RSPO

NEW PLANTATION PROCEDURES (NPP)

COMPANY: COMPAÑÍA PALMA TICA S.A.

Social and Environmental Impact and High Conservation Value Areas Evaluation System Summary

PREPARED BY:



BIO TERRA CONSULTORES AMBIENTALES



COSTA RICA, FEBRUARY 2013

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1. Executive Summary

This document presents a comprehensive, participative and independent evaluation of the status of the natural resources and physical and social conditions in the area to be exploited and its influence region, to reduce the project's negative social and environmental impacts as much as possible.

The following information is considered relevant:

Primary forests:

The farms included in the study are immersed within a mosaic of habitats and vegetation clusters resulting from intense activities and anthropogenic developments. The main activity that has degraded the natural ecosystems is extensive livestock practices throughout the national history. Those soils subjected to livestock activities result in new uses of the land, including agricultural activities. Mainly due to this reason, a large percentage of the ecosystems in the area's forests have been subjected to productive activities during history. The ecosystems that subsist are mainly comprised of intervened forest coverage and areas regenerating from exploitation in different degrees, resulting in secondary forests, shrub lands, grasslands, and others.

During the analysis and identification of the ecosystems present in the study area and their influence zones, <u>no primary forests where identified</u>.

Surface needed to maintain or improve one or more High Conservation Values (HCV):

In the 4 farms that are to be used for the new plantations, no High Conservation Value Areas were identified. However, some HCV were identified, which should be protected.

The farms themselves have bodies of water, river bank vegetation, and in some cases show patches of isolated secondary forests, in a very small portion. Most of the land in these farms are covered by scrub and grassland, with no real high conversation potential.

Therefore, conservation and protection of the existing bodies of water and remaining forests is enough to maintain and/or improve the HCV identified in the study.



Peat soil areas

There are no peat soil areas in the farms, as the land is flat on most areas with high precipitation, presenting isolated areas in the horizon with low external drainage or lack thereof. The soil is mostly composed of entisols of alluvial origin, or which have been formed by the rivers of the area, mainly by the Chirripó River that used to run through that area. According to the Soil Usability methodology, MAG-MINAET, the flood risk is classified as non-existent, as a low risk category implies frequent low permanence floods, which do not occur in the area.

Drainage is required to avoid the presence of high water tables. The difference in altitude of the land with regards to the rivers allow draining the root zone for the plantation.

Land in the local communities (indigenous)

Regarding the presence of indigenous communities, it must stated that the latest statistic census analysis in the country, the study zone holds an indigenous percentage of the population of less than 1.6% of the total population for the canton of Sarapiquí and 1.5% of the total inhabitants of the canton of Pococí. This data is lower than the national figure (2.4%).

To complement the information above, it is pertinent to state that in the study sector located in the Atlantic Huetar Region of the country, the indigenous communities are mainly located in a sector called "South-Caribbean" (canton of Talamanca), and in the "North-Caribbean", in the cantons of Sarapiquí and Pococí. Therefore, the farms where the new African Oil Palm will be developed have no indigenous settlements.

2. SEIA scope and HCVA assessment

Compañía Palma Tica S.A Name of the Company **Corporate Identification Number** 3-101-173999 Legal Representative Erwin Martin Holmann Pastora **Identification Number** R-155808421015 Telephone 2284-1000 2221-6371 / 2221-7340 Fax info@numar.net Email **Company's Environmental Manager** Carlos Playa Cruz

2.1 Organizational information and contacts



Identification Number	6-0308-0889
Telephone 2777-8125	
Fax	2777-0311
Email	caplaya@numar.net

2.2 List of legal documents, mandatory permits and ownership deed related with the evaluated areas

At the present time, Environmental Viability is being processed in the National Environmental Technical Secretariat (SETENA), for the new proposed plantation. The Project has been assigned case number #9077.

Simultaneously, the certification for the new proposed African Oil Palm plantations is being processed with the RSPO. For this reason, the present report is being issued.

Once Environmental Viability from SETENA is obtained, the Municipal permit for the development of the proposed activity will be processed.



2.3 Location map – Surroundings and property

LOCATION MAP Compañía Palma Tica S.A. Atlantic Division Scale: 1: 75 000





2.4 Area for the new plantations and timetable for the new plantations

The following is a chart containing the details of the areas to be planted:

Farm	Farm's area	Area to be planted
Reifa	770,02ha	560ha
Chirriposito	124,22ha	110ha
El Bambú	589,41ha	343ha
Pajarera	635,12ha	600ha
Total	2118,77ha	1613ha

The following chart shows the production timetable proposed:

Productivity curves	Calendar year	Metric tons of fruit/Ha
Year 0	2013	0
Year 1	2014	0
Year 2	2015	6,59
Year 3	2016	14,09
Year 4	2017	25,00
Year 5	2018	26,17
Year 6	2019	27,74
Year 7	2020	28,55
Year 8	2021	29,01
Year 9	2022	27,93
Year 10	2023	28,49
Year 11	2024	30,34
Year 12	2025	32,60
Year 13	2026	31,10
Year 14	2027	31,44
Year 15	2028	28,29
Year 16	2029	28,21
Year 17	2030	28,39
Year 18	2031	28,19
Year 19	2032	27,41
Year 20	2033	25,69
Year 21	2034	24,59
Year 22	2035	24,33
Year 23	2036	23,98
Year 24	2037	22,73



Productivity curves	Calendar year	Metric tons of fruit/Ha
Year 25	2038	21,25

3. Process and procedures evaluation

3.1 Information for advisors and their credentials

Responsibility for the preparation of the studies that support these public notice reports belongs to the environmental consulting firm Soluciones Ambientales Bio Terra S.A., registration number in the National Environmental Technical Secretariat (SETENA) EC-004-2008 (before) and EC-010-2012 (current), valid until June 8th, 2014.

Also, the company is an RSPO accredited company, as a Consultant for the preparation of these studies.

The professional team detailed below complies and transcends the RSPO requirements.

Professionals	Specialty	Identification Number
MSc. Marisol Zumbado Bustillos	Biologist, majoring in Ecology and Sustainable Development. RSPO accredited advisor, in charge of coordination and integration of this study. Team Leader	ID: 1-1143-0899
MSc. Darién Zúñiga Leitón	Biologist, majoring in Ecology and Sustainable Development, specializing in Environmental Management. In charge of the Evaluation of the High Conservation Value Areas.	ID: 1-1135-0269
MSc. Mario Piedra González	Sociologist specializing in Public Health, in charge of Characterization of Social Impacts.	ID: 1-0714-0912
Dr. Carlos Cervantes Umaña	Soils specialist, in charge of the Soil Survey Study for the new plantations proposed.	ID: 3-0248-0297



Professionals	Specialty	Identification Number
Jorge Arturo Vargas Leitón	Professional and specialist in forest and wildlife management. In charge of the most representative bird and wildlife surveys in the various ecosystems.	ID: 1-1217-0510
Lic. Jonathan Arias Garro	Geographer land specialist, responsible for developing zoning maps Conservation Values, vegetation coverage and others.	ID: 3-0380-0274
Dr. Rosa Bustillos Lemaire	Attorney specializing in environmental law, in charge of analyzing and compiling the legal regulations applicable to the Project.	ID: 1-0513-0152

3.2 Evaluation methods (data sources, date collection, dates, programs, places visited)

Methodology used for the characterization of the social and economic impacts

Document review

Several RSPO publications were consulted, in order to understand its origins, objectives and application in various parts of the world where the preparation of new plantations for African Oil Palm cultivation is performed.

Also, several reports, publications and online sources from national institutions and organizations were reviewed, to collect data regarding the Atlantic Huetar Region of Costa Rica, area in which the new plantations will be developed.

Visits to the communities neighboring the Project area

Once the basic conceptual framework and the document information for the project for the study area were defined, two visits were performed to the communities located in the neighboring areas of the new plantation sites.

They included general visits to the different communities in the zone, which show a landscape characterized by the presence of vast extensions of land used as grasslands and banana plantations.



Consultation process

The identification of possible social impacts as a result of the new African Oil Palm plantations arose from two consultation processes: i) with the local inhabitants of the communities located near the farms where the new plantations will be developed, and ii) with the representatives of the government institutions present in the study zone.

Methodology used for soil surveys in the study area

For the exploration survey, the survey methodology used by the Department of Agriculture of the United States will implemented, as detailed in the Soil Survey Manual, of the Soil Survey Staff, Department of Agriculture of United States, October 1993, which describes the procedures used for the description and mapping of soils. The field methodology used for exploration involves recognition points adapted to the conditions of the sampling area and the physical and graphical units, followed by the use of sampling aimed at specific places, for corroboration purposes.



Methodology used for the Assessment of the High Conservation Value Areas

The following diagram summarizes this methodology:





For the identification of the HCVA, the following methodology was used:

High Conservation Values (HCV)	Methodological Process
HCV1 Forest areas that globally,	 Analysis of satellite and aerial images.
regionally, or nationally host	
significant concentrations of	• Analysis of official government issued information regarding
biodiversity value (for example,	the condition of endemic, threatened and endangered species.
endemism, endangered species).	• Review of the lists of species contained in national and
HCV1.1 Protected areas	international treaties.
HCV1.2 Threatened and	✤ CITES
endangered species	✤ UICN
HCV1.3 Endemic species	 Wildlife Conservation Act # 7317
HCV1.4 Critical temporary	✤ Others
use	
-HCV2: Forest areas that globally,	Rapid Ecological Assessment (REA) – Field Sampling
regionally, or nationally host	✤ Terrestrial wildlife
significant forests with a great scenic	✤ Dav-flving wildlife
level contained therein or contained	✤ Aquatic fauna
in the management unit in which	✤ Flora
most, if not all, of the viable	
population of species occur in	Consults with focal and interest groups led by a sociologist.
natural patters of distribution and	5 1 5 5
abundance.	
-HCV3: Forest areas that are located	
within rare, threatened or	
endangered ecosystems or host	
such ecosystems.	
-HCV4: Forest areas that provide	
basic services in critical situations	Analysis of actallite and carial images
(i.e., protection of river basins,	• Analysis of saleline and denarimages.
\Rightarrow HCV// 1 Ecrests critical for	Analysis of government databases (SENADA MINAET)
catchmente	- Analysis of government ualabases (SEIVARA-WINVAET).
↔ HCV4.2 Forests critical for	Consults with focal and interest groups led by a sociologist
erosion control	
 HCV4.3 Firewall forests 	
-HCV5: Forest areas essential for	Analysis of satellite and aerial images
satisfying the basic needs of the	/ analysis of outsines and donar imageo.
local communities (i.e., sustenance,	Analysis of government databases (National Museum –
health).	archeological sites database).
-HCV6: Forest areas that are critical	
for the traditional cultural identity of	 Consults of Indigenous Reserves maps.
the local communities (areas of	- 3
cultural, ecological, economic or	• Consults with focal and interest groups led by a sociologist.



High Conservation Values (HCV)	Methodological Process
religious significance, as identified with the cooperation of said local communities).	

3.3 Consults with the interested parties (contacted representatives, consult registries and dates)

This consultation process took place in the Barbados community hall, in the community bearing the same name, on January 18th, 2013 from 3:05pm to 5:03pm, with the assistance of 78 individuals. This group of individuals was comprised of representatives from institutions and community leaders. The following is a sample of the process record:



Palma TicaRegistro deCódigo: FO-18-02DIVISION QUEPOSInformación ExternaPagina: 1 de 1		
LUGAR: Salon Comunal Barbados.		
INSTRUCTOR: Carlos Alberto Playa Cruz	FECHA: 18-01-13	DURACION: 3 Horas
TEMAS TRATADOS: Presentación del informe de impactos de pr recepción de objeciones.	ocedimiento de nuevas slembra	s bajo la metodologia de RSPO y
NOMBRE DEL PARTICIPANTE		FIRMA
Maricela sancho Jernandez	Maxiceles	an Choff 110214892
Kevin torres Altaro	Kevin torres	Alfara 7-194-090
Romualdo pirado cerdas	Romusl	do pe 1-517-71
Rodolfo Cubillo gimener	RCJ	9-093-997
Mayela Arley Cubillo	Mayela Avi.	et cubillo.
Guiselle Venavides Cerda	MB 714	4 967
Vicente Maltez	Vicente mall	tes a
Woldo tulallo t	7ll-6	156-471.
Elibeth Salas Hernandez	Stell 2-2	411-301
Jose Masias Calderón Perreto	JMC.	
Julieta Romirez Mora	Jemora	2 348 480
Manuni Sastamaria Damiez	Martonia	2499 586

3.4 List of reference documents (laws, studies, etc)

 Study: Criteria 7.1. RSPO Standard

 (Compañía Palma Tica S.A.-Atlantic Division).

 Marisol Zumbado Bustillos

 RSPO Accredited Team Leader

 Biologist, majoring in ecology and sustainable development

 Master in Environmental Audit and Management, specializing in management and conservation of natural resources

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Biologists Association: 1416 SETENA Consultant: CI-091-2007 (before) / CI-144-2012 (current)

Evaluation of the High Conservation Value Areas (HCVA). Procedure for new plantations

(Compañía Palma Tica S.A. – Atlantic Division).

Darién Zúñiga Leitón

Biologist, majoring in ecology and sustainable development. Master in Environmental Audit and Management, specializing in integral water management and recovery of contaminated soils. Biologists Association: 1519 SETENA Consultant: CI-079-2007 (before) / CI-143-2012 (current)

Characterization of social impacts generated by the activity of new African Oil Palm plantations (Compañía Palma Tica S.A. – Atlantic Division)

Mario Antonio Piedra González Sociologist, M.Sc. Public Health Sociologists Professional Association: 12-0235 SETENA Consultant: CI-021-1996

Soil Exploration Surveys

(Compañía Palma Tica S.A. – Atlantic Division)

Dr. Carlos A. Cervantes Umaña Ph.D. Soil Sciences, U of Columbia, Missouri Soils Specialist. Agricultural Engineering Association: 1134 Evaluator for Proper Soil Use: No. 44 SETENA Consultant: CI-084-2009



The following table summarizes the associated legislation:

Law	Summary
Municipal Code (7794)	The Municipal Code regulates the regulates the sector, establishes responsibilities, scope of action in a defined territory, includes general relations, inter-municipal, municipal government and standards related to its components, Council meetings and agreements, audit, district councils, the municipal finance, municipal staff, appeals against the acts of the Council and others. Articles 3 (jurisdiction), 4 (autonomy), 9 (shared areas), 13, paragraph or power to regulate urban development, 27 paragraph b, (motions), 44 and 45 agreements procedure , municipal Finance (permits), 153, 154, 157 appeals against agreements, 161 appeals against other municipal acts, are related to the mining activities.
Forestry Law (7575)	Forestry Law No. 7575 establishes standards for the conservation, protection and management of natural forests. Thus, for example, prohibits the cutting of trees " mangroves, protected zones "explicitly identifies the areas of protection (art. 33), among which are the areas around springs or streams, and establishes penalties and sanctions for those who invade a protected area (art. 58) or otherwise affect forest resources. The regulation includes a number of definitions, in particular some relating to forestry. Identifies SINAC's organization and establishes the different conservation areas. (Art. 3 ^o).
Wildlife Conservation Law (7317)	This Law has the main purpose of establishing rules for wildlife protection. The first 9 chapters of the Law refers to the regulations regarding the protection and exploitation of wildlife (permits, export, import, penalties, etc.) Chapter X is of special interest, as it determines the standards for wildlife shelters, some of which show mixed ownership conditions, such Refugio detailed in the Regulation of the Law the remainder of the Act refers to sanctions against the offenses in relation to wildlife. This regulation clearly defines Shelters Mixed Property (Section 84, subsection b). Permitted uses are established, which determine land use and development opportunities. (Art. 85). The rest of the Regulation contains general guidelines.
Biodiversity Law (7788)	The purpose is the protection of biodiversity. Articles 1, 2 and 3 indicate the object, sovereignty and scope. The definitions of Article 7 include on ecosystems, habitats and natural resource. It establishes general principles, objectives, criteria. Chapter II deals with the administrative organization of particular importance for SINAC, III environmental safety, IV conservation and sustainable use of species. Article. 49 is related to land use. The possible and resulting in conservation of species (art. 56 and art. 57) and wildlife areas, among other (art. 58). Chapter V includes the rules associated with genetic and biochemical components, permits, intellectual property, participation, education and environmental



Law	Summary	
	impact, as well as procedures, processes and penalties.	
Water Law (276)	This Law deals with regulations for the use of public and private waters. (Art. 1). The Law declares as public domain reserves the land adjoining the water collection and regeneration drinking water sites (Art. 31, paragraph a, b). It establishes protection areas around springs, river and stream banks. (Art. 149 and 150). However, the extent of these protection areas was subsequently amended by the Forest Law and Environmental Law. The remaining articles contained in the Law refers to aspects relating to water use, penalties, taxes and state control mechanisms.	
Urban Planning Law (4240)	The object of this law is to organize the planning process in the country, within the canton and/or local levels. Art. 1 defines the Regulatory Plan, use of land and zoning. It contains the main components for national planning, indicating the entities responsible entities, such as Urban Department; art. 10 states the powers to act accordingly. Regarding local planning matters (Second Section), Chapter I of the Regulatory Plan indicates that, pursuant to Art. 169, this role belongs to the municipalities (art. 15) and details the components in art. 16, as well as the right to a public hearings contained in art. 17 and art. 18 states the authority to approve proposals. Chapter II refers to the urban development bylaws, the main of which are contained in art. 21, including zoning for use of land and official mapping. Chapter IV refers to fractioning; Chapter V includes the official map, Chapter VI refers to urban innovation; Chapter VII refers to construction matters. Section Three states the supplemental provisions regarding entities, expropriation procedures and contributions. The Fractioning and Urbanization bylaws state the details to be considered with regards to density, distance, front of property, etc.	
Law for Use, Management, and Soil Conversation (7779)	The object of this law is defined in art. 1: protect, preserve and improve soils with integrated and sustainable management, along with other natural resources, through adequate environmental promotion and planning. Art. 2 defines the objectives; art. 3 refers to matters of public interest. Chapter II refers to institutional organization (MAG and other institutions). Chapter III indicates soil management and conservation associated with plans, conservation and recovery, as well as pollution. Chapter IV regulates the participation of individuals (Committees, hearings, individual obligations, etc), and Chapter V includes infractions and penalties.	
General Public Roads Law (5060)	This law classifies the types of roads (national highways and canton roads). Art. 1 classifies them as primary, secondary, and tertiary (Puerto Carillo). Art. 2 states the ownership of roads belonging to the Government and the Municipalities. Articles 3 and 4 detail urban regimes and the width required for roads. Chapter II	



Law	Summary						
	refers to taxes and contributions. Chapter III refers to general provisions.						
General Health Law (5395)	The General Health Law is related to environmental matters, as state supervised public health and the tasks to be executed by the Ministry of Health (Art. 1 and 2). Book I details the rights and duties of individuals regarding their personal health and the restrictions for each individual regarding the health of others and the conservation and improvement of the environment, as well as the professional tasks to be executed and who shall be responsible for their execution. Chapter III refers to the duties of each individual regarding conservation and conditioning of the environment and the restrictions to their activities to benefit conservation. Chapter I refers to drinking water, Chapter II to the obligations and restrictions pertaining collection and disposal of waste; Chapter III refers to mandatory waste water treatment; Chapter IV refers to the duties and restrictions to individuals to avoid contamination to the environment; Chapter V refers to the duties in occupation health matters and others.						

4. Summary of the results for the social and economic impact evaluation

4.1 Summary of the main conclusions regarding social and economic impact for the country, regions and local communities

The main negative aspect in this matter for the social and economic scope is the replacement of production activities, since abandonment or replacement of other agricultural crops could result from the following:

- Strengths and benefits for the producers derived from cultivating African Oil Palm, such as worldwide price stability; ensured market for the product; production contracts (financing, technical counseling) between Palma Tic and the producers.
- Weaknesses and problems relating to the traditional crops in the zone (rice, banana or cacao), such as the difficulty faced when selling the corps in the market, limitations on loans, high production costs.



4.2 Summary of the main conclusions regarding the social and economic impact for the emerging communities (workers, suppliers, etc.)

Economic stability	Generation of job opportunities			
The importance of the cultivation and production of African Oil Palm in other zones in the country is well known, for the families and those working directly with the companies in this field, such as Palma Tica or for producers that have production contracts with this company.	 The development of new palm plantations will generate job opportunities: Direct opportunities for those individuals hired to work in the different phases of cultivation for the new plantations (nurseries, land preparation, planting palm, maintenance and harvesting of the product). 			
	- Indirect opportunities for those individuals who will be able to develop various activities linked to the creation of the new plantations, particularly with the provision of services (transportation, food and lodging for the workers within this activity).			
	The creation of nurseries for palm plants in the area has provided jobs to women and young individuals in the neighboring communities. The development of new African Oil Palm plantations can boost employment in the studied area.			

4.3 Concerns and/or observations presented by the community leaders and comments from the advisor

During the activities performed on January 18th with the community leaders, the following questions arose:

 created? 	When would immediate job opportunities be						
•	Are women included in the job opportunities? The plot owners will be able to participate as						
producers?	Can a small plot owner with 3 hectares be						
included as a producer?community?	Will the Company help with improvements to the						



The questions presented by the community leaders are mostly focused on social matters, typical to this region, which shows high unemployment levels and it has also been a community mainly dedicated to agricultural activities. Hence, their concerns were more oriented towards to future social and economic benefit that could result from the palm plantations, than the potential environmental impact of the activities.

This information allows to conclude that the community is fully in favor of the development of the new plantations, intending to benefit from them.

5. Summary of the HCVA assessment results

It is important to highlight that neither of the 4 farms in the study showed the presence of HCVA. However, some HCV were identified, with variables that should be considered for protection.

Farms		El Bambú		Chirriposito		Reifa			La Pajarera				
Identi	fication	P ¹	PP ²	Аз									
HCV1	HCV1.1						\checkmark			\checkmark	\checkmark		
	HCV1.2	\checkmark			\checkmark			\checkmark			\checkmark		
	HCV1.3	\checkmark			\checkmark			\checkmark			\checkmark		
	HCV1.4			\checkmark			\checkmark			\checkmark			\checkmark
HCV2				\checkmark			\checkmark			\checkmark			\checkmark
HCV3			\checkmark				\checkmark		\checkmark				\checkmark
ACV4	HCV4.1			\checkmark			\checkmark			\checkmark			\searrow
	HCV4.2			\checkmark			\checkmark			\checkmark			\searrow
	HCV4.3			\checkmark			\checkmark			\checkmark			\checkmark
ACV5				\checkmark			\checkmark			\checkmark			\checkmark
ACV6				\checkmark			\checkmark			\checkmark			\checkmark
P ¹ = Present / PP ² = Potentially present / A ³ = Absent													

The following chart details the identified HCVs:



With the purpose of preserving said HCVs, the following chart details the environmental measures that should be observed:

Objective	Environ- mental Impact	Environmental Measure	Application Timeframe	Responsible for implementation
Guarantee protection and maintenance to all the bodies of water and forest coverage present in the farms and their influence areas	Potential impact on the biological environ- ment (forest coverage and bodies of water)	 Prior to cutting down any forest species, Article 20 of the Forestry Law No. 7575 must be observed, as well as Articles 14 and 16 of the Forestry Law regulations, Executive Decree No. 25721-MINAE. Notify MINAET of the presence of endangered flora or fauna species, if found during the project's development. If possible burrows, shelters or nests of any species are identified, coordinate with specialists and MINAET for relocation . Ensure no impact on the forest coverage or the water protection zones associated with each of the farms . Keep strict erosion and sedimentation control practices, mainly regarding surface runoff draining towards the bodies of water associated with the farms . Promote vegetation recovery plans in the associated water protection zones, in full coordination with MINAET . 	Periodically. However, constant observance of this measures is a must. Water monitoring should be performed every six months.	The Company



• Monitor the physical and chemical conditions in the associated bodies of water, twice a year .	
• Take samples from the bodies of water for benthic macro-invertebrates (biological indicators), twice a year.	

Documentation that evidences Free, Previous and Informed Consent (CLPI) from the indigenous communities affected by the development of the Project (RSPO requisite)

As mentioned in the executive summary contained in this document, the study area shows no presence of indigenous communities that could be affected by the development of the new plantations.

Nonetheless, the CLPI process was performed with the representatives of the local community. This process was detailed in section 3.3 of this document.

Data and Quality Sources

- Aranda, M. 1981. Rastros de los mamíferos de México. Instituto Nacional de Investigaciones sobre Recursos Bióticos. Xalapa, México.
- Área de Conservación Tortuguero (ACTo).
- Balát, F. 1985. Birds of narrow belts of vegetation along water channels and ditches in the field landscape of southern Moravia. Folia Zoologica 34: 245-54.
- Bárbaro, V. M., Hernández, A., Elizalde, H. 2005. Los humedales ante el cambio climático. Centro Meteorológico Provincial. Instituto Universitario de Geografía. Universidad de Alicante. CITMA Matanzas. Pp. 127-132.
- **Bennett, A. F.** 1990. Habitats corridors and the conservation of smalls mammals in fragmented forest. Lanscape Ecology 4:109-122.
- 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.
- Bermúdez, F. A, Chuprine. 2009. Plan de Manejo Refugio Nacional de Vida Silvestre Barra del Colorado.
- Brooker, M. 1983. Conservation of wildlife in river corridors. Nature in Wales 2: 11-20.



- **Campbell, H. W., and S. P. Christman.** 1982 a. Field techniques for herpetofaunal community analysis. Pp.193-200. *In* N. J. Scott, Jr. (ed.) Herpetological Communities. U.S. Department of the interior, Fish and Wildlife Service, Wildlife Research Report 13.
- Carignan, V. & M. A. Villard. 2002. Selecting indicator species to monitor ecological integrity: a review. Environmental Monitoring and Assessment 78: 45-61.
- Carrillo, E., G. Wong & J.C. Sáenz. 1999. *Mamíferos de Costa Rica*. 1era edición. Editorial INBio.
- Carrillo, E., G. Wong & J.C. Sáenz. 2002. *Mamíferos de Costa Rica*. 2da edición. Editorial INBio.
- Chassot, O.; Monge, G.; Wright, P.; Adamek, K.; Powell, G.; Alemán, U. 2000. Cambios en el rango de anidamiento y la frecuentación de nidos conocidos de la lapa verde (Ara ambigua) en la Zona Huetar Norte de Costa Rica. Disminución de la población (1998-2000) II. Sarapiquí, Costa Rica, Proyecto Lapa Verde, 4 p.
- Chassot, O.; Monge, G.; Powell, G.; Palminteri, S.; Wright, P.; Boza, M.; Calvo, J.; Padilla, C. 2001. Corredor Biológico San Juan-La Selva para proteger la lapa verde. Ambien-Tico 95, 13-15.
- **Coles, T.F., Southey, J.M., Forbes, I. and Clough, T.,** 1989. River wildlife data bases and their value for sensitive environmental management, Regulated Rivers 4: 179-89.

Córdoba, M, R., Romero, A, J.; Windevoxhel, L & Néstor, J. 1998. *Inventario de los humedales en Costa Rica*. Editorial: MINAET. Sistema Nacional de Áreas Protegidas, Embajada Real de los Países Bajos, UICN- ORMA.

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).
- Emerton, L., & Bos, E. 2004. Value. Counting ecosystems as water infrastructure. UICN, Gland (Suiza) y Cambridge (Reino Unido), 88 págs.
- **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 at web 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. 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.
- Garrigues, R. 2007. The Birds of Costa Rica. Zona Tropical, Ithaca, New York. 387p



- Green, R. E.; S. J. Cornell;, J. P. W. Scharlemann & A. Balmford. 2005. Farming and the fate of wild nature. Science 307:550-555.
- Gregory, R. 2006. Birds as biodiversity indicators for Europe. Significance 3: 106-110.
- Guevara, S.; J. Laborbe & G. Sánchez. 1998. Are isolated remnant trees in pastures a fragmented canopy? Selbyana 19:34-43
- **Hass, C.** 1995. Dispersal and use of corridors by birds in wooded patches on an agricultural landscape. Conservation Biology 9:845-854.
- Hobbs, R. J. & D. A. Saunders. 1991. Re- integrating fragmented landscapes a preliminary framework for the Western Australian Wheatbelt. Journal of environmental Management 33: 161-167.
- Holdridge, L. R. 1967. Life zone ecology. Tropical Science Center. San José, Costa Rica. Pp 206.
- Janzen, D. 1983. Costa Rica natural history. University of Chicago press. Pp 543-555.
- Jennings, Steve., R, Nussbaum.; N, Judd & T, Evans. 2003. PROFOREST. Herramientas prácticas para Bosque con Altos Valores de Conservación. Primera Edición.
- **Jiménez F., Muschler E., Körsell E. 2001**. Colección módulos de enseñanza agroforestal. Modulo Nº 6. Funciones y aplicaciones de sistemas agroforestales. IV ed. CATIE Proyecto agroforestal CATIE/GTZ. Turrialba, Costa Rica. 187p.
- Kappelle, M. 2008. Diccionario de la biodiversidad. 1 era edición. INBio.
- Kleinn, C. 2000. On large area inventory and assessment of trees outside forest, Unsylva 51: 3-10.
- Lamb, D.; Parratta;, R. Keenan & N. Tucker.1997. Rejoining habitat remnants: restoring degraded rainforest lands. Páginas 366-385 en W.F. Laurence y R. O. Bierredaard, editores. Tropical forest remnants: ecology Management and conservation of fragments communities. The University of Chicago Press, Chicago.
- Laurence, W.F., 1990. Comparative 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.
- Leenders, T. 2001. A Guide to Amphibians and Reptiles of Costa Rica. Zona Tropical. Miami, USA.
- Mainardi-Grellet, V. 1996. *El manglar de Térraba Sierpe*. Serie Técnica. Informe Técnico/CATIE Nro. 284.
- Mattiae, P.E. and Stearns, F., 1981. Mammals in forest islands in southeastern Wisconsin. Pp.55-66 in Forest Island Dynamics in Man-Dominated Landscapes. (Eds.R.L.Burgess and D.M. Sharpe). (Springer-Verlag: New York).
- Merriam, G. 1991. Corridors connectivity: animals populations in heterogeneous environments. Páginas 133-142 en D. A. Saunders y R. J. Hobbs editores. Nature Conservation 2: The Role of corridors. Surrey Beatty, Chipping Norton, Australia.
- **Meza, T.** 2001. Geografía de Costa Rica. Geología, naturaleza y políticas ambientales. Editorial Tecnológica de Costa Rica. Pp 43.
- Muchoney, D.M., S. Iremonger, & R. Wright. 1993. A Rapid Ecological Assessment of the Blue and John Crow Mountains National Park, Jamaica, Unpublished report. The

Nature Conservancy. Arlington, Virginia. Pp 90.



- Museo Nacional de Costa Rica. Departamento de Antropología e Historia. 2009 Base ORIGENES. Disponible en: <u>http://www.origenes.museocostarica.go.cr</u>
- Nepstad, D.; P. R. Moutinho; C. Uhl; I. C. Vieiria & J. M. Cardoso da Silva. 1996. The ecological important of forest remnants in an Eastern Amazonian frontier Landscape. Pages 133-150 in J. Schelhas y R. Greenberg, editors. Forest patches in tropical landscapes. Island Press, Washington D.C.
- Norori, O. 2012. Información Básica de la Compañía Palma Tica S.A. Corredores, Corredor, Puntarenas.
- **Noss, R.** 1987. From plants communities to landscape in conservation inventories: a look at the nature conservancy (USA). Biological Conservation 41(1):11-37.
- **Ojasti, J. 2000**. *Manejo de Fauna Silvestre Neotropical*. F.Dallmeier (ed.). SIMAB Serie No.5. Smithsoniam Intitution/MAB Program, Washington. D.C.
- 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 an 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).
- **RSPO (Roundtable on Sustainable Palm Oil)**. 2006. *Principios y Criterios RSPO para la producción sostenible de aceite de Palma*. Documento Guía.
- Rushton, S.P., Hill, D. and Carter, S.P., 1994. The abundance of river corridor birds in relation to their habitats: a modeling approach. Journal of Applied Ecology 31: 313-28.
- Sánchez Merlos, D.; C. A. Harvey; A. Medina; S. Vílchez & B. Hernández. 2005. La diversidad, la composición y estructura de la vegetación en un agropaisaje ganadero de Matigúas, Nicaragua. Revista Biología Tropical 53:387-414
- Sánchez J., Criado J., Marín M., Sánchez C., Sandoval L., Martínez D. 2007. Participemos en la conservación de las aves en Costa Rica. Fundación para la Gestión Ambiental Participativa y Unión de Ornitólogos de Costa Rica. San José, Costa Rica. Pp 50.
- Sánchez, J. E., Criado, J., Sánchez, C.& Sandoval, L. 2009 Costa Rica. Pág. 149 156 en C. Devenish, D. F. Díaz Fernández, R. P. Clay, I. Davidson & I. Yépez Zabala Eds. Important Bird Areas Americas - Priority sites for biodiversity conservation. Quito, Ecuador: BirdLife International (BirdLife Conservation Series No. 16).
- Saunders, D.A., 1989. Changes of the avifauna of a región, district and remnant as a result of fragmentation of native vegetation: the wheatbelt of Western Australia. A case study. Biological Conservation 50: 99-135.

Savage, J.M. 2002. The amphibians and reptiles of Costa Rica. University of Chicago press.

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.



- Schelhas, J. & R. Greenberg. 1993. Forest patches in the tropical landscapesa and the conservations of migratory bird. Migratory Birds Conservation Policy Paper Nº1. Smithsonian Migratory Bird Center, Washington D.C.
- Sistema Nacional de Áreas de Conservación (SINAC) del Ministerio de Ambiente y Energía (MINAET). 2007. GRUAS II: Propuesta de Ordenamiento Territorial para la conservación de la biodiversidad de Costa Rica. Volumen 1: Análisis de Vacíos en la Representatividad e Integridad de la Biodiversidad Terrestre. San José, C.R. Pp 100.
- Sistema Nacional de Áreas de Conservación (SINAC) del Ministerio de Ambiente y Energía (MINAET). <u>http://www.sinac.go.cr</u>
- Slud, P. 1964. The birds of Costa Rica: distribution and ecology. Las aves de Costa Rica: distribución y ecología. University of Michigan, Museum of Zoology, Ann Arbor, MI, US. Bulletin of the American Museum of Natural History. v. 128, Pp 1-430.
- **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.
- 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 an 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: Souderland, Massachesetts).
- **UICN.** 2007. Red list of threartered species. Consultado: 02/05/2012, dirección electrónica: <u>http://www.iucnredlist.org/</u>
- 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.
- Víquez, H. 2006. Corredor Biológico Talamanca-Caribe .In Evaluación del recurso faunístico Cuenca del Río Carbón, Fila Carbón, Talamanca, Costa Rica.
- Wong, G., J.C Sáenz & E. Carrillo. 1999. *Mamíferos del Parque Nacional Corcovado, Costa Rica*. INBio. Santo Domingo de Heredia. Pp 117.
- Wong, G., J.C Sáenz & E. Carrillo. 2002. *Mamíferos de Costa Rica*. INBio. Santo Domingo de Heredia.
- **WWF. World Wide Fund for Nature**. 2007. Bosques con Alto Valor de Conservación El Concepto en la Teoría y Práctica. Pp 7.

Tools used for the identification of HCVA

Jennings, Steve., R, Nussbaum.; N, Judd & T, Evans. 2003. PROFOREST. *Herramientas prácticas para Bosque con Altos Valores de Conservación*. First Edition.



Decisions regarding the condition of the HCVA and associated maps

As has been stated, the farms in this study do not include identified HCVA. However, vegetation coverage maps are presented below, for each of the farms and the zoning according to the identified HCVs:



Vegetation coverage map for El Bambú and Chirriposito Farm

Vegetation coverage map for Reifa Farm





Vegetation coverage map for La Pajarera Farm









Zoning map according to the HCV identified



6. Internal Responsibility

Bio Terra Consultores Ambientales, an RSPO accredited company specializing in the environmental field and RSPO fully assumes responsibility for the studies summarized on this public notification reports, with regards to the content of said reports.

Nothing further, receive my regards,

Biol. Marisol Zumbado Bustillos, MSc Team Leader Bio Terra Consultores Ambientales