

TRACKING OF TROPICAL FOREST OPERATION WITH FIELD-MAP, Ucayali - Perú

CLUSTER FORESTAL UCAYALI



by: Guiomar Seijas, 29 October 2016

TRACKING OF TROPICAL FOREST OPERATION WITH FIELD-MAP

Introduction

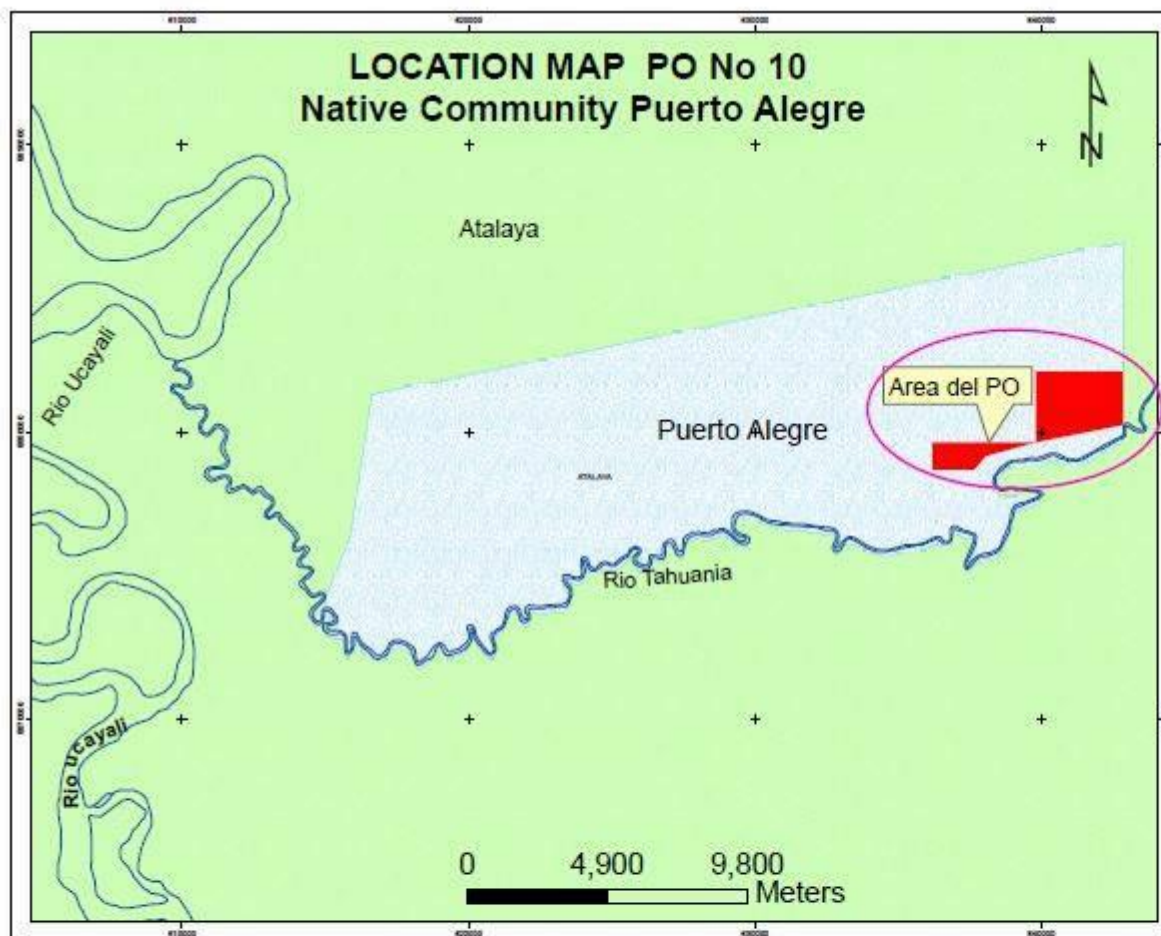
- × In Peru, tracking was just applied, where harvesting field was certified by FSC, at least 20% was done by this way. OSINFOR (the Supervisory Body for Forest and Wildlife Resources) during supervision operation were found 80% of harvesting field, laying on illegal logging. According to The new Forestry and Wildlife Law is making pressure to implement tracking as a tool for improving origin control to tackle illegal logging.
- × Field Map is a solid technology with many applications being thus versatile, no forget data collecting on real time. Field Map can do monitoring for each process in harvesting operation (logging, skidding, restructure in stockyard and transporting), as well as could help to build up yield tables (timber, worker, fuel and so on). All this data gathered it will be a source for monitoring carbon footprint, to attain the trade off those lost with reforestation and forest management for its implementing.

TRACKING OF TROPICAL FOREST OPERATION WITH FIELD-MAP

Introduction

- × The present work is an important start, led by CLUSTER TROPICAL UCAYALI (CFU) and TROPICAL FOREST DEVELOPMENT SRL, with collaborative peer and support on international level "Field-Map". Who with its experience aided up the timber tracking pilot project in an authorized forestry area that belong to an Indigenous Community "Puerto Alegre"(Ucayali - Peru) with 874 ha of harvesting field 2016. This pilot project will be useful for base model on the diverse operations, currently member of CFU are looking forward to get done.

PILOT PROJECT LOCATION



Ucayali location of the region in Perú






Location of the Native Community Puerto Alegre in Ucayali



LOCATION MAP PO No 10 Native Community Puerto Alegre		
Location: Region : Ucayali Province : Atalaya District: Tahuania Basin: Rio Tahuania	Area de la CC.NN: 21720.085 Ha. Area del PO 10: 874 Ha.	ZONE 18 WGS 84 Scale : 1 / 100 000

LEGEND

-  Hydrology
-  Area PO 10
-  CC.NN Puerto Alegre

Accessibility PO 10: River City Via Pucallpa upstream to the caserio Bolognesi 10 hours slider (60hp) .From Bolognesi access road is a stretch of about 50 km (1 hour by truck). To reach the PO-10 from the center of the native community via road a period of approximately 45 min.

Harvesting operation system



INVENTORY



LOGGING



SUPERVISION



LOG (CARGAS)

SKIDDING



RIVER TRANSPORT



TERRESTRIAL TRANSPORT



MONITORING



RESTRUCTURE
IN
STOCKYARD



- [illegible]





Inventory



PA10B-F1-2

Logging



PA10B-F1-2A

skidding



PA10B-F1-2A
PA10B-F1-2B

Stockyard



PA10B-F1-2A1
PA10B-F1-2A2

Transport



PA10B-F1-2A1
PA10B-000001

**TIMBER
TRACKING FOR
HARVESTING
OPERATION
WITH FIELD
MAP
TECHNOLOGY**

TRACKING OF TROPICAL FOREST OPERATION WITH FIELD-MAP DESIGN PROJECT MODEL - INVENTORY

Field-Map Project Manager (Copyright © 1999-2015 IFER Ltd., version X5.0.6999)

Project Layers Tools Extensions Options Help

Layers

- Plots (PO)
 - Trees (Arbol)
 - Cut (Tala)
 - Skidder (Arrastre)
 - Stockyard (Patio acopio)
 - Restructure (Saneamiento)
 - Transport (Transporte)
 - Volume (Volumen m3)

Layer attributes Layer options Layer scripts Layer description

Layer attributes of "Trees (Arbol)"

Attribute name	Attribute type	Required	Visible	Label
<Height_m>	<Height>	No	Visible	HT
<CrownBase_m>	<Height>	No	Visible	HC
<DeadCrBase_m>	<Height>	No	Non-visible	Dead cr.base,m
<Tree_Length_m>	<Number>	No	Non-visible	Tree length,m
<Crown_Length_m>	<Number>	No	Non-visible	Crown length,m
Code	String	Yes	Visible	Cod. Arbol
Species	Lookup list (numeric ID)	Yes	Visible	
DiamCM	Number	Yes	Visible	Diam cm
Specie1	String	Yes	Visible	Especie
Typetree	String	Yes	Visible	Tipo arbol
DMC	Number	Yes	Visible	DMC
NFaja	Number	Yes	Visible	N° faja
NTree	Number	Yes	Visible	N° arbol
BasalArea	Number	Yes	Visible	Area basal
Volume	Number	Yes	Visible	Vol m3 censo
EQD	Number	Yes	Visible	EQD
DTB	Number	Yes	Visible	DTB
Side	String	Yes	Visible	Lado
East	Number	Yes	Visible	Este UTM
North	Number	Yes	Visible	Norte UTM
Eastcal	Number	Yes	Visible	Este Cal
Northcal	Number	Yes	Visible	Norte Cal
Observation	String	Yes	Visible	Observacion
Volume1	Number	Yes	Visible	Volumen despachado (m3)
DifVol	Number	Yes	Visible	Diferencia volumen (m3)

Attribute definition On-Change script On-Validate script Attribute description Attribute color

Numeric attribute definition

Size: 9 Min value:

DATABASE FOR LOGGING (CUT)

Field-Map Project Manager (Copyright © 1999-2015 IFER Ltd., version X5.0.6999)

Project Layers Tools Extensions Options Help

Layers

- Plots (PO)
 - Trees (Arbol)
 - Cut (Tala)**
 - Skidder (Arrastre)
 - Stockyard (Patio acopio)
 - Restructure (Saneo)
 - Transport (Transporte)
 - Volume (Volumen m3)

Layer attributes Layer options Layer scripts Layer description

Layer attributes of "Cut (Tala)"

Attribute name	Attribute type	Required	Visible	Label
Code	String	Yes	Visible	Codigo
Date	Date	Yes	Visible	Fecha
Operator	String	Yes	Visible	Operador
Diam1	Number	Yes	Visible	Diam cm >
Diam2	Number	Yes	Visible	Diam cm <
Long	Number	Yes	Visible	Largo m
Volume	Number	Yes	Visible	Vol. m3
Observation	String	Yes	Visible	Observacion

Attribute definition On-Change script On-Validate script Attribute description Attribute color

String attribute definition

Size: 30

DATABASE FOR SKIDDING

Field-Map Project Manager (Copyright © 1999-2015 IFER Ltd., version X5.0.6999)

Project Layers Tools Extensions Options Help

Layers

- Plots (PO)
 - Trees (Arbol)
 - Cut (Tala)
 - Skidder (Arrastre)**
 - Stockyard (Patio acopio)
 - Restructure (Saneamiento)
 - Transport (Transporte)
 - Volume (Volumen m3)

Layer attributes

Layer attributes of "Skidder (Arrastre)"

Attribute name	Attribute type	Required	Visible	Label
Code	String	Yes	Visible	Código
Load	String	Yes	Visible	Carga
Date	Date	Yes	Visible	Fecha
Operator	String	Yes	Visible	Operador
Serie tractor	String	Yes	Visible	Serie tractor
Diam1	Number	Yes	Visible	Diam cm >
Diam2	Number	Yes	Visible	Diam cm <
Long	Number	Yes	Visible	Largo m
Volume	Number	Yes	Visible	Vol. m3
Nº yard	Number	Yes	Visible	Nº de patio
Observation	String	Yes	Visible	Observación
Rama	Lookup list (numeric ID)	Yes	Visible	Rama

DATABASE FOR STOCKYARD

Field-Map Project Manager (Copyright © 1999-2015 IFER Ltd., version X5.0.6999)

Project Layers Tools Extensions Options Help

Layers

- Plots (PO)
 - Trees (Arbol)
 - Cut (Tala)
 - Skidder (Arrastre)
 - Stockyard (Patio acopio)**
 - Restructure (Saneamiento)
 - Transport (Transporte)
 - Volume (Volumen m3)

Layer attributes Layer options Layer scripts Layer description

Layer attributes of "Stockyard (Patio acopio)"

Attribute name	Attribute type	Required	Visible	Label
Code	String	Yes	Visible	Codigo
Date	Date	Yes	Visible	Fecha
Supervisor	String	Yes	Visible	Supervisor
Diam1	Number	Yes	Visible	Diam cm >
Diam2	Number	Yes	Visible	Diam cm <
Long	Number	Yes	Visible	Largo m
Volume	Number	Yes	Visible	Vol. m3

Attribute definition On-Change script On-Validate script Attribute description Attribute color

String attribute definition

Size: 30

DATABASE FOR TRANSPORTING

Field-Map Project Manager (Copyright © 1999-2015 IFER Ltd., version X5.0.6999)

Project Layers Tools Extensions Options Help

Layers

- Plots (PO)
 - Trees (Arbol)
 - Cut (Tala)
 - Skidder (Arrastre)
 - Stockyard (Patio acopio)
 - Restructure (Saneamiento)
 - Transport (Transporte)**
 - Volume (Volumen m3)

Layer attributes of "Transport (Transporte)"					
Attribute name	Attribute type	Required	Visible	Label	
Date	Date	Yes	Visible	Fecha	
Driver	String	Yes	Visible	Chofer	
Nplaque	String	Yes	Visible	N° placa	
CodTroza	String	Yes	Visible	Cod. troza	
Correlativo	Number	Yes	Visible	Cod. correlativo	
Codbarra	Number	Yes	Visible	Cod. barra	

DATABASE FOR VOLUMEN CONTROL BY SPECIES

Field-Map Project Manager (Copyright © 1999-2015 IFER Ltd., version X5.0.6999)

Project Layers Tools Extensions Options Help

Layers

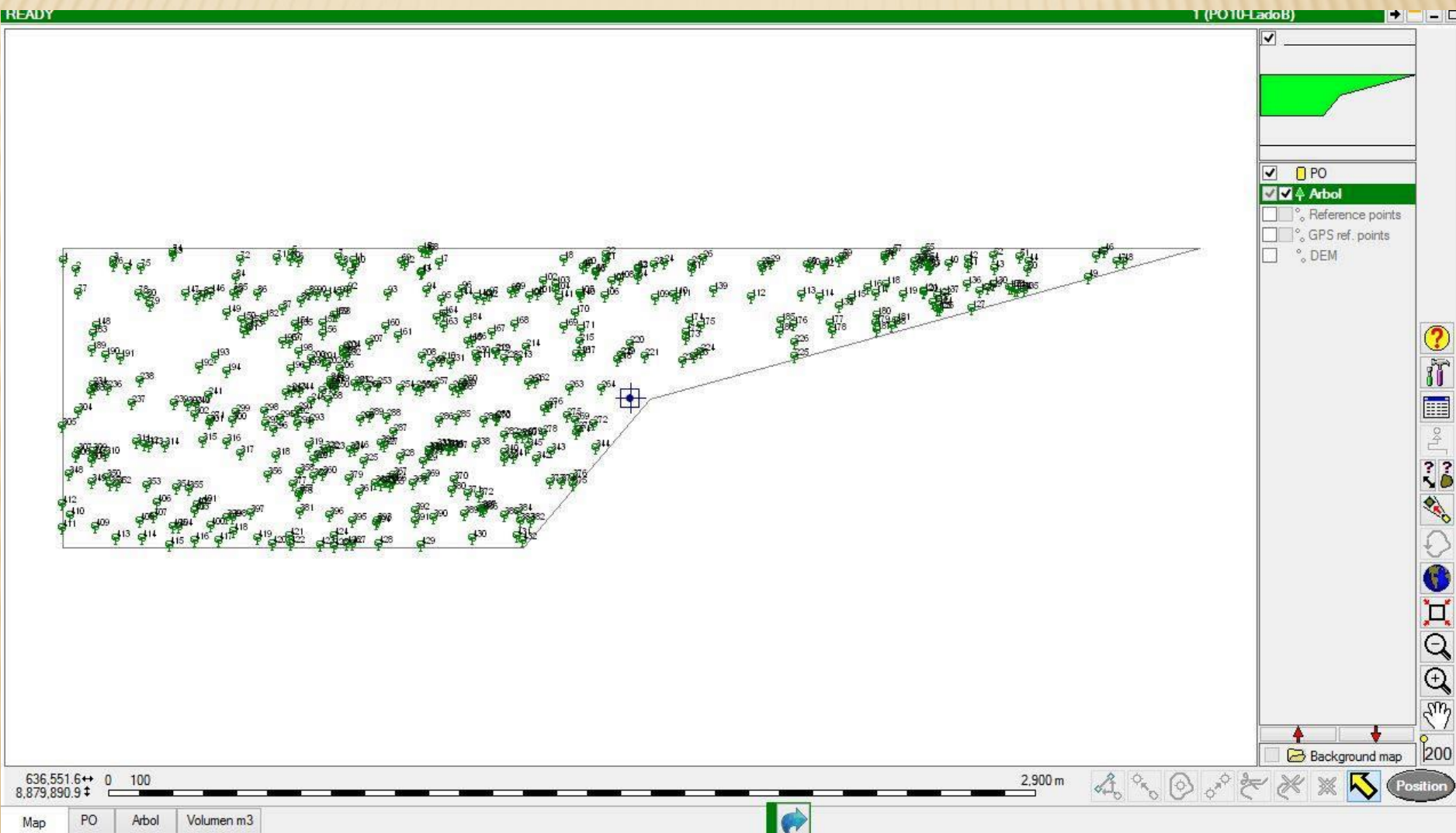
- Plots (PO)
 - Trees (Arbol)
 - Cut (Tala)
 - Skidder (Arrastre)
 - Stockyard (Patio acopio)
 - Restructure (Saneos)
 - Transport (Transporte)
 - Volume (Volumen m3)**

Layer attributes Layer options Layer scripts Layer description

Layer attributes of "Volume (Volumen m3)"

Attribute name	Attribute type	Required	Visible	Label
Especie	String	Yes	Visible	
Ntree	Number	Yes	Visible	N° de arboles aprobados
Vol1	Number	Yes	Visible	Volumen aprobado (m3)
Ntree2	Number	Yes	Visible	N° de arboles aprovechados
Ntrozas	Number	Yes	Visible	N° de trozas
Vol2	Number	Yes	Visible	Volumen Despachado (m3)

DATA DISPERSION MAP OF AUTHORIZED TREES FOR HARVESTING OPERATIONS



VOLUMEN DATA BY SPECIES

READY

ID	Especie
1	Alcarfor moena
2	Almendo
3	Ana caspi
4	Cachimbo
5	Cachimbo blanco
6	Caimitillo
7	Casho
8	Catahua
9	Caupuri
10	Chamisa
11	Copaiba
12	Copal
13	Cumala
14	Cumala amarilla
15	Cumala roja
16	Estoraque
17	Huayruro
18	Huimba
19	Itauba
20	Lupuna
21	Machimango
22	Manchinga

Especie:

N° de arboles aprobados:

Volumen aprobado (m3):

N° de arboles aprovechados:

N° de trozas :

Volumen Despachado (m3):

RECORD TABLE BY AUTHORIZED TREE

Cod. arbol	Basic data DBH-H									
F1B-1	HT:	22.00	Nombre científico:	Caryocar sp.	Tipo arbol:	A	EQ:	7	Este cal:	636205.00
F1B-2	Diam cm:	90	DMC:	41	Cod. arbol:	F1B-1	DTB:	5	Norte cal:	8879596.00
F1B-3	Especie:	Almendro	N° de faja:	1	AB:	0.636	Este GPS:	636214.00	Lado:	I
F1B-4	Especie:	Almendro	N° de arb.:	1	Vol m3 censo:	5.789	Norte GPS:	8879599.00	Observacion:	
F1B-5	<div> <div>Tala</div> <div>Arrastre</div> <div>Patio</div> <div>Transporte Terrestre</div> </div>									
F1B-6	Cod	Cod: F1B-1								
F1B-7	F1B-1	Fecha: 23/07/2016								
F1B-8		Operador: MONDI								
F1B-9		Diam > cm: 107.000								
F1B-10		Diam < cm: 77.000								
F1B-11		Largo m: 14.45								
F1B-12		Vol m3: 9.606								
F1B-13		Observacion:								
F1B-14										
F1B-15										
F1B-16										
F1B-17										
F1B-18										
F1B-19										
F1B-20										
F1B-21										
F1B-22										
F1B-23										
F1B-24										
F1B-25										
F1B-26										
F1B-27										
F1B-28										

RECORD TABLE FOR SKIDDING, ACCORDING TO AUTHORIZED TREE

Tala	Arrastre	Patio	Transporte Terrestre
<div>Carga</div> <div>► F1B-1A</div>			
Cod/Placa:		F1B-1	
Fecha:		23/07/2016	
Operador:		NOLBERTO TARICUARIMA	
Carga:		F1B-1A	
Diam > cm :		98.500	
Diam < cm:		73.500	
Largo m:		14.400	
Vol m3:		8.365	
Serie tractor:		C1-518C	
N° de patio:		7	
Observaciones:			
Rama:			

RECORD TABLE FOR RESTRUCTURE IN THE STOCKYARD, ACOORDING TO AUTHORIZED TREE

Tala	Arrastre	Patio	Transporte Terrestre
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Cod	Cod: F1B-1A	Fecha: 23/07/2016	Supervisor:	Diam > cm: 98.500	Diam < cm: 73.500	Largo m: 14.400	Vol m3: 8.365
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Saneos

Troza

F1B-1A1

F1B-1A2

Troza: F1B-1A1

Fecha: 27/07/2016

Cod. correlativo: 01264

Diam > cm: 98.500

Diam < cm: 86.500

Largo m: 8.860

Vol m3: 4.610

Observacion:

Cod. barra:

Rama:

RECORD TABLE FOR TRANSPORTING, ACCORDING TO AUTHORIZED TREE

Tala	Arrastre	Patio	Transporte Terrestre
CodTroza	^		Fecha: 03/08/2016
▶ F1B-1A1			Chofer: Julio castillo
F1B-1A2			Placa: F3R750
			CodTroza: F1B-1A1
			Correlativo: 1264
			Cod. Barra:
			Rama:

RESULTS

informacion trazabilidad					AUTORIZADO		ANALISIS			
Etiquetas de fila	arb. Censo	vol censo	arb talados	vol tala	arbol	vol total	SALDO ARB	SALDO VOL	PORC. ARB	PORC VOL
Estoraque	1	4.555061211	1	6.199724743	1	4.555	0	(1.64)	100%	136%
Pumaquiro	4	23.03135234	4	50.56024743	7	40.833	3	(9.73)	57%	124%
Tornillo	48	413.24116	48	735.9602694	74	638.478	26	(97.48)	65%	115%
Huayruro	50	359.2727684	50	593.2853083	88	579.059	38	(14.23)	57%	102%
Lupuna	6	74.78323152	6	136.9954408	16	159.829	10	22.83	38%	86%
Cachimbo	102	624.2722419	102	1073.050138	254	1350.475	152	277.42	40%	79%
Copal	17	100.4771998	17	180.9785765	43	229.381	26	48.40	40%	79%
Copaiba	22	163.9141373	22	279.478019	58	360.706	36	81.23	38%	77%
Shihuahuaco	41	239.6182829	41	354.4923108	96	517.349	55	162.86	43%	69%
Almendro	28	177.0703894	28	282.1928549	82	443.324	54	161.13	34%	64%
Panguana	14	130.1141161	14	137.2904343	31	231.24	17	93.95	45%	59%
Cachimbo blanco	8	54.54135687	8	78.67741258	21	144.429	13	65.75	38%	54%
Catahua	6	35.90524037	6	54.98125244	21	106.012	15	51.03	29%	52%
Tahuari	4	23.9660451	4	42.4603969	19	88.218	15	45.76	21%	48%
Itauba	3	38.15772689	3	35.4886058	8	76.499	5	41.01	38%	46%
Palo Lima	8	56.22200684	8	67.67122208	22	163.917	14	96.25	36%	41%
Pashaco	9	53.43094657	9	101.5595397	60	298.158	51	196.60	15%	34%
Ana caspi	6	46.61380023	6	51.72578799	30	157.058	24	105.33	20%	33%
Cumala roja	21	125.3708926	21	165.4905	121	505.163	100	339.67	17%	33%
Moena	5	33.51314366	5	40.56354468	20	124.356	15	83.79	25%	33%
Alcanfor moena	1	3.895854963	1	5.855	6	19.523	5	13.67	17%	30%
Moena negra	1	6.2078016	1	7.683	7	29.856	6	22.17	14%	26%
Tahuari amarillo	1	5.5543488	1	6.561254377	6	28.809	5	22.25	17%	23%
Mashonaste	4	15.87099014	4	22.91149261	27	102.617	23	79.71	15%	22%
Cumala amarilla	3	15.22902381	3	22.37681177	28	107.99	25	85.61	11%	21%
Quinilla	3	15.30641713	3	22.811319	30	130.081	27	107.27	10%	18%
Caimitillo	2	8.975582616	2	17.99688761	40	148.087	38	130.09	5%	12%
Total general	418	2849.111119	418	4575.297351						
diferencia tala versus censo	m3		1726.186232		1726.186					
diferencia en porcentaje			61%							

NEXT STEP (ON DEVELOP)

CONTROL YIELD

(WORKER, FUEL AND ATTACHMENTS)

TRACKING AFTER HARVESTING OPERATIONS



River transport



PA10B-000001

Stockyard



PA10B-000001

Sawmill



PA10B-000001

Assortment



PA10B-000001
TABLAS No

Packing/Sell



PA10B-000001
TABLAS No

TRACKING IN
THE
INDUSTRY

TRACKING OF TROPICAL FOREST OPERATION WITH FIELD-MAP

CONCLUSION

1. Tracking is a reliable system to allow us for tracking back the legal origin from managed forest, if it is fulfill with the requirements and duties established by the law and trusted control mechanism.
2. Field-Map is a technology to fit on forestry activities, given monitoring and tracking control of timber from forest to the industry, on real time, and we think from the industry to customer as well.
3. Recommendation to IFER, to develop a module for this application to allow the user to get at the system in straightforward way.

A group of approximately 20 construction workers are posing for a group photo in an outdoor setting. They are arranged in two rows, with some standing and some kneeling or crouching in the front. Most of the workers are wearing orange high-visibility safety vests and hard hats (orange, green, or white). A few individuals are wearing casual clothing. In the background, a large yellow bulldozer is visible on the left, and a green piece of construction equipment is on the right. Behind the workers is a small structure with a thatched roof. The background is filled with dense green trees and foliage. The ground is dry and dusty.

THANK YOU FOR
YOU KIND
ATTENTION

09 13 2016