of the wider landscape is socially vulnerable, with 67.68% general poverty and 10.92% extreme poverty.

The economy of the area as such, depends on oil palm cultivation. More specifically, corn and bean crops are also developed around the farms, and a small percentage of the population is dedicated to raising cattle and trade.

The area is predominantly rural; however, they have the necessary basic socio-economic infrastructure.

The area has received migration from Alta Verapaz.

3.2.12. CULTURAL VALUES

The area is rich in Mayan culture, and is home to the following archaeological sites: Aguacateca, Cancuén, La Amelia, Aguas Calientes, El Ceibal, Tamarindito, Altar de Los Sacrificios, Dos Pilas and Tres Islas.

Of these, Aguacateca is located in the wider landscape of the farms under study, in 1980 were declared as Archaeological Parks, are also considered Cultural Monuments.

Of the total population, approximately 65% are of the Q'eqchi' ethnic group, 25% are non-indigenous (Ladinos) and 10% are of other ethnic groups such as Cakchiquel, Mam and Tzotzil. This is due to the fact that the municipality is located near Alta Verapaz and has been invaded by different inhabitants.

As most communities are inhabited by indigenous people, they have the custom that the man is the only one who speaks Spanish and the mother tongue.

3.3. HCV RESULTS

TABLE 8. HCV DETAILS IN THE MANAGEMENT UNIT.

HCV	DESCRIPTION	PRESENT	POTENTIAL	ABSENT	BRIEF DESCRIPTION
1	Concentrations of biological diversity containing endemic or rare species, threatened or endangered species, and which have significant importance on a global, regional or national scale				This HCV is not present in any of the farms, but the identified HCVs are adjacent to or near the farms. The identified HCV1 are related to three main ecosystems: 1. Broadleaf forests of the San Román Biological Reserve (under the Precautionary Principle): with supposed presence of large mammals, including jaguar (<i>Panthera onca</i>), puma (<i>Puma concolor</i>), tigrillo (<i>Leopardus pardalis</i>), tapir (<i>Tapirus bairdii</i>) and wild boar (<i>Tayassutajacu</i>), all under conservation categories. 2. Aquatic ecosystem of La Pasión River, with the presence of Mojarra (<i>Archocentrus spinosissimus</i>, <i>Cichlasoma spp</i>, <i>Vieja spp</i>, <i>Thorichthys pasionis</i>), Pejelagarto (<i>Atractosteus tropicus</i>), and Catfish (<i>Cathorops sp.</i>), Juilin (<i>Rhamdia cabrerai</i>), which are under categories 1 (nearly extinct), 2 (in serious danger), and 3 (special management, controlled use) according to Guatemala's Threatened Species List - LEA¹. 3. Terrestrial and aquatic ecosystems of the Petexbatún Lagoon, with the presence of endangered species such as the blue-crowned mealy parrot (<i>Amazona farinosa</i>), the dwarf falcon (<i>Falco ruficularis</i>), the owl (<i>Tyto alba</i>), the black-white owl (<i>Ciccaba nigrolineata</i>), the Roadside Hawk (<i>Buteo manirostris</i>) and the Ornate Hawk-Eagle (<i>Spizaetus ornatos</i>). Other species under conservation categories present are red macaws (<i>Ara macao</i>), the white fish (Bay Snook), an endemic species of Petén (<i>Petenia splendida</i>), the Tropical Gar also called machorra (<i>Atratosteus tropicus</i>), the crocodile (<i>Crocodylus moreletii</i>), the white turtle (<i>Dermatemys mawii</i>), the otter (<i>Lutra longicaudus</i>) and the raccoon (<i>Procyon lotor</i>).

¹ Technical Paper 67 (02-2009). Resolution SC N 01/2009.

HCV	DESCRIPTION	PRESENT	POTENTIAL	ABSENT	BRIEF DESCRIPTION
2	<i>Large ecosystems and ecosystem mosaics on a landscape scale and important on a global, regional or national scale, and that contain viable populations of the vast majority of naturally occurring species under natural patterns of distribution and abundance.</i>				The presence of HCV2 within the company's farms, as well as within the landscape under the influence of the Project, is ruled out. The landscape is dominated mainly by agricultural uses, but also by large areas for livestock and, on a smaller scale, smallholder agricultural plots. It is also evident that the natural and semi-natural spaces that still persist or regenerate within the landscape, and within the farms, do so in an isolated manner and in very reduced areas, to be classified as HCV2.
3	<i>Rare, threatened or endangered ecosystems, habitats or refuges</i>				The presence of HCV3 is confirmed in the area of influence of REPSA's farms but absent within the farms. The remains of the ecosystems that are still found in the protected areas, mainly in the San Román Biological Reserve, and in the Petexbatún Wildlife Refuge, which are the ones in our area of influence, are highly threatened, therefore they are considered HCV3.
4	<i>Basic ecosystem services in critical situations, such as protection of watersheds and erosion control of vulnerable soils and slopes, etc.</i>				The presence of this HCV was confirmed in one of the Company's farms (J: Guadalupe), and refers to a forest area that protects a critical water source for the La Argentina community.
5	<i>Sites and resources critical to meeting the basic needs of local communities, indigenous groups (for livelihood, health, nutrition, water, etc.), identified through dialogue with said communities or indigenous people.</i>				Two HCV5 were identified. The first has to do with access to water for human consumption, which is found in various sources, such as springs, bodies of water or wells. The second HCV5 identified, has to do with artisanal subsistence fishing that takes place in the La Pasión River, so it is not within the farms, but it does run along the limits of some farm blocks.

<u>HCV</u>	<u>DESCRIPTION</u>	<u>PRESENT</u>	<u>POTENTIAL</u>	<u>ABSENT</u>	<u>BRIEF DESCRIPTION</u>
6	<i>Sites, resources, habitats and landscapes that are culturally, historically or archeologically significant on a global or national scale, or of cultural, ecological, economic, religious or sacred importance critical to the traditional culture of local communities or indigenous peoples.</i>				The presence of an HCV6 is determined within the Tamarindo farm, as well as in the wider landscape area of the Archaeological Park considered a cultural monument Aguateca. At the Tamarindo farm, important archaeological remains were identified such as more than 80 mounds, two caves and ceramic fragments from the late classical period.

FIGURE 2. MAP OF THE HCV ASSESSMENT CARRIED OUT IN VALLE VERDE AND TAMARINDO FARMS (NORTH SECTOR).

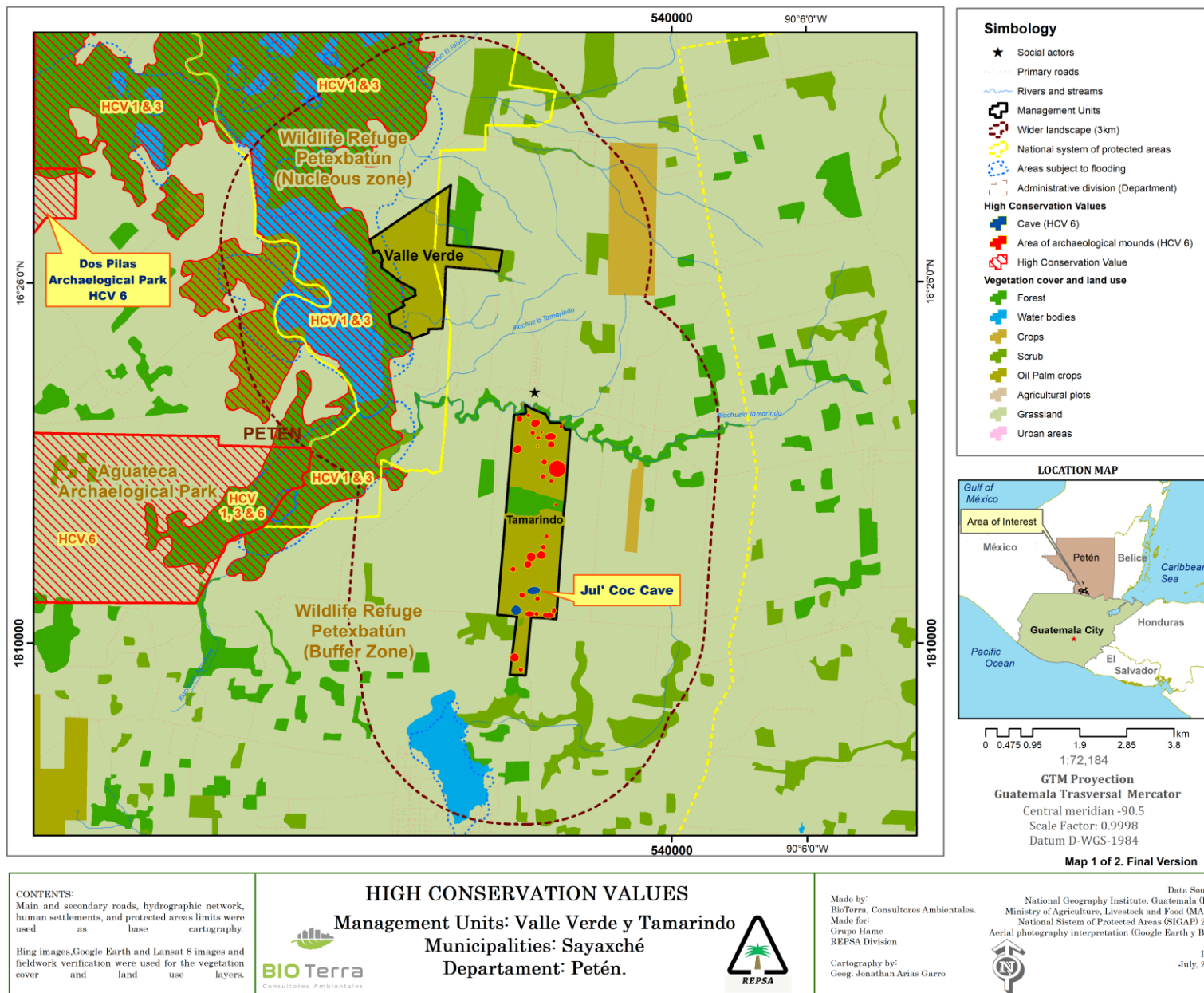
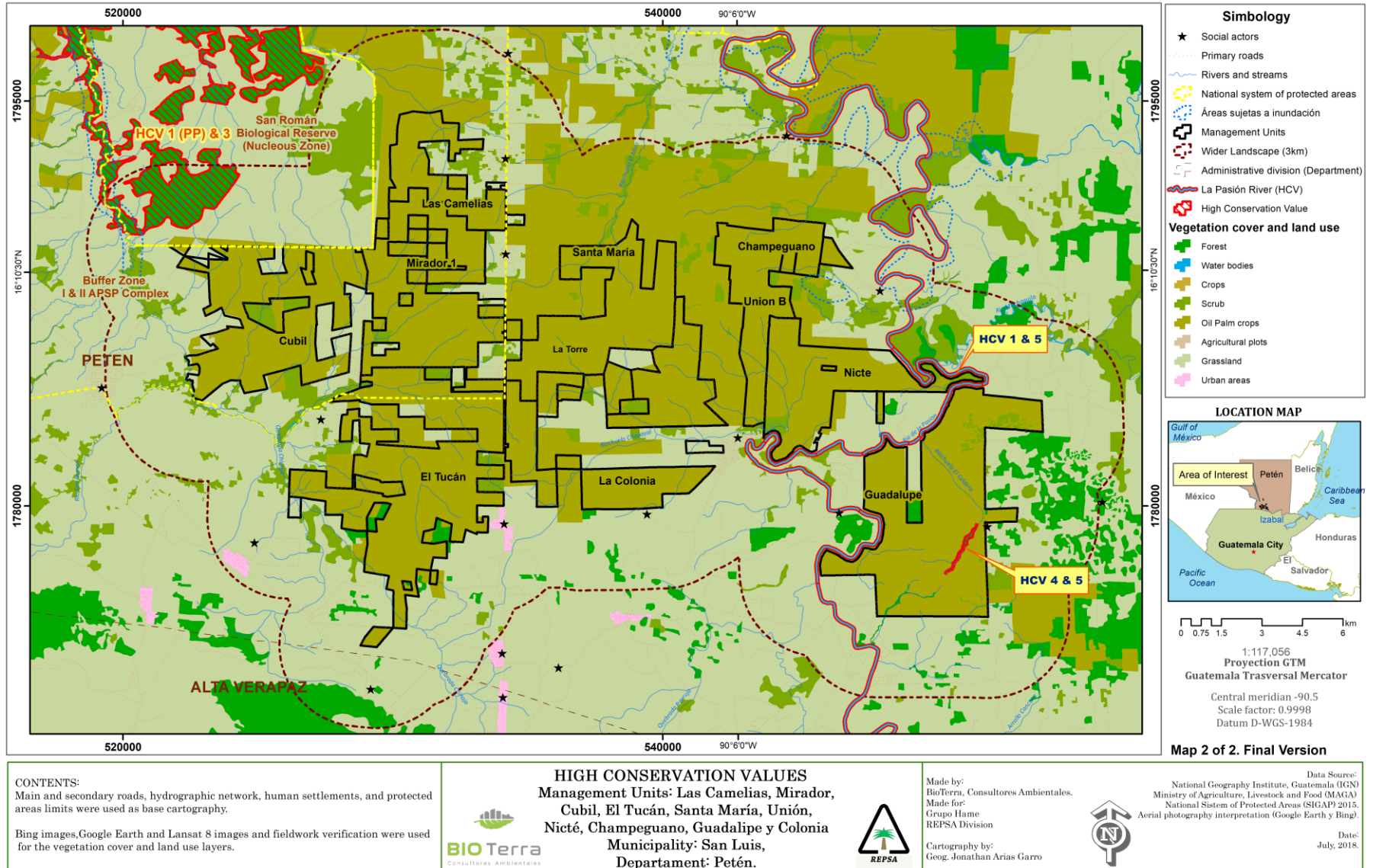


FIGURE 3. MAP OF THE HCV ASSESSMENT CARRIED OUT IN THE FARMS OF THE SOUTHERN SECTOR



3.4. PUBLIC CONSULTATION

Professionals from Bio Terra, Darién Zúñiga, Jonathan Arias and Cynthia Rosales were in charge of the interviews and public consultations using a methodology uses **focus groups** with the different social actors, with the objective of not only knowing the local perception of the communities and institutions in regard to the Project, but also to carry out the public consultation to confirm or discard the presence of HCVs.

The following social actors were first identified in the area and were later called to carry out the social consultation:

TABLE 9. SOCIAL ACTORS IDENTIFIED IN THE PRELIMINARY STAGE.

1.	Members of the main communities: La Ceiba, El Tucan, Colonia Susan Meymy Mich, La Torre, Nueva Jerusalem La Laguna, El Canaleño, Santa Rosa, El Mirador, Las Camelias, Bolivia El Colorado, Champerico, El Pato, Nueva Jerusalem, La Pasión River, San Fernando, Chapayal, Argentina, La Caoba, Santa Isabel, El Zapote, El Edén, Tierra Blanca, Tamarindo, Linterna I, Linterna II, Cruce del Pato, Canlench, Yalpamech.
2.	Municipal and Community Development Council officials
3.	IDAEH staff
4.	Forestry Technician INAB
5.	Departmental Delegates
6.	Firefighters
7.	Members of DASPESO
8.	Members of the Community Press
9.	A.P.U.S. Representatives and SESAN

All of the above were convened for the social consultation, and fortunately the vast majority were consulted. Of all the communities present in the larger landscape, 76% were consulted on what is considered a fully representative sample, and in addition to that 76%, 10 additional communities were consulted beyond the larger landscape, because a much larger landscape was initially analyzed.

The following communities were consulted in detail: Sayaxché, La Ceiba, El Tucán, Nueva Jerusalén La Laguna, Santa Rosa, El Mirador, Las Camelias, Bolivia El Colorado, Champerico, El Pato, Nueva Jerusalén, Río La Pasión, San Fernando, Argentina, La Caoba, Santa Isabel, El Edén, Tierra Blanca, Tamarindo, Linterna I, Linterna II, Cruce del Pato, Canlench, Yalpamech, Damascus and Sechochoc, as well as members of the press, representatives of IDAEH, MAGA, INAB, firefighters, Se-Conred, SEGEPLAN, DASPESO, SESAN, APUS, Municipality, fishermen, etc.

The work with experts included backup studies, such as the Rapid Ecological Assessment (REA) carried out on the study farms by Guatemalan biologist José Luis López, the Environmental Impact Studies carried out for the agriculture and industry sectors of the Company, the land use conversion (LUCA) analyses, Archaeological Evaluations, and Social Impact Studies. All of the above were carried out specifically for the farms and operations of the Company.

Mr. Paulino Morales, archeologist in charge of the archeological reports of the farms, and Mr. Francisco Tot Caal, regional inspector of IDAEH Sayaxché, were also interviewed directly to delve into the topic of the HCV6.

Likewise, the secondary information analyzed included the Preliminary Assessment of the fishing

resources in the La Pasión River Basin, with the Socioeconomic Diagnosis of the Municipality of Sayaxché, with the Sayaxché Development Plan, and with the Master Plan for the Protected Areas of Southwestern Petén.

The consultation process with the different social actors took place between November 6 and 13, 2016. To incorporate the results from this process, a qualitative analysis was carried out.

The concerns and recommendations of the social actors were analyzed in conjunction with the results obtained in the field work, literature review and other methodologies used in this assessment, to finally determine or rule out the presence of HCVs in the UM.

It is also important to mention that we worked with the social actors in two stages, an initial stage of research and gathering information, and the second stage where the preliminary HCV maps were presented and discussed, and the necessary management measures were generated and discussed (final consultation). It is important to clarify that before carrying out the field work, Bio Terra generates the preliminary HCV maps from a geospatial analysis, aerial photos, satellite images, coverage interpretation, etc., in order to develop part of the work with the social actors as previously indicated. Similarly, the issue is handled with management and monitoring measures, where the social actors first present their concerns and recommendations, and then these are discussed based on the information previously generated by Bio Terra.

In view of the above, it is important to note that the baseline HCV map information was not modified after this final consultation process. It is recalled that Bio Terra already had vast information about the area (Bio Terra has conducted several HCV assessments in the same area), so by the time the consultations were conducted, it was clear which HCVs were present and where they were located.

The following is a summary of the most important aspects of the interviews conducted with social actors in the area of study, to complement the HCV analysis. For this work, survey templates were available, which were strategically designed to cover all the variables of interest for the different HCVs. The questions were written so that each question would lead to the elaboration of other topics, and thus allow the social actors to express all their concerns, comments, worries, and even recommendations fluently.

For further reference, see section 11.1.6. for the survey templates used for working with social actors.

3.4.1. HCV ANALYSIS FROM WORK WITH SOCIAL ACTORS

The following table summarizes the results obtained from this analysis:

TABLE 10. SUMMARY OF THE CONSULTATION RESULTS IN RELATION TO THE HCV ANALYSIS.

HCV 1. HCV1: Diversity of Species	
Indicators	• The presence of a recognized biodiversity priority area (e.g., IUCN recognized protected area, Ramsar site, UNESCO World Heritage sites, ACB, etc.). • Their designation by national authorities or highly reputable conservation organizations, which recognize biodiversity concentrations. • The presence of natural habitat in good condition within such designations is a strong indicator (but not a guarantee) of the presence of HCV 1.

Result	The San Román Biological Reserve and the Petexbatún Wildlife Refuge are identified as protected areas under the influence of the Company. The people of the communities consider that La Pasión River should be preserved, and that the minimum distance by law for palm plantations should be respected, in order to preserve the species.
HCV 2. Ecosystems and mosaics at a landscape scale	
Indicators	• Conservation landscapes: In some cases, some areas have already been recognized as high-value landscapes (e.g., Ramsar sites). • Intact forest landscapes. • Valuable grassland areas. • Priority landscapes for conservation.
Results	This type of ecosystems is not recognized within REPSA company's plantations, nor in the areas of influence.
HCV 3. Ecosystems and habitats	
Indicators	In regions where many of the ecosystems or natural habitats have disappeared and others have been severely impacted by development, it is likely that the remaining natural ecosystems that are in reasonable condition will be HCV 3 When there are proxy indicators for ecosystems that suggest the presence of RAP ecosystems, even if these are inaccessible or have not been confirmed on site
Results	The people consulted did not recognize this type of ecosystem within REPSA company's plantations, nor in the areas of influence.
HCV 4. Ecosystem Services	
Indicators	• Remote rural or resource-poor areas where people depend directly on natural resources for most of their needs, including water. • Upstream of large or important wetlands, fish nurseries and spawning grounds, or sensitive coastal ecosystems (e.g., mangroves, coral reefs, etc.). • Upstream of major municipal water sources. • Steep or mountainous areas, or areas of high rainfall with high risk of catastrophic erosion. • Where there is naturally low soil fertility, especially in sandy, fragile or peaty soils, where plowing, drainage, the use of heavy machinery or any other intensive use of the soil could affect its structure and fertility. • Arid areas particularly susceptible to erosion and desertification.
Results	They are identified as rural areas, where the main resources are land and water. The main economic activity in the area is agriculture, artisanal fishing and livestock.

	The communities along the La Pasión River depend on artisanal fishing as an economic activity. The communities of: La Argentina, la Caoba, Santa Isabel, Rosal and Zapote depend on the roads that are within REPESA's palm farms, to reach the head of Sayaxché Municipality. All water sources for the communities.
HCV 5. Community Needs	
Indicators	• Access to healthcare centers or hospitals is difficult. • Most homes, and household tools, are made with locally available traditional or natural materials. • There is little or no infrastructure for water and electricity supply. • People have a low wealth accumulation capability (they live "day to day"). • Agriculture and cattle raising are small-scale or subsistence activities. • Indigenous hunter-gatherers can be found. • Nomadic or permanent shepherds can be found. • Hunting or fishing are important sources of protein and income. • Harvested food is an important part of their diet, either all year round or during certain critical periods.
Results	The healthcare centers with constant service are only located in the head of the Municipality of Sayaxché and Fray Bartolomé de las Casas. Some communities have a primary healthcare center with a nurse's aide, but they do not have the capacity to deal with emergencies and do not cover the entire population of the surrounding communities. In these healthcare centers control the general health of the population, like nutrition, weight, control diseases like diabetes, cholesterol, high blood pressure, among others. In relation to education centers, the larger towns have their own schools, the people from the smaller towns have to commute to the ones closer to them. There are houses with different construction materials, as well as significant differences between villages. In most towns, the construction materials are wood with earthen floors and manaca roofs gathered from the neighboring farms or from the few remaining forests. The larger towns already have masonry infrastructures. Asymmetries are identified between communities, mainly in relation to the housing materials, roads and public infrastructure. In most villages, water is supplied for consumption through communal wells. However, not all communities have their own wells. The people within the communities do not have adequate management knowledge of the communal wells, and no type of purification process is carried out. There are villages that depend on the micro-basins found within REPESA's farms: • La Argentina • La Caoba On the other hand, all communities depend on water from streams and rivers for other activities such as washing household utensils, clothes and personal hygiene. In cases where communities do not have this nearby resource, they turn to

	rainwater collection. These activities are affected during the summer season when water is scarce, both rainwater and in waterways, as many run dry. During such times, some families choose to buy water, which shows how little access some communities have to this resource. In most cases, people live from day to day, and are engaged in agricultural and livestock activities, however, they feel that the money is not enough for their needs. Therefore, the introduction of palm cultivation has favored employment generation for people in the area. According to the data of the population consulted, approximately 80% of the population is dedicated to palm related activities, which makes it an important source of employment. Within the communities most people buy their food, some people have subsistence crops and there is trade among them. Also, in the villages, families usually have farm animals such as poultry and pigs. People recognize that hunting is a complementary activity for sourcing protein, however, they do not consider it fundamental, but a secondary source of protein. In contrast, artisan fishing is one of the main means of survival, mainly for the towns that border the La Pasión River according to data provided. There are at least 110 fishermen who depend on this activity. No indigenous hunter-gatherers are identified for the study area who subsist on these practices. Nor do they identify people who are nomadic herders in the area.
HCV 6. Cultural Values	
Indicators	• UNESCO World Heritage Sites • Museums, heritage lists, national databases, authorities and organizations specialized in particular geographical areas or cultures. • National directives concerning archaeological sites and vestiges. • Consultation with anthropologists, historians, archaeologists, museums and databases for identifying "sites of significant global or national importance".
Results	The consultation with social actors did not yield information on this subject, however, according to the secondary information analyzed, it is known that the area has a great archaeological wealth, the area of influence of the farms under study, the Ceibal, Aguateca and Dos Pilas stand out, which were declared Archaeological Parks in 1980, and are also considered Cultural Monuments. Likewise, according to the Archaeological Assessment carried out at the Company's Tamarindo Estate, important archaeological remains were identified, including more than 80 mounds, two caves and ceramic fragments from the late classic period. The notorious number of mounds registered, such as the existence of structures up to five meters high, suggests that these constructions correspond to a previously unknown archaeological site.

In terms of concerns and/or recommendations from social actors, the following table highlights the details. The names, identity numbers, and signatures of each of the social actors are included in the Annexes section.

TABLE 11. CONCERNS AND/OR RECOMMENDATIONS OF THE SOCIAL ACTORS.

Name	Title/Position	Organization / Social group	Concerns	Recommendations	Response from the advisory team
Alfonso	Chair	El Tamarindo	There is no transparency from the company (it does not provide information on its land to the State).	Ban littering near streams.	Implement adequate management of the existing water bodies within the farms, as established by law and the RSPO.
Gastón	Treasurer	El Tamarindo	Regional apathy with the palm companies.	Prohibit cutting down trees near streams.	
Elias	Secretary	Champerico	They consider that between 60% and 80% of the population is dependent on the river, mainly for consumption.	No pest control spraying.	Establish coordinated, systematic and planned a teamwork strategy, between the company and the communities.
Ardían	Chair	Champerico	They consider that less than 60% of the river has been recovered after the pollution disaster that took place in 2015.	Support with more employment.	
Edgardo	Auxiliary Mayor	Nueva Jerusalén	They have problems with the roads, as the company closes the roads that are within their properties, and the communities of La Argentina, El Pato, La Caoba, Santa Marta and Champerico are affected because they must travel many more kilometers to have access to the road that connects to Sayaxché. Also, they cannot pass without a license, vehicle documents and a helmet.	Provide training in palm related activities.	Create a communications and management plan with the communities that have a relationship with the company, local governments and state institutions present in the area.
Alberto	Auxiliary Mayor	Santa Rosa		Provide road access.	
Baldomero	Cocode	Nueva Jerusalén		To keep the access gates open.	Create reforestation campaigns.
Carlos	Chair of Cocode	El Pato		Facilitate rapprochement with the communities.	
David	Secretary of Cocode	El Pato	Communities and the school in Arroyo Santa Maria have been closed off.	Provide social assistance in schools.	To follow up on the recommendations proposed by workshop participants.
Faustino	Chair of Cocode	Linterna 1	There are no well management habits.	Accompany the community management for social projects.	
				Provide project management training.	Reach agreements with the communities having access to the roads and the crossing of the La Pasión river.
				Improve relations with the community of La Ceiba.	
				Provide a report of the project on governance that the company has signed with the Municipality and the State.	Collaborate for the preservation of the water sources, in the communal wells.
				That the company recognize holidays.	

Name	Title/Position	Organization / Social group	Concerns	Recommendations	Response from the advisory team
Benito	Chair of Cocode	Linterna 2	There are serious difficulties for sourcing drinking water. Some supply systems are incomplete.	Take care of the streams. That continuity be given to the requests made.	Reach agreements with communities so that they can have access to water sources.
Guillermo	Chair of Cocode	El Pato	Diseases (hepatitis outbreaks) are caused by water pollution.	They are no longer able to source Manaca (roof) in the zone, and they request for help in that area.	
Jacobo	Chair of Cocode	Bolivia del Colorado	Mismanagement of latrines. More than 30 communities depend on the La Pasión river.	Prepare a document so the company helps them with employee relations	
Kenán	Secretary	Linterna 1	There are floods in the lower zone of the La Pasión river, however, they are not periodic, and depend on the rainy season. The communities of Porvenir, San Miguel, Unión and Hojita Verde are affected.	Make sure the people they hire are from the local communities.	
Leonardo	Deputy Director of the school	La Argentina		Have them call and coordinate with the COCODES to help.	
Marco	Auxiliary Mayor	La Caoba	There are also floods on this river that affect the Bolivian communities of Colorado and Pato.	No planting in protected areas, even if invading groups have already cut them down.	
Norberto	Cocode second level	Santa Isabel	The contamination of the La Pasión river that occurred in 2015 is identified as the greatest environmental impact in the area. It was considered an ecological disaster.	Report farm areas to the State.	
Santiago	Cocode	El Edén		Hiring people from the nearby communities and with influence from the plantations.	
Eloísa	Comadrona	El Edén	They consider that there are underground channels of the extractor that do not connect to oxidation pits but go directly to the La Pasión and Salinas rivers.	Generate tripartite agreements for development projects.	
Cayetano	Auxiliary Mayor	Tierra Blanca		Remove palms from riverbanks.	

Name	Title/Position	Organization / Social group	Concerns	Recommendations	Response from the advisory team
Hipólito	Cocode	Tierra Blanca	They consider that the protected areas of San Román and Petexbatún have been invaded.	Carry out training on the standard and the RSPO.	
Isidoro	Cocode	Sechochoc	There is no territorial order.	Take care of the bodies of water.	
Oscar	Cocode	Sechochoc	The protection law of water bodies is not respected. Problems have arisen with communities that are allied with the companies and go against the law.	Improve the way in which calls are made.	
Pablo	Cocode	Sechochoc	Institutionally, 22 organized groups have been identified that carry out invasions and attack protected areas.	Provide feedback to state institutions to review all studies and reports.	
Ramiro	Vocal	Sechochoc	There are many areas that should be recognized as a reserve of the La Pasión that are planted with palm trees.	Leave the forest untouched on the riverbanks	
Samuel	Secretary of Cocode	Canlech	The Company charges them to use the ferryboat, and they consider it necessary to access schools and health centers. They have to ask for permission, and they are allowed to use the ferry only if they pay.	Provide support for education, health and water.	
Bruno	Chair of Cocode	Canlech		Explain to the communities the requirements of the company's hiring process.	
Tadeo	Vice President Cocode	Canlech		Involve all parties for the development of the area.	
Nadir	Chair of Cocode	Yalpemec	People believe that the contamination present in the streams is caused by REPSA.	Help with water storage containers.	
Unai	Chair of Cocode	El Mirador	Some streams dry up in the summer.		

Name	Title/Position	Organization / Social group	Concerns	Recommendations	Response from the advisory team
Diego	Chair of Cocode	Las Camelias	Some people have problems sourcing water, since the stream where they wash and obtain water for consumption is within REPSA farms. Some communities have asked the company for collaboration, mainly on issues related to water, schools and health centers, but have not received a response. Trees are cut down on the banks of the La Pasión river to plant palm trees. The company opened a quinel, and they consider that this has caused the water to be contaminated. The color of the water is yellow, and the fish are dying. In Tierra Blanca there are people who commute up to an hour and a half to get to work in REPSA. Most have electricity, and those who do not, use candles. They take the firewood from their own plots, and when it runs out, they must buy it.		
Ovidio	Chair of Cocode	La Pasión hamlet			
Juan	Mayor	La Pasión hamlet			
Kenneth	Chair of Cocode	Damasco hamlet			
Felipe	IDAEH	Regional Inspector			
Ulises	MAGA	Supervisor			
Mateo	SESAN	Municipal delegate			
Rafael	INAB	Forestry Technician INAB			
Emilio	SEGEPLAN	Sub-delegate			
Paulino	DASPESO	Director			

Name	Title/Position	Organization / Social group	Concerns	Recommendations	Response from the advisory team
Vicente	Firefighters	Officer II	They have animals for consumption, chickens, ducks, pigs, however, many die from diseases due to water pollution.		
Lorenzo	CONRED	Departmental delegation	People do not have many employment options, so many people are unemployed.		
Olger	Community press	Reporter	If there is no work in the company, they have no job, there are people who are not hired and do not know the hiring requirements.		
Walter	Sayaxché	Fisherman	The company hires people from other communities (it brings people from Alta Verapaz).		
Gustavo	San Benito	Regional delegation	They talk about supporting communities but do not come through.		
Saúl	Nuestro Diario	Reporter	They plant on their own plots, but the soil no longer produces much.		
Tomás	Sayaxché	Sub-Regional Director	Many people go out to work in other communities.		
Ignacio	APUS	Representatives	They have asked for help from the municipalities, but they do not help them (Sayaxché and Raxyuha).		
Víctor	Sayaxché	APUS			
Héctor	Sayaxché	APUS			

Name	Title/Position	Organization / Social group	Concerns	Recommendations	Response from the advisory team
Salvador	Sayaxché	APUS			
Maurico	CONRED	Field Technician			

Source: Cynthia Rosales with the table established by the HCV Resource Network

*All names used in this table are pseudonyms of the people who participated in the focus groups or were interviewed for personal integrity.

In relation to this process of social consultation, it should be reiterated that the work done with social actors was a focus group work, comprehensive and participatory, where they work and present in groups, and not individually. Based on this information, it should be noted that the information gathered was discussed and agreed upon by all, and finally all agreed on the conclusions reached.

In the final stage of the consultation process, the social actors consulted agreed with the HCV and management maps presented.

4. HCV MANAGEMENT AND MONITORING

In this section it is important to note that most of the HCVs were identified outside of the farms, although in some particular cases HCVs were identified within some farms.

For HCVs identified in the areas of influence, the threats would be largely indirect and potential, that is, they would occur only when bad agricultural and environmental practices are carried out within the farms. Likewise, it is important to clarify that, as it has been stated in the present Assessment, this is an agricultural area so these potential effects on the HCV identified may be caused by different sources, so impacts are not necessarily attributable to the Company.

4.1. THREAT ASSESSMENT

Next, each of the potential impacts or threats is assessed using the Environmental Impact Importance Matrix (MIIA) tool, which is widely used in Costa Rica and was established by Executive Decree # 32966-MINAE.

TABLE 12. IMPORTANCE MATRIX OF POTENTIAL IMPACTS AND/OR THREATS TO HCVs IDENTIFIED.

#	Description of the Impact	Sign	Intensity	Extension	Momentum	Persistence	Reversibility	Recoverability	Synergy	Accumulation	Effect	Periodicity	Importance
		+, -	1-12	1-4	1-4	1-4	1-4	1-8	1-4	1-4	1-4	1-4	13-100
1	Removal of vegetation	-1	8	4	4	4	4	4	2	1	4	1	-56
2	Intentional fires	-1	8	4	4	4	4	4	2	1	4	1	-56
3	Poaching	-1	4	4	4	3	2	4	2	1	4	4	-44
4	Solid waste mishandling	-1	8	4	4	3	2	4	2	2	4	4	-57
5	Agrichemical mishandling	-1	8	4	4	3	2	4	2	2	4	4	-57
6	Erosive and sedimentation phenomena	-1	8	4	4	4	2	4	2	1	4	4	-57
7	Mechanization of the land (Tamarindo farm)	-1	2	1	4	5	6	8	1	1	4	1	-35

The following is a more extensive description of each of the potential threats, for each of the HCVs identified for the study area. It should be noted that these threats apply to each of the HCVs in the same way, since all the identified HCVs are related to the same ecosystems, with the exception of the isolated hills that were declared as HCV4 under the precautionary principle, and in this case the same threats also apply.

TABLE 13. MAIN HCV THREATS IN THE STUDY AREA.

HCV	Brief description of the present HCV	Main threats
HCV 1	This HCV is not present in any of the farms, but the identified HCVs are adjacent to or near the farms. The identified HCV1 are related to three main ecosystems: Broadleaf forests of the San Román Biological Reserve (under the Precautionary Principle): with supposed presence of large mammals, including jaguar (<i>Panthera onca</i>), puma (<i>Puma concolor</i>), tigrillo (<i>Leopardus pardalis</i>), tapir (<i>Tapirus bairdii</i>) and wild boar (<i>Tayassu tajacu</i>), all under conservation categories.	1. Potential elimination of the remaining forest cover on some of the farms and their larger landscapes as a result of the expansion of agricultural frontiers into forest areas. This would further encourage the already existing fragmentation of the landscape, further reducing the area of free transit of species that depend on these ecosystems and thus affecting the wildlife. 2. Possible poaching by company employees or individuals, within the remaining wooded patches within the farms or the wider landscape, causing greater pressure and disturbance to the wildlife in the area.

HCV	Brief description of the present HCV	Main threats
	2. Aquatic ecosystem of La Pasión River, with the presence of Mojarra (<i>Archocentrus spinosissimus</i>, <i>Cichlasoma spp</i>, <i>Vieja spp</i>, <i>Thorichthys pasionis</i>), Pejelagarto (<i>Atractosteus tropicus</i>), and Catfish (<i>Cathorops sp.</i>), Juilin (<i>Rhamdia cabrerai</i>), which are under categories 1 (nearly extinct), 2 (in serious danger), and 3 (special management, controlled use) according to Guatemala's Threatened Species List - LEA¹. Terrestrial and aquatic ecosystems of the Petexbatún Lagoon, with the presence of endangered species such as the blue-crowned mealy parrot (<i>Amazona farinosa</i>), the dwarf falcon (<i>Falco ruficularis</i>), the owl (<i>Tyto alba</i>), the black-white owl (<i>Ciccaba nigrolineata</i>), the Roadside Hawk (<i>Buteo manirostris</i>) and the Ornate Hawk-Eagle (<i>Spizaetus ornatos</i>). Other species under conservation categories present are red macaws (<i>Ara macao</i>), the white fish (Bay Snook), an endemic species of Petén (<i>Petenia splendida</i>), the Tropical Gar also called machorra (<i>Atratosteus tropicus</i>), the crocodile (<i>Crocodylus moreletii</i>), the white turtle (<i>Dermatemys mawii</i>), the otter (<i>Lutra longicaudus</i>) and the raccoon (<i>Procyon lotor</i>).	3. Intentional fires to clear and prepare the land for the development of agricultural activities that eliminate the forest cover. 4. Eventually affecting water bodies, which would cause changes in the physical-chemical conditions of the associated water bodies in the area. This could eventually affect the fauna population associated with these bodies of water. The impact scale will depend on the potential impact. This type of contamination could be caused by: • Solid waste mishandling. • Poor management of agrochemicals, mainly the insecticide Malathion, which caused the 2015 disaster in the La Pasión River.* • Bad agricultural practices, causing erosion and sedimentation phenomena.
HCV 3	The presence of HCV3 is confirmed in the area of influence of REPSA's farms but absent within the farms. The remains of the ecosystems that are still found in the protected areas, mainly in the San Román Biological Reserve, and in the Petexbatún Wildlife Refuge, which are the ones in our area of influence, are highly threatened, therefore they are considered HCV3.	1. Potential elimination of the remaining forest cover on some of the farms and their larger landscapes as a result of the expansion of agricultural frontiers into forest areas. This would further encourage the already existing fragmentation of the landscape, further reducing the area of free transit of species that depend on these ecosystems and thus affecting the wildlife. 2. Intentional fires to clear and prepare the land for the development of agricultural activities that eliminate the forest cover. Eventually affecting water bodies, which would cause changes in the physical-chemical conditions of the associated water

² Technical Paper 67 (02-2009). Resolution SC N 01/2009.

HCV	Brief description of the present HCV	Main threats
		bodies in the area. This could eventually affect the fauna population associated with these bodies of water. The impact scale will depend on the potential impact. This type of contamination could be caused by: • Solid waste mishandling. • Poor management of agrochemicals, mainly the insecticide Malathion, which caused the 2015 disaster in the La Pasión River. * • Bad agricultural practices, causing erosion and sedimentation phenomena.
HCV 4	The presence of this HCV was confirmed in one of the Company's farms (J: Guadalupe), and refers to a forest area that protects a critical water source for the La Argentina community.	1. Potential elimination of this remaining coverage as a result of the expansion of agricultural frontiers into the forest cover. This would further encourage existing fragmentation, reducing the protected area of this source and isolating it further. 2. Intentional fires to clear and prepare the land for the development of agricultural activities that eliminate the forest cover. 3. Eventually affecting this water body would cause changes in the physical-chemical conditions of the associated water bodies in the area. Such affectation could impact the Argentine community and the species of fauna associated with this source. The impact scale will depend on the potential impact. This type of contamination could be caused by: • Solid waste mishandling. • Poor management of agrochemicals, mainly the insecticide Malathion, which caused the 2015 disaster in the La Pasión River. * • Bad agricultural practices, causing erosion and sedimentation phenomena.
HCV 5	Two HCV5 were identified. The first has to do with access to water for human consumption, which is found in various sources, such as springs, bodies of water or wells. The second HCV 5	Potential effect on water bodies, which would cause changes in the physical-chemical conditions of the water bodies associated to the farms. This could eventually impact the population of

HCV	Brief description of the present HCV	Main threats
	The second HCV5 identified, has to do with artisanal subsistence fishing that takes place in the La Pasión River, so it is not within the farms, but it does run along the limits of some farm blocks.	the species of fauna associated with these bodies of water. The impact scale will depend on the potential impact. This type of contamination could be caused by: • Solid waste mishandling. • Poor management of agrochemicals, mainly the insecticide Malathion, which caused the 2015 disaster in the La Pasión River. * • Bad agricultural practices, causing erosion and sedimentation phenomena.
HCV 6	An HCV 6 was found in the Tamarindo farm, as well as in the area of influence of the farms specifically in the Archaeological Parks considered cultural monuments El Ceibal, Aguateca and Dos Pilas. At the Tamarindo farm, important archaeological remains were identified such as more than 80 mounds, two caves and ceramic fragments from the late classical period.	Eventual mechanization of the land on the Tamarindo farm for future replanting, or construction of new drainage channels could cause destruction of buried archaeological sites or remains.

* In relation to what is known as the worst ecological disaster in the history of Guatemala, which took place in 2015 in the La Pasión River, when two events caused the mass death of many water species which caused severe impacts in the region. There is still no certainty as to how the disaster happened or who was responsible. It is only known that the disaster was caused by an insecticide known as Malathion. Due to the seriousness of this disaster, the Company must always be aware of this threat, to ensure there is no impact from the use of this or other substances.

Always in relation to threats, there were other issues that were analyzed such as the collection of firewood and the use of palms for roofing, however, these issues were not identified as threats either during the field work or during the social consultation. Nor were they identified as such in documents such as the 2017 Annual Operating Plan for the San Román Biological Reserve or the 2008-2012 Master Plan for southwestern Petén. The collection of firewood or wild palms for roofing are not activities that are carried out intensively that could be threatening the areas identified as HCV, but rather these resources are usually extracted by people from their own plots, fallen trees, living fences, etc.

Another topic analyzed was fishing, but the fishing activity that takes place in La Pasión River is mainly artisanal. The fishermen are organized and have even received workshops on collection methods. The FAO has done important work on this matter precisely to strengthen the fishing governance and management in La Pasión River. Based on this information is that the concern of overfishing or poor fishing practices are not identified as a threat in this case.

4.2. MANAGEMENT AND MONITORING

The following are recommendations for managing and monitoring the identified HCVs. Because most of the identified HCVs are not actually on the farms, the Company can only ensure that its activities are not detrimental to them.

As mentioned above, poor on-farm agricultural management could eventually impact the HCVs

identified both on-farm and at the landscape level. This is due to the fact that all the farms are located within the La Pasión and Salinas river basins, which drain their waters through a large part of the HCVs identified at the landscape level.

It is important to mention, that some of the measures mainly related to bodies of water, were designed according to the Guatemalan legislation that establishes the following: *"It is strictly forbidden to cut down trees on river banks, lakes, lagoons and water sources, up to 25 meters from their banks"*.

For HCV1, no specific measures are presented to protect particular species, but rather measures that seek to protect the ecosystem as a whole, and thus all the wildlife it harbors, including RAP, endemic, and migratory species.

As for the HCV1 under the precautionary principle related to the San Román Biological Reserve's broadleaf forests, the measures proposed were only to guarantee that there is no impact, but measures to ultimately eliminate or confirm the HCV are not included, as they are outside the Company's farms, where the Company cannot carry out assessments.

The established management areas are shown in the table below. They are not shown by HCV, because for HCV 1, 3 and 5 the management areas are mostly the same, so they could not be separated.

TABLE 14. MANAGEMENT AREAS FOR THE IDENTIFIED HCV.

Farm	Rivers Management (linear km)	Other Management Areas (ha)	Protected Areas, Bodies of Water (ha)
North Sector Fincas Valle Verde and Tamarindo	5.14	522.97	31.75
South Sector	161.9	241.56	1000.2
Grand total	167.04 km	764.53 ha	1031.95 ha

As previously stated, many of the management areas are practically the same for HCVs 1, 3, and 5, and management for HCVs 4 and 6 is very specific, and easily illustrated on the same maps, so it was not necessary to generate separate management maps for each HCV.

It is important to indicate that the following management recommendations apply to all farms under study. Also, as stated before no planting is allowed in the areas designated as HCV management areas (except for the HCV 6 management area of the Tamarindo farm, which is already planted and requires different management, and in the case of the buffer zone being left in Valle Verde, which is also already planted). The following areas were designated as HCV management areas:

- **Water bodies and their protection zones according to Guatemala's national interpretation of the RSPO guide (30 m on either bank of the rivers):** These were designated as management areas to guarantee non-contamination and affect the HCVs, since the water bodies that drain the farms under study eventually flow into some of the HCVs identified at

the landscape level. Also, the protection zones of the bodies of water, work as linear biological corridors, which allow the transit of species and somehow maintain the heterogeneity of the landscape representing buffers for ecosystems at the landscape level defined as HCV (San Roman Biological Reserve, and Petexbatun Wildlife Refuge).

- **Forest remnants:** These, as well as protection zones, function as small lungs within an already quite devastated landscape mosaic, which to some extent cushion the impacts on the HCVs identified at the landscape level mainly in the nearby protected areas.
- **Finca Tamarindo:** HCV6 where archaeological mounds were identified throughout the farm, the entire farm is considered a management area. However, on this farm, management does not involve no planting, since palms are already planted, but rather it involves different management (no mechanization of the land).
- **Buffer area at Finca Valle Verde:** Since a portion of this farm is located within the core zone of the Petexbatún Wildlife Refuge, where HCVs were also identified, it was considered appropriate to leave the strip of land directly adjacent to the HCV as a buffer area. This strip is already planted, so it is appropriate in that area to have differentiated and friendly agricultural practices, so as not to negatively affect the identified HCV.

After the table, the corresponding management maps are presented, which show in detail the above-mentioned HCV management areas for each of the farms under study.

TABLE 15. RECOMMENDATIONS FOR MANAGING AND MONITORING HCVs

HCV	Main threats	Management Measures	Monitoring Measures
HCV 1	Potential elimination of the remaining forest cover on some of the farms and their larger landscapes as a result of the expansion of agricultural frontiers into forest areas. This would further encourage the already existing fragmentation of the landscape, further reducing the area of free transit of species that depend on these ecosystems and thus affecting the wildlife.	Identify potential corridors or transit routes within the farms for RAP endemic and migratory species and encourage connectivity by considering isolated sites that can be connected by water bodies and/or areas that are not suitable for planting with forest remnants or other off-farm ecosystems. The above, allocating areas for regeneration, or implementing reforestation plans. Maps should be generated highlighting the areas chosen to promote connectivity.	Annual monitoring will be carried out using satellite images, where the areas destined for connectivity are analyzed, to determine if the implemented measures are having a positive effect.
		All protection zones for bodies of water must be delimited, proceeding in accordance with Guatemalan legislation. These areas must remain intact, meaning they may not be invaded in any way.	The water bodies and protection zones of each farm must be monitored through satellite images in order to verify their condition and ensure that the protection zones of these water bodies are being respected.
		A review will be made of those areas within each farm that are in disuse or that will not be subjected to planting processes, so that they can be included in reforestation plans. A map will be generated indicating which areas will be used for these processes.	An annual monitoring will be carried out through satellite images, where the areas destined to the reforestation processes are analyzed, to verify that these processes are indeed being carried out, and that they also make sense at a landscape level to promote connectivity with other areas.
		Implement landscape management tools (biological corridors, living fences, forest fragments or patches, enrichment and protection of water bodies) that guarantee diversity and configuration of the natural landscape.	Annual monitoring will be carried out through satellite images, where compliance and potential benefits of the implementation of these tools will be verified.
		A 50m buffer zone should be left on the Finca Valle Verde in the area that borders the Petexbatún Wildlife Refuge HCV. In this area, there should be a completely differentiated and environmentally friendly application of agrochemicals, to guarantee that the neighboring HCV is not affected.	Annual monitoring will be carried out through satellite images and soil sampling, where compliance and potential benefits of the implementation of these tools will be verified.
	Possible poaching by company employees or individuals, within the remaining wooded patches within the farms or the wider landscape, causing greater pressure and disturbance to the wildlife in the area.	Ban poaching within the farms and establish internal regulations to sanction any employee who disregards this prohibition.	Monitoring will be done by reviewing the results of the annual census of RAP, endemic and migratory species.
		Place signage inside the farms that indicates the prohibition of hunting, and the extraction of wild species.	Monitoring will be done by reviewing the results of the annual census of RAP, endemic and migratory species. Also, employees should be interviewed annually to determine whether the signage is having the desired effect.

HCV	Main threats	Management Measures	Monitoring Measures
		Place signage indicating rare, endemic, threatened or endangered species that have been identified within the farms, and which should be protected to raise awareness of their ecological value.	The previous point is reiterated.
		Hire a biologist to conduct annual surveys of RAP, endemic and migratory species populations within the farms, mainly those identified in the Rapid Ecological Assessment. The above is to evaluate the condition of these species over time.	Based on the results of each annual census, the next steps to be implemented should be determined.
		Having a template with images of RAP, endemic and migratory species so that those in charge of each farm can note each sighting of these species. This is because maintaining wildlife in these areas has a positive impact on the maintenance of HCVs.	The results of these templates will complement the previous point.
		If burrows, shelters, or nests of any species of wild fauna within the farms are identified that require relocation, relevant state agencies must be notified in order to relocate them, thus avoiding killing the species.	If this occurs, a written and photographic record should be kept of each of these findings, and of the relocation process carried out.
	Intentional fires to clear and prepare the land for the development of agricultural activities that eliminate the forest cover.	Promote and implement a community training and awareness program (if possible, hand in hand with the Municipality so that it has more reach) that educates about the importance of not causing fires intentionally. The program should emphasize the enormous negative consequences of this practice.	Evidence of the implementation of this program, and the results obtained from it, will be reviewed annually to assess whether the program is indeed creating any positive impact on awareness of the issue, or whether efforts should be redirected.
	Potential effect on water bodies due to <u>poor solid waste management</u> , which would cause changes in the physical-chemical conditions of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	Place signage indicating the prohibition of littering, or contamination of water bodies, within the farms. Also, awareness of the issue should be addressed in environmental workshops that should be held at least twice a year.	Monitor the physical-chemical conditions of the water bodies associated with the farms every six months.
	Potential effect on the water bodies of <u>agrochemical management</u> , which would cause changes in	A 30m buffer zone should be left on neighboring water bodies or of direct influence.	Annual monitoring will be carried out through satellite images, to assess if the buffer zone is being respected.

HCV	Main threats	Management Measures	Monitoring Measures
	physical-chemical characteristics of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	Ensure that water bodies associated to farms are not contaminated by farming products.	Monitor the physical-chemical conditions of the water bodies associated with the farms every six months. Also sampling of benthic macro-invertebrates (biological indicators) should be done on water bodies annually.
	Potential effect on water bodies due to <u>poor agricultural practices, creating erosive phenomena and sedimentation</u> , which would cause changes in the physical-chemical conditions of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	Identify internal issues at the company related to farm management that may eventually affect areas of ecological importance within the farms or near them, such as the invasion of protected areas, or poor maintenance of drainage channels among others, and correct them immediately.	A quarterly visit to these areas should be carried out to verify that the Company is carrying out environmentally friendly agricultural practices, and in complete compliance with Guatemalan environmental legislation.
		Maintain strict erosion and sedimentation control practices, mainly regarding surface runoff water draining into farm-associated water bodies.	Monitor the physical-chemical conditions of the water bodies associated with the farms every six months.
		Ensure that there is no invasion of the protected zone of the water bodies associated with the farms. Correctly delimit said protection zones, and label indicating the prohibition to invade these zones. Also, vegetation recovery plans should be promoted in protected areas of the associated water bodies.	Water bodies and protection zones of each farm must be monitored through satellite images in order to verify their condition and ensure that the protection zones of these water bodies are being respected, and that vegetation recovery plans are having a positive effect.
HCV 3	Potential elimination of the remaining forest cover on some of the farms and their larger landscapes as a result of the expansion of agricultural frontiers into forest areas. This would further encourage the already existing fragmentation of the landscape, further reducing the area of free transit of species that depend on these ecosystems and thus affecting the wildlife.	Encourage connectivity of isolated sites that can be connected through bodies of water and/or areas that are not suitable for planting with forest remnants or other ecosystems outside the farms. The above, allocating areas for regeneration, or implementing reforestation plans. Maps should be generated highlighting the areas chosen to promote connectivity.	Annual monitoring will be carried out using satellite images, where the areas destined for connectivity are analyzed, to determine if the implemented measures are having a positive effect.
		All protection zones for bodies of water must be delimited, proceeding in accordance with Guatemalan legislation. These areas must remain intact, meaning they may not be invaded in any way.	The water bodies and protection zones of each farm must be monitored through satellite images in order to verify their condition and ensure that the protection zones of these water bodies are being respected.

HCV	Main threats	Management Measures	Monitoring Measures
		A review will be made of those areas within each farm that are in disuse or that will not be subjected to planting processes, so that they can be included in reforestation plans. A map will be generated indicating which areas will be used for these processes.	An annual monitoring will be carried out through satellite images, where the areas destined to the reforestation processes are analyzed, to verify that these processes are indeed being carried out, and that they also make sense at a landscape level to promote connectivity with other areas.
		Implement landscape management tools (biological corridors, living fences, forest fragments or patches, enrichment and protection of water bodies) that guarantee diversity and configuration of the natural landscape.	Annual monitoring will be carried out through satellite images, where compliance and potential benefits of the implementation of these tools will be verified.
	Intentional fires to clear and prepare the land for the development of agricultural activities that eliminate the forest cover.	Promote and implement a community training and awareness program (if possible, hand in hand with the Municipality so that it has more reach) that educates about the importance of not causing fires intentionally. The program should emphasize the enormous negative consequences of this practice.	Evidence of the implementation of this program, and the results obtained from it, will be reviewed annually to assess whether the program is indeed creating any positive impact on awareness of the issue, or whether efforts should be redirected.
	Potential effect on water bodies due to <u>poor solid waste management</u> , which would cause changes in the physical-chemical conditions of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	Place signage indicating the prohibition of littering, or contamination of water bodies, within the farms. Also, awareness of the issue should be addressed in environmental workshops that should be held at least twice a year.	Monitor the physical-chemical conditions of the water bodies associated with the farms every six months.
	Possible effect on water bodies due to <u>poor management of agrochemicals</u> (mainly the insecticide Malathion, which caused the disaster that occurred in 2015 in the La Pasión River), which would generate changes in the physical and chemical conditions of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	A 30m buffer zone should be left on neighboring water bodies or of direct influence. Ensure that water bodies associated to farms are not contaminated by farming products.	Annual monitoring will be carried out through satellite images, to assess if the buffer zone is being respected. Monitor the physical-chemical conditions of the water bodies associated with the farms every six months. Also sampling of benthic macro-invertebrates (biological indicators) should be done on water bodies annually.

HCV	Main threats	Management Measures	Monitoring Measures
	Potential effect on water bodies due to <u>poor agricultural practices, creating erosive phenomena and sedimentation</u> , which would cause changes in the physical-chemical conditions of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	Identify internal issues at the company related to farm management that may eventually affect areas of ecological importance within the farms or near them, such as the invasion of protected areas, or poor maintenance of drainage channels among others, and correct them immediately.	A quarterly visit to these areas should be carried out to verify that the Company is carrying out environmentally friendly agricultural practices, and in complete compliance with Guatemalan environmental legislation.
		Maintain strict erosion and sedimentation control practices, mainly regarding surface runoff water draining into farm-associated water bodies.	Monitor the physical-chemical conditions of the water bodies associated with the farms every six months.
		Ensure that there is no invasion of the protected zone of the water bodies associated with the farms. Correctly delimit said protection zones, and label indicating the prohibition to invade these zones. Also, vegetation recovery plans should be promoted in protected areas of the associated water bodies.	Water bodies and protection zones of each farm must be monitored through satellite images in order to verify their condition and ensure that the protection zones of these water bodies are being respected, and that vegetation recovery plans are having a positive effect.
HCV 4	Potential elimination of this remaining coverage as a result of the expansion of agricultural frontiers into the forest cover. This would further encourage existing fragmentation, reducing the protected area of this source and isolating it further.	Encourage connectivity of isolated sites that can be connected through bodies of water and/or areas that are not suitable for planting with forest remnants or other nearby ecosystems. The above, allocating areas for regeneration, or implementing reforestation plans. Maps should be generated highlighting the areas chosen to promote connectivity.	Annual monitoring will be carried out using satellite images, where the areas destined for connectivity are analyzed, to determine if the implemented measures are having a positive effect.
		All protection zones for bodies of water must be delimited, proceeding in accordance with Guatemalan legislation. These areas must remain intact, meaning they may not be invaded in any way.	The water bodies and protection zones of each farm must be monitored through satellite images in order to verify their condition and ensure that the protection zones of these water bodies are being respected.
		A review will be made of those areas within each farm that are in disuse or that will not be subjected to planting processes, so that they can be included in reforestation plans. A map will be generated indicating which areas will be used for these processes.	An annual monitoring will be carried out through satellite images, where the areas destined to the reforestation processes are analyzed, to verify that these processes are indeed being carried out, and that they also make sense at a landscape level to promote connectivity with other areas.
		Implement landscape management tools (biological corridors, living fences, forest fragments or patches, enrichment and protection of water bodies) that guarantee diversity and configuration of the natural landscape.	Annual monitoring will be carried out through satellite images, where compliance and potential benefits of the implementation of these tools will be verified.

HCV	Main threats	Management Measures	Monitoring Measures
	Intentional fires to clear and prepare the land for the development of agricultural activities that eliminate the forest cover.	Promote and implement a community training and awareness program (if possible, hand in hand with the Municipality so that it has more reach) that educates about the importance of not causing fires intentionally. The program should emphasize the enormous negative consequences of this practice.	Evidence of the implementation of this program, and the results obtained from it, will be reviewed annually to assess whether the program is indeed creating any positive impact on awareness of the issue, or whether efforts should be redirected.
	Potential effect on water bodies due to <u>poor solid waste management</u> , which would cause changes in the physical-chemical conditions of the associated water bodies in the area. Such affectation could impact the Argentine community and the species of fauna associated with this source.	Place signage indicating the prohibition of littering, or contamination of water bodies. Also, awareness of the issue should be addressed in environmental workshops that should be held at least twice a year.	Monitor the physical-chemical conditions of the water bodies associated with the source every six months.
	Possible effect on water bodies due to <u>poor management of agrochemicals</u> (mainly the insecticide Malathion, which caused the disaster that occurred in 2015 in the La Pasión River), which would generate changes in the physical and chemical conditions of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	According to the Guatemalan law, a buffer zone should be left on neighboring water bodies or of direct influence.	Annual monitoring will be carried out through satellite images, to assess if the buffer zone is being respected.
		Ensure that associated water bodies are not contaminated by farming products.	Monitor the physical-chemical conditions of the associated water bodies. Also sampling of benthic macro-invertebrates (biological indicators) should be done on water bodies annually.
	Potential effect on water bodies due to <u>poor agricultural practices, creating erosive phenomena and sedimentation</u> , which would cause changes in the physical-chemical conditions of the water bodies associated to the area. Such affectation could impact the Argentine community and the species of fauna associated with this source.	Identify internal issues at the company related to farm management that may eventually affect areas of ecological importance within the farms or near them, such as the invasion of protected areas, or poor maintenance of drainage channels among others, and correct them immediately.	A quarterly visit to these areas should be carried out to verify that the Company is carrying out environmentally friendly agricultural practices, and in complete compliance with Guatemalan environmental legislation.
		Maintain strict erosion and sedimentation control practices, mainly regarding surface runoff water draining into farm-associated water bodies.	Monitor the physical-chemical conditions of the water bodies associated with the farms every six months.
		Ensure that there is no invasion of the protected zone of the water bodies associated with the farms. Correctly delimit said protection zones, and label indicating the prohibition to invade these zones. Also, vegetation recovery plans should be promoted in protected areas of the associated water bodies.	The water bodies and protection zones of each farm must be monitored through satellite images in order to verify their condition and ensure that the protection zones of these water bodies are being respected, and that vegetation recovery plans are taking effect.

HCV	Main threats	Management Measures	Monitoring Measures
HCV 5	Potential effect on water bodies due to <u>poor solid waste management</u> , which would cause changes in the physical-chemical conditions of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	Place signage indicating the prohibition of littering, or contamination of water bodies, within the farms. Also, awareness of the issue should be addressed in environmental workshops that should be held at least twice a year.	Monitor the physical-chemical conditions of the water bodies associated with the farms every six months.
	Possible effect on water bodies due to <u>poor management of agrochemicals</u> (mainly the insecticide Malathion, which caused the disaster that occurred in 2015 in the La Pasión River), which would generate changes in the physical and chemical conditions of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	According to the Guatemalan law, a buffer zone should be left on neighboring water bodies or of direct influence.	Annual monitoring will be carried out through satellite images, to assess if the buffer zone is being respected.
		Ensure that water bodies associated to farms are not contaminated by farming products.	Monitor the physical-chemical conditions of the water bodies associated with the farms every six months. Also sampling of benthic macro-invertebrates (biological indicators) should be done on water bodies annually.
	Potential effect on water bodies due to <u>poor agricultural practices, creating erosive phenomena and sedimentation</u> , which would cause changes in the physical-chemical conditions of the associated water bodies. This could eventually affect the fauna population associated with these bodies of water.	Identify internal issues at the company related to farm management that may eventually affect areas of ecological importance within the farms or near them, such as the invasion of protected areas, or poor maintenance of drainage channels among others, and correct them immediately.	A quarterly visit to these areas should be carried out to verify that the Company is carrying out environmentally friendly agricultural practices, and in complete compliance with Guatemalan environmental legislation.
		Maintain strict erosion and sedimentation control practices, mainly regarding surface runoff water draining into farm-associated water bodies.	Monitor the physical-chemical conditions of the water bodies associated with the farms every six months.
		Ensure that there is no invasion of the protected zone of the water bodies associated with the farms. Correctly delimit said protection zones, and label indicating the prohibition to invade these zones. Also, vegetation recovery plans should be promoted in protected areas of the associated water bodies.	Water bodies and protection zones of each farm must be monitored through satellite images in order to verify their condition and ensure that the protection zones of these water bodies are being respected, and that vegetation recovery plans are having a positive effect.

HCV	Main threats	Management Measures	Monitoring Measures
HCV 6	Eventual mechanization of the land on the Tamarindo farm for future replanting, or construction of new drainage channels could cause destruction of buried archaeological sites or remains.	Define a protection zone around the 80 mounds identified in the farm within which no movement or mechanization of the land will be allowed. Place clear signage in these areas and at the entrance to the farm.	A visit to these areas must be carried out every six months to confirm that the Company is enforcing this commitment.

TABLE 16. RECOMMENDATIONS FOR MANAGING AND MONITORING HCVs

HCV	Management Measures	Monitoring Measures
HCV 1, 3, 4 and 5	Actively participate in local and regional biodiversity conservation programs.	Evidence of these engagements, and the results obtained from them, will be reviewed annually to verify whether these engagements are indeed having a positive impact on conservation issues, or whether efforts should be redirected.
	Also, contact should be established with local institutions, NGOs or government agencies, in order to inform conservation and management policies and actions to be implemented, and thus work together.	A record will be kept of each of these meetings, and joint work proposals will be included in a meeting minute. These proposals will be reviewed annually, to ensure close monitoring of the progress being made on these items. .
	To know the position of the owners of neighboring farms, in terms of conservation plans and future management of their farms, and to encourage conservation alliances. In addition, the communities will be informed about the policies and actions to be followed by the Company in environmental matters. The above, with the aim of setting a precedent for environmental protection in the area.	The previous point is reiterated. In addition, there will be annual meetings with communities of influence, where the progress of the different alliances in progress, will be made known.
	Identify recurrent socio-cultural behaviors among employees, such as contamination of water bodies, firewood extraction, and poaching, among others, that may eventually affect ecologically important areas within or around the farms. In relation to the above, a diagnosis should be made, and from there, periodic training on these topics should be provided.	An evaluation will be done quarterly after each training to verify that people understand the purpose of the training. Strict records must be kept of each training, and teaching materials, in relation to compliance with this measure.
	Share with the inhabitants or communities the importance of establishing conservation practices of ecosystems and species.	An evaluation will be done after each meeting to verify that people understand the purpose of conservation. Strict records must be kept of each meeting, and teaching materials, in relation to compliance with this measure.
	Actively participate in local and regional biodiversity conservation programs.	Evidence of these engagements, and the results obtained from them, will be reviewed annually to verify whether these engagements are indeed having a positive impact on conservation issues, or whether efforts should be redirected.

FIGURE 4. HCV MANAGEMENT MAP FOR VALLE VERDE AND TAMARINDO FARMS (NORTH SECTOR).

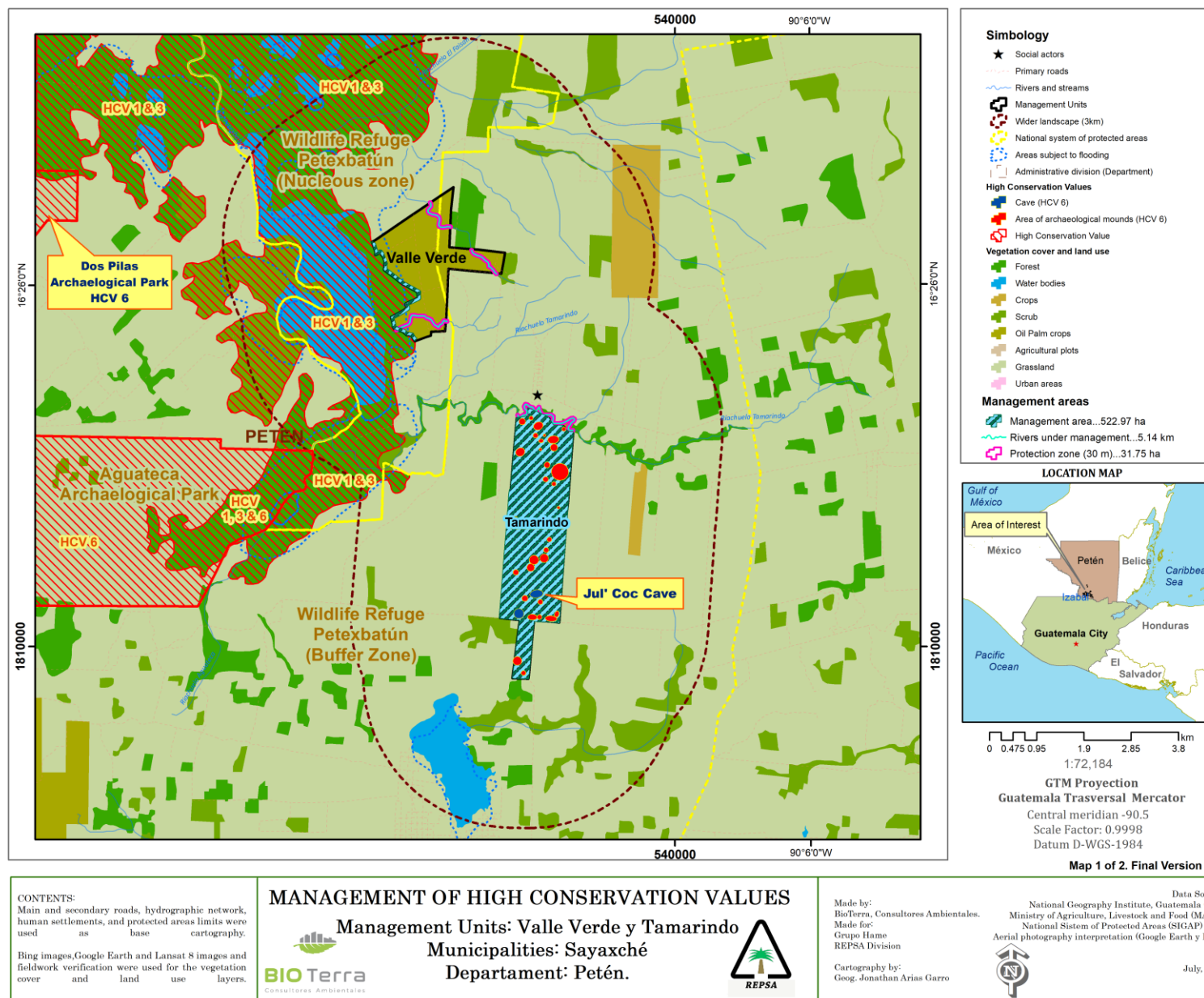
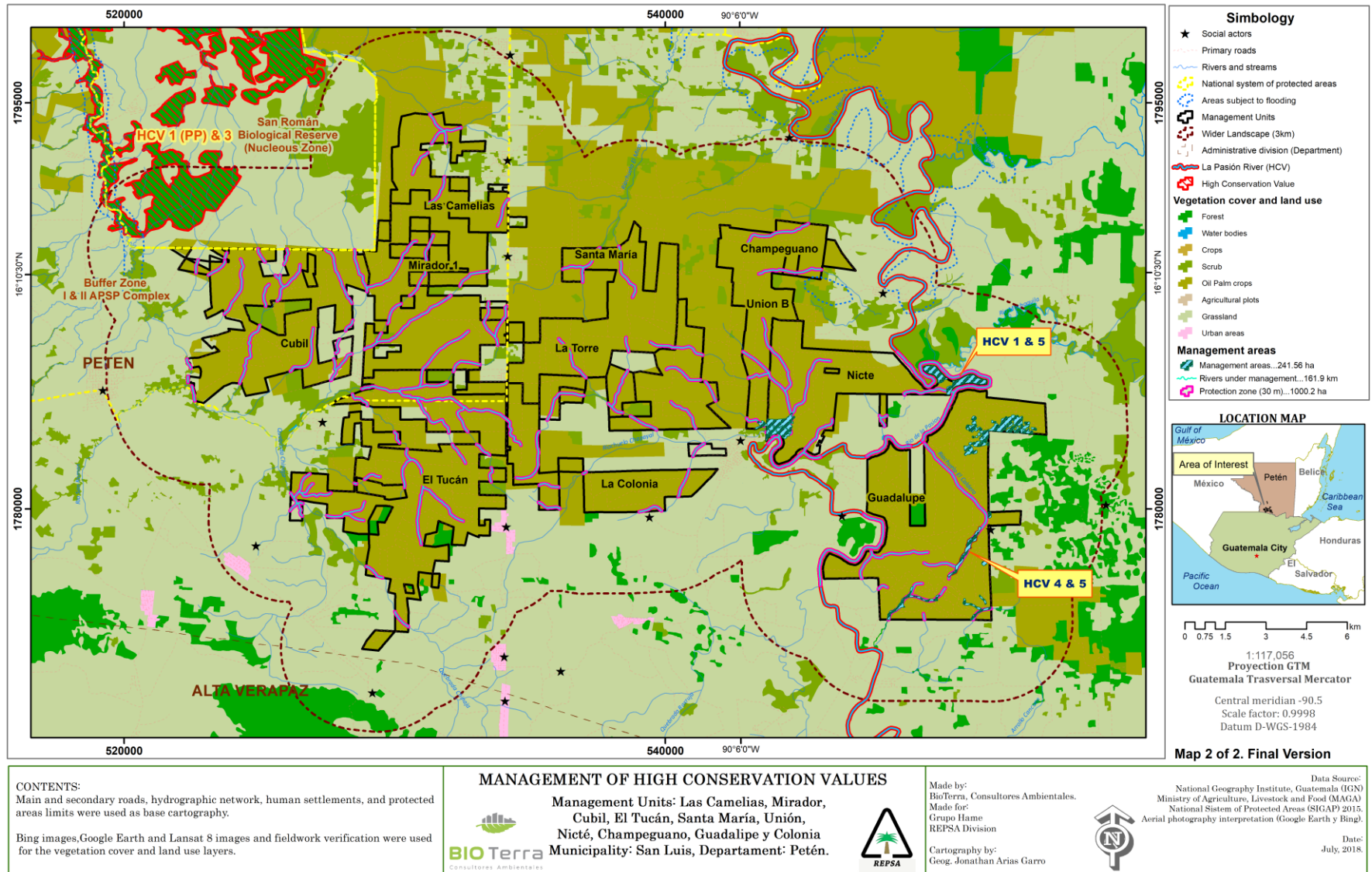


FIGURE 5. HCV MANAGEMENT MAP FOR THE FARMS IN THE SOUTHERN SECTOR.



5. REFERENCES

- Andrén, H.** 1994. Effects of habitat fragmentation on birds and mammals in landscapes with different proportions of suitable habitat: a review, *Oikos* 71: 355-366.
- Barrientos, C., Quintana, Y., Diego, E., Rodiles H., R..** 2018. Peces nativos y pesca artesanal en la cuenca Usumacinta, Guatemala.
- Bennett, A. F.** 1990. Habitats corridors and the conservation of small mammals in fragmented forest. *Landscape Ecology* 4:109-122.
- Bennett, A. F..** 1999. Linkages in the landscape: The role of Corridors and Connectivity in Wildlife Conservation. IUCN, Gland.
- Bennett, A. F.; K. Henein & G. Merriam.** 1994. Corridor use and the elements of corridor quality: chipmunks and fencerows in a farmland mosaic. *Biological Conservation* 68: 155-165.
- Bennett, A. F.** 2004. Enlazando el paisaje. El papel de los corredores y la conectividad en la conservación de la vida silvestre. Unión Mundial para la Naturaleza (UICN). San José, Costa Rica.
- Beier, P. y R. F. Noss.** 1998. Do Habitat Corridors Provide Connectivity?, *Conservation Biology* 12 (6): 1241-1252.
- Brooker, M.** 1983. Conservation of wildlife in river corridors. *Nature in Wales* 2: 11-20.
- Brosi, J. B., Ming, S. T., y Billadello, L. N.** (2008) Polinización Biótica y Cambios en el uso de la tierra en paisajes dominados por humanos. En Harvey, C. A., y J. M., Sáenz. 2008. Evaluación y conservación de biodiversidad en paisajes fragmentados de Mesoamérica. –1ª Ed. – Santo Domingo de Heredia, Costa Rica: Instituto Nacional de Biodiversidad, INBio. Pag – 581.
- Castañeda, A.** 2017. Análisis de cambio de uso del suelo (LUCA) para fincas establecidas sin evaluación previa de HCV de la Empresa Reforestadora de palmas de El Petén S.A.
- Comisión Centroamericana de Ambiente y Desarrollo (CCAD)** 2010. Listados Actualizados de las Especies de Fauna y Flora incluidas en los apéndices de la CITES, distribuidas en Centroamérica y República Dominicana. Centroamérica. 61p.
- Consejo Nacional de Áreas Protegidas (CONAP); Dirección General de Patrimonio Cultural y Natural (DGPCN); The Nature Conservancy (TNC).** (2007) Plan Maestro 2008-2012: Áreas Protegidas del Suroeste de Petén. [Guatemala]. 231 pág.
- Consejo Municipal de Desarrollo del Municipio de Sayaxché, Secretaría de Planificación y Programación de la Presidencia** 2010. Development Plan for Sayaxché, Petén. Guatemala: SEGEPLAN/DPT.
- Daily, G. C.** 2001. Ecological forecast. *Nature* 411:245.
- Diamond, J.M.,** 1984. Normal extinctions of isolated population. Pp. 191-246 in *Extinctions*. (Ed. M.H. Nitecki). (University of Chicago Press: Chicago).
- Dobson, A. y A. Leslye.** 1989. The populations dynamics and conservation of primate populations. *Conservation Biology* 3:362-380
- Asesoría Manuel Basterrechea Asociados S.A.** 2014. Diagnóstico Ambiental Cultivo de Palma de Aceite, Sayaxché, Petén. 120 pp.
- Asesoría Manuel Basterrechea Asociados S.A.** 2016. Diagnóstico Ambiental Planta Extractora de Aceite REPSA 1. 140 pp.
- Asesoría Manuel Basterrechea Asociados S.A.** 2016. Diagnóstico Ambiental Planta Extractora de Aceite REPSA 2. 141 pp.
- Emerton, L., & Bos, E.** 2004. Value. Counting ecosystems as water infrastructure. IUCN, Gland (Switzerland) and Cambridge (United Kingdom), 88 pages.

- Emmerich, J.M. and Vohs, P.A.**, 1982. Comparative use of four woodland habitats by birds. *Journal of Wildlife Management* 46: 43-49.
- Evaluación de los Ecosistemas del Milenio-EEM**. 2005. Servicios de los Ecosistemas y Bienestar Humano: Síntesis de Humedales y Agua. World Resources Institute, Washington DC.
- Faanes, C.A.**, 1984. Wooded islands in a sea of prairie. *American Birds* 38: 3-6.n. *Western Birds* 18: 77-83.
- Fedepalma**. 2012. Available online <http://www.fedepalma.org>
- Fisher, J.; D. B. Lindenmayer & A.D. Manning**. 2005. Biodiversity, ecosystem function and resilience: ten guiding principles for commodity production landscapes. *Frontiers in Ecology and the Environment* 4:80-86
- Forman, R. T. T. & J. Baudry**. 1984. Hedgerows and hedgerow Networks in landscape ecology. *Environmental Management* 8:495-510.
- Forman, R.T.T.**, 1991. Landscape corridors: from theoretical foundations to public policy. Pp. 71-84 in *Nature Conservation 2: The Role of Corridors*. (Eds. D. A. Saunders and R. J. Hobbs). (Surrey Beatty & Sons: Chipping Norton, New South Wales).
- Forman, R. T. T.** 1995. *Land mosaics: the ecology of landscapes and regions*. Cambridge University Press, Cambridge.
- Fowler, N.E. and Howe, R.W.**, 1987. Birds of remnant riparian forest in northeastern Wisconsin.
- Gilbert, K. A. y E. Z. Setz**. 2001. *Primates in a fragmented landscape. The ecology and Conservation of a Fragmented Forest*. Yale University Press. New Haven.
- Hanski, I. & Gilpin, M. E.** 1997. *Metapopulation Biology: Ecology, Genetics, and Evolution* (Academic, San Diego).
- Harvey, C. A.; Villanueva; J. Villacís; M. M. Chacón; D. Muñoz; M. López; M. Ibrahim; R. Taylor; J. L. Martínez; A. Navas; J. C. Sáenz; D. Sánchez; A. Medina; S. Vílchez; B. Hernández; A. Pérez; F. Ruiz; F. López; I. Lang; S. Kunth y F. L. Sinclair**. 2005^a. Contributio or live fences to the ecological integrity of agricultural landscapes in Central America. *Agriculture, Ecosystems and Environment*. 111:200-230
- Harvey, C. A.; F. Alpízar; M. Chacón y R. Madrigal**. 2005b. Assessing linkages between Agriculture and Biodiversity in Central America: Historical overview and Future perspectives. Mesoamerican y Caribbean Region, Conservation Science Program. The Nature Conservancy (TNC), San José, Costa Rica.
- Harvey, C. A.; C. Villanueva; M. Ibrahim; R. Gómez; M. López; S. Kunth y F. L. Sinclair**. 2005 c. Productores, árboles y producción ganadera en paisajes de América Central: Implicaciones para la conservación de la biodiversidad.
- Harvey, C. A.; A. Medina; D. Sánchez; S. Vílchez; B. Hernández; J.C. Sáenz; J. M. Maes; F. Casanoves y F. L. Sinclair**. 2006. Patters of animal diversity associated with different forms of tree cover retained in agricultural landscapes. *Ecological Aplications* 16: 1986-1999.
- Harvey, C. A., y J. M., Sáenz**. 2008. Evaluación y conservación de biodiversidad en paisajes fragmentados de Mesoamérica. –1^a Ed. – Santo Domingo de Heredia, Costa Rica: Instituto Nacional de Biodiversidad, INBio. Pag – 581.
- Harvey, A.C., Villanueva, C., Ibrahim, M., Gómez, R., López, M., Kunt, S., y Sinclair, L. F.** 2008. Productores, árboles y producción ganadera en paisajes de América Central: Implicaciones para la conservación de la biodiversidad. En Harvey, C. A., y J. M., Sáenz. 2008. Evaluación y conservación de biodiversidad en paisajes fragmentados de Mesoamérica. –1^a Ed. – Santo Domingo de Heredia, Costa Rica: Instituto Nacional de Biodiversidad, INBio. Pag – 581.
- Henle, K; K. F. Davies; M. Kleyer; C. Margules y J. Settele**. 2004. Predictors of species sensitivity to fragmentation. *Biodiversity and Conservation* 13: 207-251.
- HCV Resource Network**. 2013. Available online: www.hcvnetwork.org

- Jennings, Steve., R. Nussbaum.; N, Judd & T, Evans.** 2003. PROFOREST. Herramientas prácticas para Bosque con Altos Valores de Conservación. First Edition.
- Kappelle, M.** 2008. Diccionario de la biodiversidad. 1 era edición. INBio.
- Kattan, G. H.** 2002. Fragmentación: patrones y mecanismos de extinción de especies. Páginas 561-590 en M. R. Guariguata y G. H. Kattan, editores. Ecología y conservación de bosque neotropicales. Regional College Book, Cartago, Costa Rica.
- Laurence, W.F.,** 1990. Compatative responses of five arboreal marsupials to tropical forest fragmentation. *Journal of Mammalogy* 71: 641-53.
- Laurance, W. F. & R. O. Bierregaard,** editors. 1997. Tropical forest remnants: ecology Management and conservation of fragments communities. The University of Chicago Press, Chicago.
- López, J.L.** 2015. Evaluación Biológica y Ecosistémica Rápida. Plantaciones de Palma de Aceite Reforestadora de Palmas del Petén, S.A. Sayaxché, Petén.
- Marsh, C.; A. Johns y J. Ayres.** 1987. Effects of habitat disturbance on rain forest primates. Pages 83-107 in C. Marsh y R. Mittermeier, editors. *Primate Conservation in the Tropical Rain Forest*. Alan R. Liss, INC., New York.
- Mendoza, J. E., Jiménez, E., Lozano-Zombrano, F. H., Caycedo-Rosales, P., y Renjifo, L. M.** (2008). Identificación de elementos del paisaje prioritarios para la conservación de biodiversidad en paisajes rurales de los Andes Centrales de Colombia. En Harvey, C. A., y J. M., Sáenz. 2008. Evaluación y conservación de biodiversidad en paisajes fragmentados de Mesoamérica. –1ª Ed. – Santo Domingo de Heredia, Costa Rica: Instituto Nacional de Biodiversidad, INBio. Pag – 581.
- Morales. P.** 2016. Evaluación arqueológica de la finca Tamarindo, Sayaxche, Petén. 23 pp.
- Morales. P.** 2016. Evaluación arqueológica de la finca Valle Verde, Sayaxche, Petén. 9 pp.
- Muchoney, D.M., S. Iremonger, & R. Wright.** 1994. A Rapid Ecological Assessment of the Blue and John Crow Mountains National Park, Jamaica, Unpublished report. The Nature Conservancy. Arlington, Virginia. Pp 90.
- Noss, R.** 1987. From plants communities to landscape in conservation inventories: a look at the nature conservancy (USA). *Biological Conservation* 41(1):11-37.
- Opdam, P.** 1990. Understanding the ecology of populations in fragmented landscapes. Pages 373-380 in S. Myrberget, editor. *Transantions of the 19th IUGB Congress*. NINA, Trondheim.
- Palacios-Silva, R., y Mandujano, S.** 2008. Chap. 17. Análisis de la conectividad del hábitat del mono aullador en un paisaje altamente perturbado de México. En Harvey, C. A., y J. M., Sáenz. 2008. Evaluación y conservación de biodiversidad en paisajes fragmentados de Mesoamérica. –1ª Ed. – Santo Domingo de Heredia, Costa Rica: Instituto Nacional de Biodiversidad, INBio. Page – 581.
- Proforest.** 2013. Available online: <http://www.proforest.net>.
- Ranganathan, J., y Daily, C. G.** 2008. Chap. 1. La biogeografía del paisaje rural: oportunidades de conservación para paisajes de Mesoamérica manejados por humanos. En Harvey, C. A., y J. M., Sáenz. 2008. Evaluación y conservación de biodiversidad en paisajes fragmentados de Mesoamérica. –1ª Ed. – Santo Domingo de Heredia, Costa Rica: Instituto Nacional de Biodiversidad, INBio. Pag – 581.
- Ralph, J., G. R. Geupel, P. Pyle, T.E. Martin, D. F. DeSante y B. Milá.** 1996. Manual de Métodos de Campo para el Monitoreo de Aves Terrestres. Pacific Southwest Station, Forest Service, U.S. Department of Agriculture. General Technical Report. Pp 59.
- Recher, H.F., Shields, J., Kavanagh, R. and Webb, G.,** 1987. Retaining remnant mature forest for nature conservation ad Eden, New South Wales: a review on theory and practice. Pp. 177-94 in *Nature Conservation: The Role of Remnants of Native Vegetation*. (Eds. D.A. Saunders, G.W.

- Arnold, A.A. Burbidge and A.J.M. Hopkins). (Surrey Beatty & Sons: Chipping Norton, New South Wales).
- Romero, D.** 2001, La agroindustria de Veracruz ante la globalización. Problemas y perspectivas, Arana Editores, México, 270 pp.
- Rosales, C.C.** 2015. Caracterización de los impactos sociales que genera la actividad de cultivo y procesamiento industrial del Aceite de Palma
- RSPO (Roundtable on Sustainable Palm Oil).** 2013. Principios y Criterios – RSPO para la producción sostenible de aceite de Palma. Guide document.
- Stattersfield, A. J., Crosby, M. J., Long, A. J. & Wege, D. C.** (1998) Endemic Bird Areas of the World - Priorities for Conservation. Cambridge, UK: BirdLife International.
- Saunders, D.A.,** 1989. Changes of the avifauna of a region, district and remnant as a result of fragmentation of native vegetation: the wheatbelt of Western Australia. A case study. *Biological Conservation* 50: 99-135.
- Sayre, R., E. Roca, G. Sedaghatkish, B. Young, S. Keel, R. Roca & S. Sheppard.** 2000. Nature in Focus: Rapid Ecological Assessment. The Nature Conservancy (TNT)- Island Press. Washington DC. Pp 182.
- Sobrevilla, C. & P. Bath.** 1992. Evaluación Ecológica Rápida (EER). Un manual para usuarios de América Latina y el Caribe. Programa de Ciencias para América latina. Arlington. Pp.
- Soto, R. & V. Jiménez.** 1992. Evaluación Ecológica Rápida, Península de Osa, Costa Rica. Programa BOSCOA. Fundación Neotrópica – WWF. Pp 252.
- Soulé, M.E., Bolger, D.T., Alberts, A.C., Wright, J., Sorice, M. and Hills, S.,** 1998. Reconstructed dynamics of rapid extinctions of chaparral requiring birds in urban habitat islands. *Conservation Biology* 2: 75-92.
- Stiles y Skutch.** 2003. Guía de aves de Costa Rica, 3 ed. Instituto Nacional de Biodiversidad, Heredia, Costa Rica. Pp 680.
- Stotz D., J. Fitzpatrick, T. Parker & D. Moskovitz.** 1996. Neotropical birds: ecology and conservation. Universidad de Chicago. Estados Unidos.
- Terborgh, J. and Winter, B.,** 1980. Some causes of extinction. Pp. 119-133 in *Conservation Biology: An Evolutionary-Ecological Perspective*. (Eds. M.E. Soule and B.A. Wilcox). (Sinauer Associates: Sunderland, Massachusetts).
- United States Southern Command.** (2000) Evaluación de Recursos de Agua de Guatemala. 106pp.
- UICN.** 2013. Red list of threatened species version 3.1. Consulted on: December 03, 2013 at: <http://www.iucnredlist.org/>
- Valdés, O.** 2003. La educación ambiental para el desarrollo sostenible en el proceso docente educativo en las escuelas de las ciudades de Cuba. Instituto Central de Ciencias Pedagógicas. Ministerio de Educación.
- Vílchez, S.; C. A. Harvey; D. Sánchez; A. Medina y B. Hernández.** 2004. Diversidad de aves en un paisaje fragmentado de bosque seco en Rivas, Nicaragua. *Encuentro* 36:60-75.
- Wiens, J. A.,** 1994. Habitat fragmentation: island v landscape perspectives on bird conservation. *Ibis* 137: S97-S104.
- WWF. World Wide Fundfor Nature.** 2007. Bosques con Alto Valor de Conservación – El Concepto en la Teoría y Práctica. Pp 7

6. RESPONSABILIDAD INTERNA

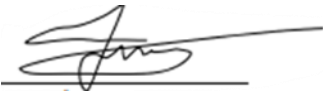
I hereby assume full responsibility for the contents of this document.

Sincerely,



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Environmental Consultant and HCV Assessor
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Likewise, the Company accepts the responsibility for the HCV Assessment carried out in the farms under study, and for the implementation of the measures proposed for HCV Management and Monitoring.



*Ing. Fritz Versluys M.
Certification Manager
REFORESTADORA DE PALMAS DE EL PETÉN S.A. (REPSA)*

DATE: NOVEMBER 9, 2020