

JUNIO, 2023

PRODUCTO 1:

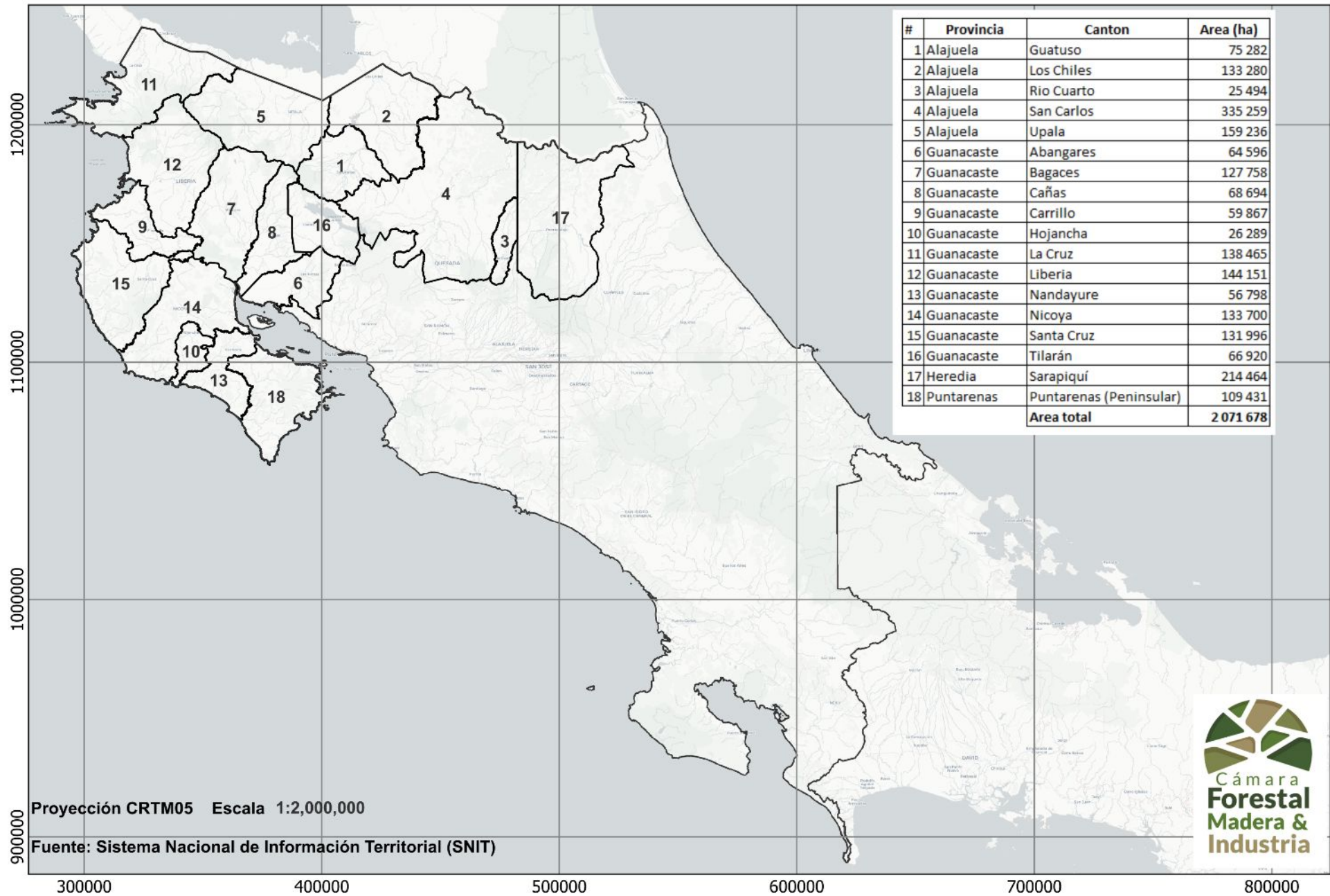
**DIAGNÓSTICO DE LA ESTRUCTURA Y
COMPOSICIÓN DEL BOSQUE SECUNDARIO**

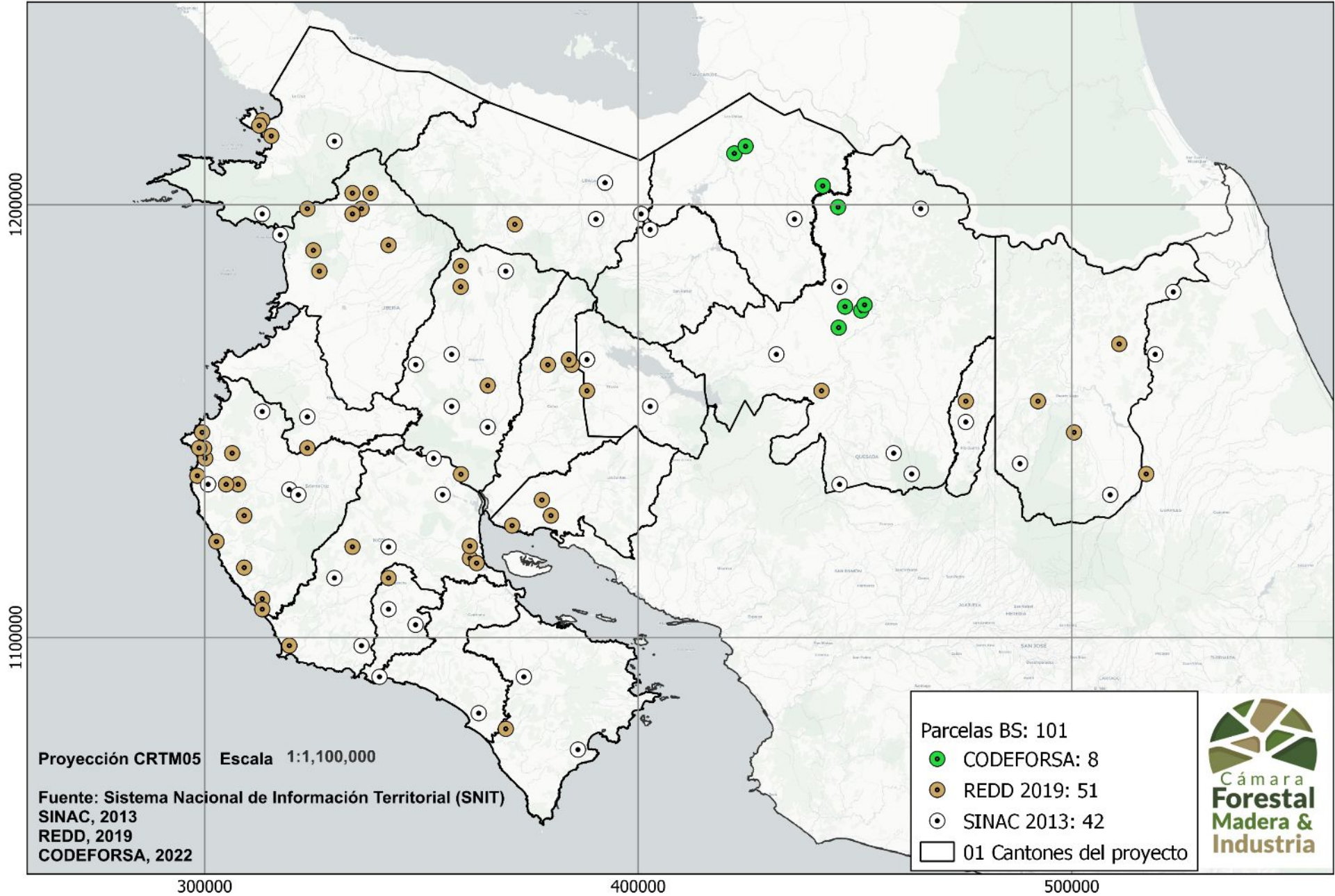


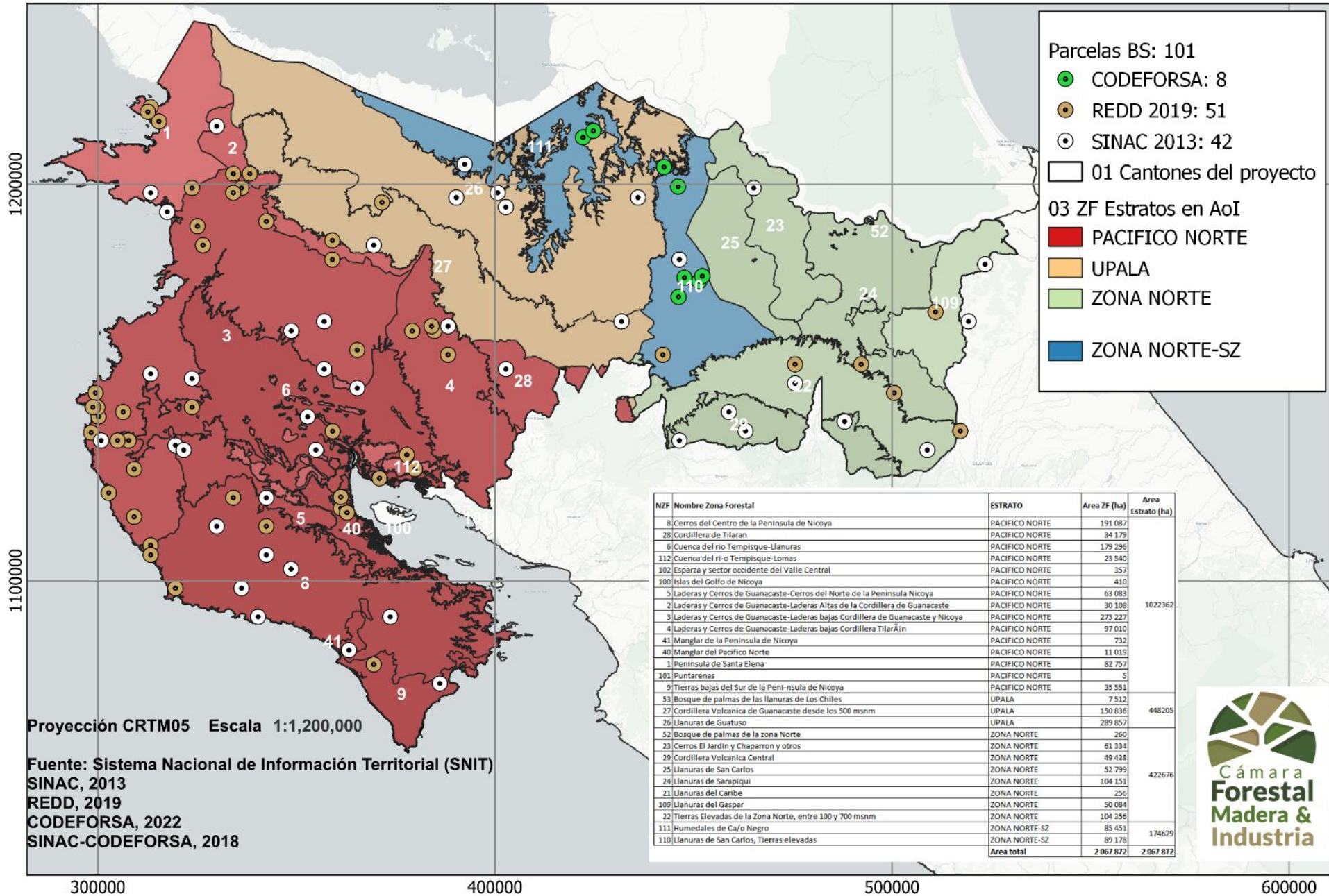
Cámara
Forestal
Madera &
Industria

Actividad 1.1: Analizar la composición florística y estructura de los bosques secundarios: esta actividad será desarrollada por medio de análisis estadístico a las 100 parcelas de bosque secundario que dispone el país. Este análisis comprende el índice de valor importancia (ivi) de las especies forestales, área basal, frecuencia, dominancia, lista de especies, volumen comercial y otros índices de diversidad ecológica. Además, se desarrollará un análisis geoespacial complementario para caracterizar biogeográficamente el bosque secundario y complementar con el análisis del paisaje forestal.

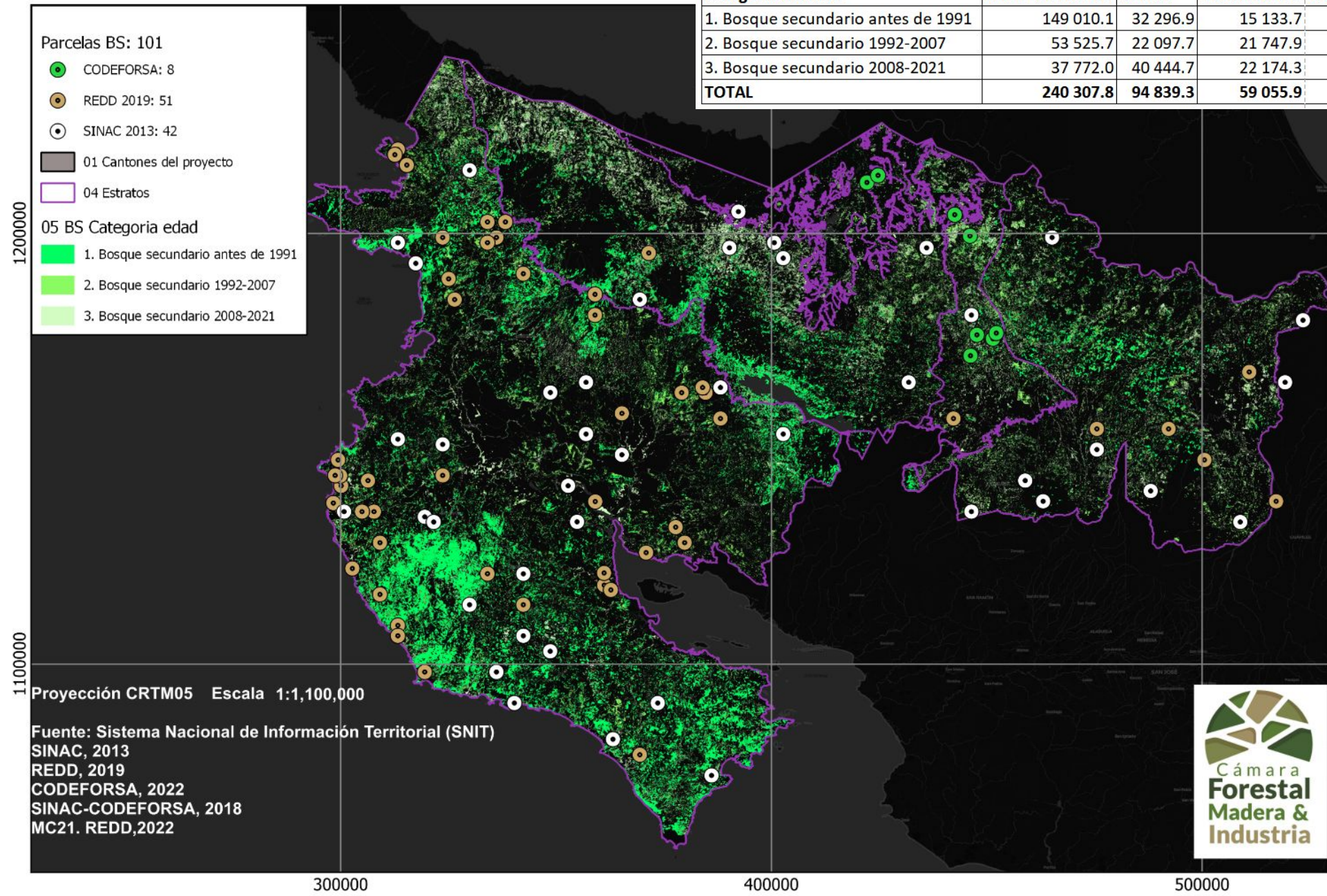
Actividad 1.2: Identificar y seleccionar especies autóctonas para el desarrollo de productos de madera de alto valor: con base en los resultados de la actividad 1.1 se priorizarán las especies con mayor potencial y disponibilidad para el abastecimiento de materia prima proveniente de bosques secundarios, como complemento se compilará información del uso cultural de las especies seleccionadas por parte de la población local, industria forestal de la zona y otros actores relevantes.

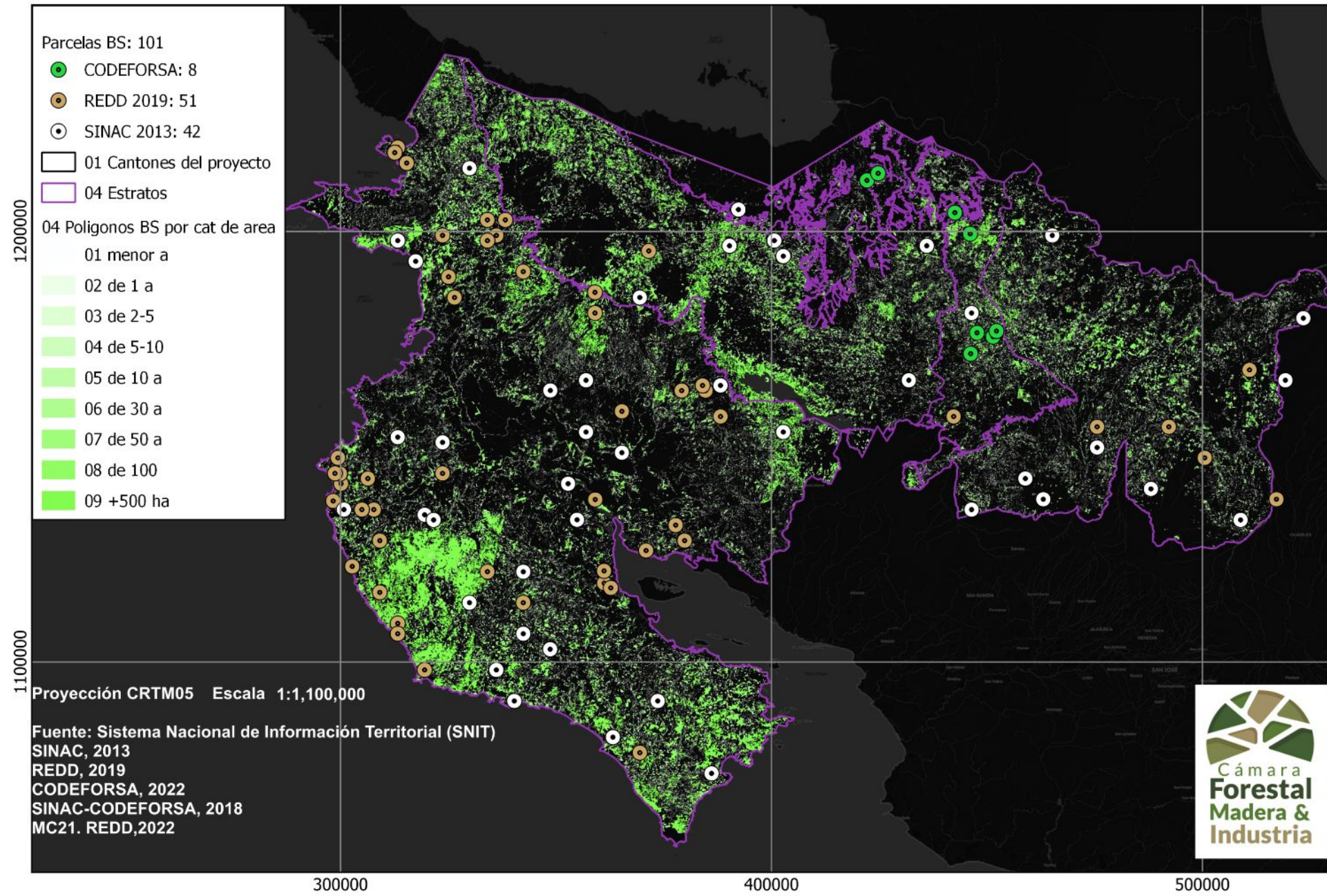






	ESTRATO				TOTAL
Categoría de edad	PACIFICO NORTE	UPALA	ZONA NORTE	ZONA NORTE-ZB	
1. Bosque secundario antes de 1991	149 010.1	32 296.9	15 133.7	3 469.6	199 910.3
2. Bosque secundario 1992-2007	53 525.7	22 097.7	21 747.9	8 012.0	105 383.4
3. Bosque secundario 2008-2021	37 772.0	40 444.7	22 174.3	12 739.8	113 130.8
TOTAL	240 307.8	94 839.3	59 055.9	24 221.4	418 424.6





AREA (HA)

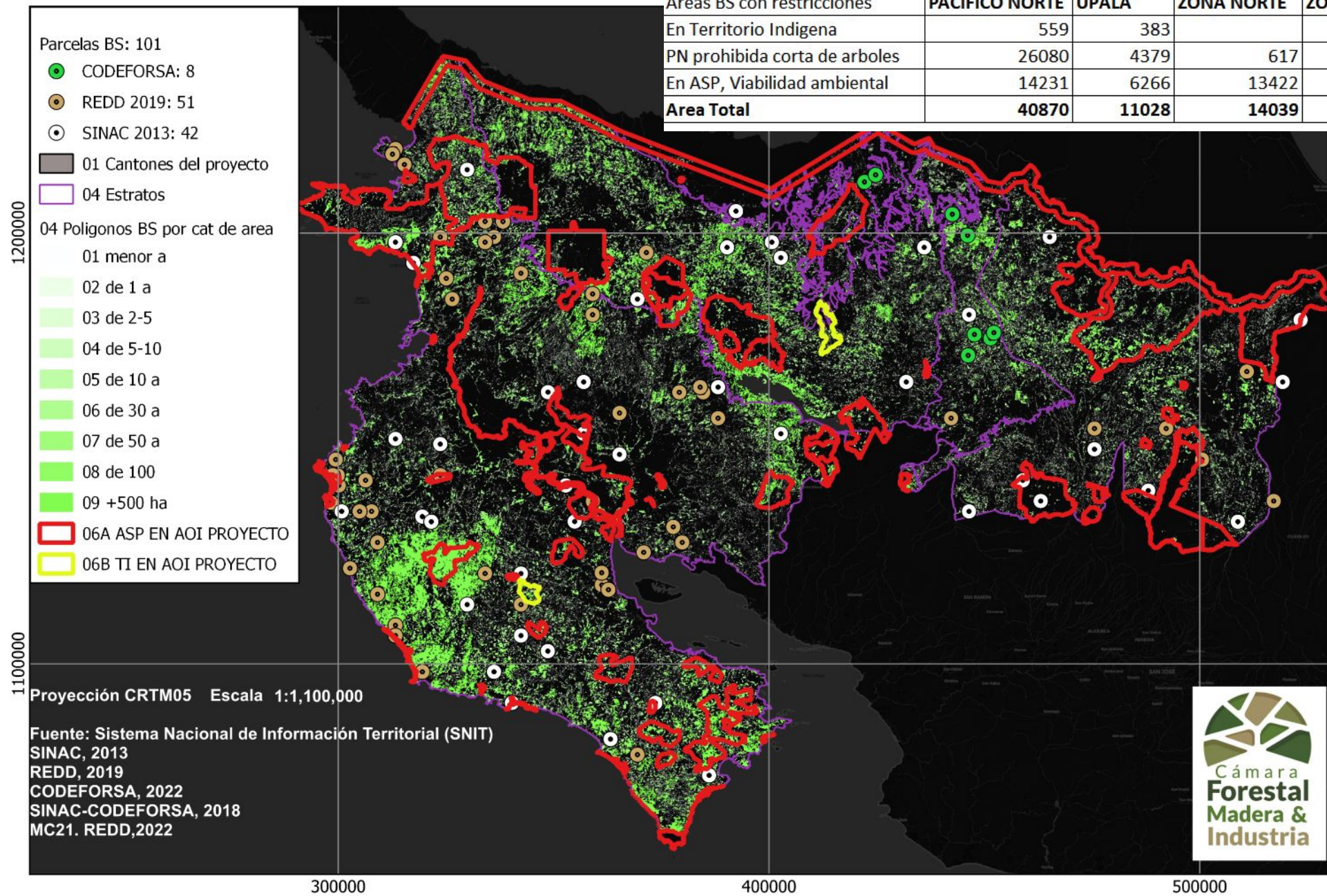
Cat_area	PACIFICO NORTE	UPALA	ZONA NORTE	ZONA NORTE-ZB	TOTAL	
01 menor a 1 ha	25 135.0	10 316.4	11 521.3	5 346.5	52 319.3	211 463.2
02 de 1 a 2 ha	11 716.3	5 428.7	5 764.6	2 424.1	25 333.7	
03 de 2-5 ha	19 701.1	8 678.1	8 854.4	3 418.2	40 651.9	
04 de 5-10 ha	18 739.4	7 932.3	6 816.1	2 470.0	35 957.9	
05 de 10 a 30 ha	30 730.5	12 590.6	10 263.9	3 615.5	57 200.4	
06 de 30 a 50 ha	13 785.9	6 686.0	4 615.7	979.8	26 067.4	206 926.8
07 de 50 a 100 ha	20 027.9	8 403.8	4 749.8	1 616.3	34 797.9	
08 de 100 a 500 ha	36 788.6	21 334.3	6 467.2	1 678.6	66 268.6	
09 +500 ha	63 660.7	13 461.1	0.0	2 671.1	79 792.9	
Total general	240 285.6	94 831.3	59 053.0	24 220.0	418 390.0	
Area total (ha)	1 022 362.0	448 205.0	448 205.0	174 629.0	2 093 401.0	
Porcentaje (%)	23.5%	21.2%	13.2%	13.9%	20.0%	

NUMERO POLIGONOS

Cat_area	PACIFICO NORTE	UPALA	ZONA NORTE	ZONA NORTE-ZB	TOTAL	
01 menor a 1 ha	137 680	53 067	59 111	28 852	278 710	318 456
02 de 1 a 2 ha	8 368	3 859	4 119	1 720	18 066	
03 de 2-5 ha	6 302	2 771	2 863	1 114	13 050	
04 de 5-10 ha	2 702	1 135	980	360	5 177	
05 de 10 a 30 ha	1 842	763	621	227	3 453	
06 de 30 a 50 ha	357	175	118	25	675	1 558
07 de 50 a 100 ha	289	124	72	25	510	
08 de 100 a 500 ha	185	95	34	10	324	
09 +500 ha	35	12	0	2	49	
Total general	157 760	62 001	67 918	32 335	320 014	

AREA PROMEDIO POR POLIGONO

Cat_area	PACIFICO NORTE	UPALA	ZONA NORTE	ZONA NORTE-ZB	TOTAL	
01 menor a 1 ha	0.2	0.2	0.2	0.2	0.2	0.7
02 de 1 a 2 ha	1.4	1.4	1.4	1.4	1.4	
03 de 2-5 ha	3.1	3.1	3.1	3.1	3.1	
04 de 5-10 ha	6.9	7.0	7.0	6.9	6.9	
05 de 10 a 30 ha	16.7	16.5	16.5	15.9	16.6	
06 de 30 a 50 ha	38.6	38.2	39.1	39.2	38.6	132.8
07 de 50 a 100 ha	69.3	67.8	66.0	64.7	68.2	
08 de 100 a 500 ha	198.9	224.6	190.2	167.9	204.5	
09 +500 ha	1 818.9	1 121.8		1 335.5	1 628.4	
Total general	1.5	1.5	0.9	0.7	1.3	



Áreas BS con restricciones	ESTRATO				Área Total
	PACIFICO NORTE	UPALA	ZONA NORTE	ZONA NORTE-ZB	
En Territorio Indígena	559	383		7	949
PN prohibida corta de árboles	26080	4379	617		31076
En ASP, Viabilidad ambiental	14231	6266	13422	1791	35710
Área Total	40870	11028	14039	1798	67735



ESTRATO PACIFICO NORTE

#	Nombre científico	Abundancia rel	Dominancia rel	Frecuencia rel	IVI	indice abundacia+dominancia
1	Guazuma ulmifolia	11.1%	10.7%	66.2%	88.0%	21.9%
2	Cochlospermum vitifolium	5.7%	5.5%	40.0%	51.2%	11.2%
3	Cordia alliodora	5.7%	3.8%	41.5%	51.0%	9.5%
4	Bursera simaruba	3.3%	5.6%	44.6%	53.5%	8.9%
5	Lonchocarpus minimiflorus	5.5%	2.4%	20.0%	27.9%	7.9%
6	Lysiloma divaricatum	3.0%	3.3%	21.5%	27.8%	6.3%
7	Spondias mombin	1.6%	4.1%	26.2%	31.9%	5.8%
8	Samanea saman	0.7%	4.4%	16.9%	22.0%	5.1%
9	Byrsonima crassifolia	3.0%	1.9%	18.5%	23.3%	4.9%
10	Gliricidia sepium	2.3%	2.0%	13.8%	18.2%	4.3%
11	Coccoloba caracasana	2.3%	1.7%	7.7%	11.7%	4.1%
12	Exostema mexicanum	1.7%	2.0%	7.7%	11.5%	3.8%
13	Haematoxylum brasiletto	1.8%	1.9%	4.6%	8.4%	3.8%
14	Rehdera trinervis	1.5%	1.6%	13.8%	16.9%	3.0%
15	Luehea candida	1.6%	1.4%	23.1%	26.1%	3.0%
16	Diospyros acapulcensis	2.2%	0.7%	21.5%	24.4%	2.9%
17	Enterolobium cyclocarpum	0.9%	1.8%	18.5%	21.2%	2.7%
18	Semialarium mexicanum	1.9%	0.8%	16.9%	19.6%	2.7%
19	Anacardium excelsum	0.8%	1.5%	10.8%	13.1%	2.3%
20	Spondias purpurea	1.3%	1.0%	20.0%	22.3%	2.3%

ESTRATO UPALA

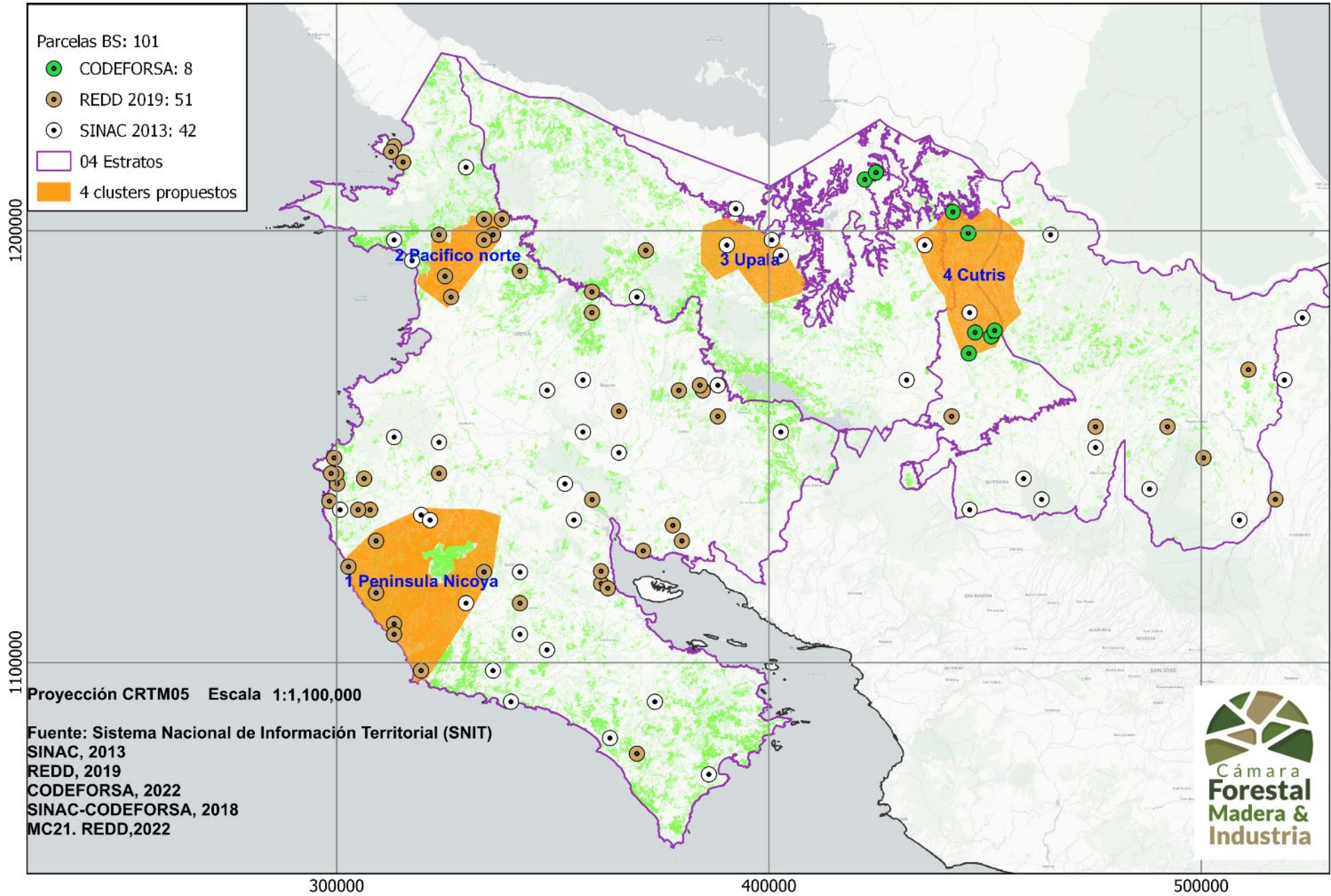
#	Nombre científico	Abundancia rel	Dominancia rel	Frecuencia rel	IVI	indice abundacia+dominancia
1	Psidium guajava	12.389%	6.966%	33.33%	52.688%	19.355%
2	Cordia alliodora	9.292%	8.281%	66.67%	84.240%	17.573%
3	Inga oerstediana	2.655%	9.044%	22.22%	33.921%	11.699%
4	Enterolobium cyclocarpum	1.770%	6.931%	33.33%	42.035%	8.701%
5	Apeiba membranacea	2.212%	5.864%	33.33%	41.410%	8.076%
6	Goethalsia meiantha	3.982%	2.611%	22.22%	28.816%	6.594%
7	Tetragastris panamensis	1.327%	4.474%	33.33%	39.134%	5.801%
8	Cordia dwyeri	3.097%	1.789%	33.33%	38.220%	4.886%
9	Enterolobium schomburgkii	1.327%	3.204%	33.33%	37.865%	4.532%
10	Castilla elastica	2.212%	1.941%	22.22%	26.376%	4.153%
11	Lonchocarpus guatemalensis	1.770%	2.321%	22.22%	26.313%	4.091%
12	Inga pezizifera	2.212%	1.864%	22.22%	26.298%	4.076%
13	Hirtella media	1.327%	2.627%	22.22%	26.177%	3.954%
14	Dendropanax arboreus	1.770%	2.180%	22.22%	26.172%	3.950%
15	Sideroxylon contrerasii	1.770%	2.132%	22.22%	26.124%	3.902%
16	Stemmadenia donnell-smithii	2.655%	1.111%	22.22%	25.988%	3.766%
17	Tapirira guianensis	0.442%	2.707%	22.22%	25.371%	3.149%
18	Brosimum lactescens	1.327%	1.688%	22.22%	25.237%	3.015%
19	Laetia procera	1.327%	1.264%	33.33%	35.925%	2.591%
20	Virola koschnyi	1.327%	1.235%	22.22%	24.784%	2.562%

ESTRATO ZONA NORTE

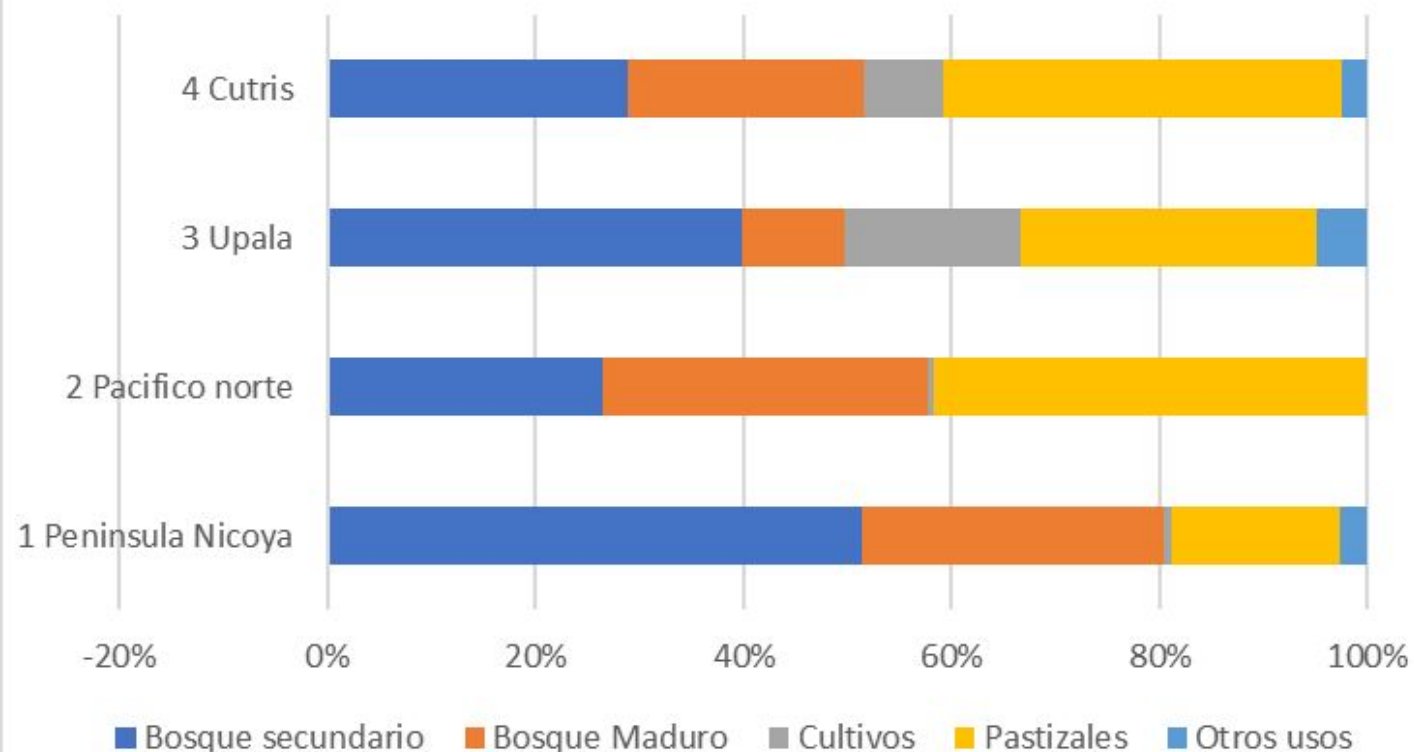
#	Nombre científico	Abundancia rel	Dominancia rel	Frecuencia rel	IVI	índice abundancia+dominancia
1	<i>Pentaclethra macroloba</i>	15.45%	27.53%	64.71%	107.68%	42.98%
2	<i>Stryphnodendron microstachyum</i>	0.64%	4.21%	17.65%	22.49%	4.85%
3	<i>Cecropia obtusifolia</i>	2.07%	1.49%	17.65%	21.21%	3.56%
4	<i>Apeiba membranacea</i>	1.27%	2.12%	29.41%	32.81%	3.40%
5	<i>Cedrela odorata</i>	1.27%	2.07%	17.65%	20.99%	3.34%
6	<i>Chimarrhis parviflora</i>	1.43%	1.54%	23.53%	26.50%	2.97%
7	<i>Conceveiba pleiostemona</i>	0.48%	2.24%	17.65%	20.36%	2.72%
8	<i>Cordia cymosa</i>	0.96%	1.36%	29.41%	31.73%	2.32%
9	<i>Pourouma bicolor</i>	1.27%	0.98%	29.41%	31.67%	2.26%
10	<i>Guarea kunthiana</i>	0.80%	1.45%	17.65%	19.90%	2.25%
11	<i>Spondias mombin</i>	1.43%	0.72%	29.41%	31.56%	2.15%
12	<i>Licaria misantlae</i>	1.59%	0.56%	11.76%	13.91%	2.15%
13	<i>Inga ruiziana</i>	1.43%	0.70%	23.53%	25.66%	2.13%
14	<i>Desconocida desconocida</i>	0.96%	1.10%	17.65%	19.70%	2.06%
15	<i>Dendropanax arboreus</i>	1.43%	0.59%	41.18%	43.20%	2.02%
16	<i>Vochysia allenii</i>	0.64%	1.34%	11.76%	13.74%	1.97%
17	<i>Jacaratia spinosa</i>	0.48%	1.40%	23.53%	25.41%	1.88%
18	<i>Conostegia micrantha</i>	0.64%	1.19%	11.76%	13.59%	1.82%
19	<i>Zanthoxylum ekmanii</i>	0.96%	0.84%	17.65%	19.44%	1.79%
20	<i>Pourouma minor</i>	0.80%	0.90%	17.65%	19.34%	1.70%

ESTRATO ZONA NORTE-B

	Nombre científico	Abundancia rel	Dominancia rel	Frecuencia rel	IVI	indice abundacia+dominancia
1	<i>Pentaclethra macroloba</i>	10.327%	20.938%	55.56%	86.821%	31.266%
2	<i>Dialium guianense</i>	3.496%	10.314%	88.89%	102.699%	13.810%
3	<i>Cordia cymosa</i>	5.837%	5.018%	77.78%	88.633%	10.855%
4	<i>Croton smithianus</i>	7.489%	2.639%	55.56%	65.683%	10.127%
5	<i>Inga sp</i>	4.233%	2.098%	100.00%	106.331%	6.331%
6	<i>Simarouba amara</i>	3.736%	1.992%	100.00%	105.729%	5.729%
7	<i>Turpinia occidentalis</i>	3.143%	1.400%	77.78%	82.321%	4.543%
8	Desconocido desconocida	3.015%	1.366%	88.89%	93.270%	4.381%
9	<i>Spondias mombin</i>	2.806%	1.498%	100.00%	104.305%	4.305%
10	<i>Pseudolmedia spuria</i>	2.822%	1.394%	66.67%	70.883%	4.217%
11	<i>Cordia alliodora</i>	1.459%	2.010%	100.00%	103.469%	3.469%
12	<i>Protium stevensonii</i>	1.139%	2.119%	88.89%	92.146%	3.257%
13	<i>Zanthoxylum ekmanii</i>	1.652%	1.446%	100.00%	103.097%	3.097%
14	<i>Lonchocarpus sp</i>	1.796%	1.290%	77.78%	80.864%	3.086%
15	<i>Alchornea costaricensis</i>	1.812%	0.978%	100.00%	102.790%	2.790%
16	<i>Trichilia sp</i>	1.972%	0.771%	77.78%	80.521%	2.743%
17	<i>Ocotea sp</i>	1.732%	0.998%	77.78%	80.507%	2.729%
18	<i>Tachigali costaricensis</i>	0.449%	2.222%	77.78%	80.449%	2.671%
19	<i>Pourouma bicolor</i>	1.315%	1.302%	77.78%	80.395%	2.617%
20	<i>Vochysia ferruginea</i>	0.834%	1.743%	55.56%	58.133%	2.577%



% Uso del suelo por Cluster



id	Nombre cluster	Area Total	Area en hectareas				
			Bosque secundario	Bosque Maduro	Cultivos	Pastizales	Otros usos
1	Peninsula Nicoya	82 636.5	42 501.6	24 015.6	543.7	13 330.5	2 245.1
2	Pacifico norte	22 130.1	5 866.7	6 898.1	124.7	9 240.7	0.0
3	Upala	28 280.6	11 277.3	2 798.4	4 752.3	8 055.3	1 397.2
4	Cutris	56 916.5	16 435.2	12 881.9	4 334.3	21 886.5	1 378.6

CLUSTER 1 PACIFICO NORTE

#	Nombre científico	Abundancia rel	Dominancia rel	Frecuencia rel	IVI	indice abundacia+dominancia
1	Spondias mombin	7.1%	13.8%	60.0%	80.9%	20.9%
2	Guazuma ulmifolia	7.7%	12.8%	90.0%	110.5%	20.5%
3	Cochlospermum vitifolium	6.5%	4.9%	40.0%	51.5%	11.5%
4	Cordia alliodora	6.0%	4.8%	60.0%	70.8%	10.8%
5	Lysiloma auritum	2.8%	5.2%	20.0%	28.0%	8.0%
6	Cupania guatemalensis	5.7%	2.2%	30.0%	37.9%	7.9%
7	Lonchocarpus felipei	4.5%	3.0%	40.0%	47.5%	7.5%
8	Lysiloma divaricatum	4.5%	2.7%	30.0%	37.2%	7.2%
9	Cedrela odorata	2.0%	4.4%	30.0%	36.3%	6.3%
10	Spondias purpurea	3.1%	2.8%	40.0%	45.9%	5.9%
11	Bursera simaruba	1.4%	4.2%	40.0%	45.6%	5.6%
12	Eugenia hiraefolia	3.1%	2.0%	40.0%	45.1%	5.1%
13	Luehea candida	2.6%	2.4%	30.0%	34.9%	4.9%
14	Schizolobium parahyba	0.9%	3.6%	20.0%	24.5%	4.5%
15	Alvaradoa amorphoides	2.0%	2.3%	20.0%	24.3%	4.3%
16	Lonchocarpus minimiflorus	2.0%	1.4%	20.0%	23.4%	3.4%
17	Enterolobium cyclocarpum	1.7%	1.2%	30.0%	32.9%	2.9%
18	Cassia grandis	1.4%	1.4%	20.0%	22.8%	2.8%
19	Trichilia americana	2.0%	0.7%	40.0%	42.7%	2.7%
20	Inga vera	1.7%	1.0%	20.0%	22.7%	2.7%

CLUSTER 2 PACIFICO NORTE

#	Nombre científico	Abundancia rel	Dominancia rel	Frecuencia rel	IVI	indice abundacia+dominancia
1	Guazuma ulmifolia	15.5%	13.3%	85.7%	114.5%	28.8%
2	Bursera simaruba	5.1%	23.1%	57.1%	85.3%	28.2%
3	Cordia alliodora	14.6%	11.4%	71.4%	97.4%	26.0%
4	Gliricidia sepium	12.5%	9.2%	57.1%	78.9%	21.8%
5	Rehdera trinervis	5.4%	7.1%	28.6%	41.0%	12.5%
6	Lonchocarpus minimiflorus	5.4%	4.2%	42.9%	52.5%	9.6%
7	Semialarium mexicanum	7.2%	2.3%	57.1%	66.6%	9.5%
8	Cochlospermum vitifolium	2.7%	3.8%	57.1%	63.6%	6.5%
9	Apeiba tibourbou	3.6%	2.8%	28.6%	34.9%	6.3%
10	Malvaviscus concinnus	3.6%	2.4%	28.6%	34.5%	6.0%
11	Diospyros acapulcensis	3.9%	1.2%	71.4%	76.5%	5.1%
12	Enterolobium cyclocarpum	0.9%	3.9%	28.6%	33.3%	4.8%
13	Albizia niopoides	0.6%	3.5%	42.9%	47.0%	4.1%
14	Byrsonima crassifolia	1.8%	1.1%	28.6%	31.4%	2.9%
15	Albizia adinocephala	1.5%	0.9%	57.1%	59.6%	2.4%
16	Chomelia venulosa	1.5%	0.5%	28.6%	30.5%	2.0%
17	Machaerium biovulatum	1.2%	0.7%	28.6%	30.5%	1.9%
18	Abarema adenophora	0.6%	1.3%	28.6%	30.4%	1.9%
19	Schoepfia schreberi	0.9%	0.9%	28.6%	30.3%	1.8%
20	Chomelia spinosa	1.2%	0.4%	28.6%	30.2%	1.6%

CLUSTER 3 UPALA

#	Nombre científico	Abundancia rel	Dominancia rel	Frecuencia rel	IVI	indice abundancia+dominancia
1	Tetragastris panamensis	3.3%	10.7%	100.0%	114.0%	14.0%
2	Enterolobium schomburgkii	2.2%	7.5%	66.7%	76.3%	9.7%
3	Dendropanax arboreus	4.4%	5.2%	66.7%	76.3%	9.6%
4	Hirtella media	3.3%	6.3%	66.7%	76.3%	9.6%
5	Sideroxylon contrerasii	4.4%	5.1%	66.7%	76.2%	9.5%
6	Tapirira guianensis	1.1%	6.5%	66.7%	74.3%	7.6%
7	Brosimum lactescens	3.3%	4.0%	66.7%	74.0%	7.3%
8	Cordia alliodora	3.3%	3.1%	66.7%	73.1%	6.4%
9	Virola koschnyi	3.3%	3.0%	66.7%	72.9%	6.3%
10	Cordia dwyeri	3.3%	2.8%	66.7%	72.8%	6.1%
11	Conceveiba pleiostemona	3.3%	2.8%	100.0%	106.1%	6.1%
12	Hernandia didymantha	1.1%	5.0%	66.7%	72.7%	6.1%
13	Xylopia sericea	3.3%	2.7%	66.7%	72.6%	6.0%
14	Carapa guianensis	3.3%	2.0%	66.7%	72.0%	5.3%
15	Simarouba amara	2.2%	2.4%	66.7%	71.2%	4.6%
16	Pausandra trianae	3.3%	0.8%	66.7%	70.8%	4.1%
17	Inga thibaudiana	2.2%	1.9%	66.7%	70.8%	4.1%
18	Laetia procera	2.2%	1.6%	66.7%	70.5%	3.8%
19	Cespedesia spathulata	1.1%	2.6%	66.7%	70.3%	3.7%
20	Pourouma bicolor	1.1%	2.5%	66.7%	70.3%	3.6%
21	Lonchocarpus oliganthus	1.1%	2.3%	66.7%	70.1%	3.4%
22	Acidoton nicaraguensis	2.2%	0.7%	66.7%	69.6%	2.9%

ESTRATO ZONA NORTE-B

	Nombre científico	Abundancia rel	Dominancia rel	Frecuencia rel	IVI	indice abundancia+dominancia
1	<i>Pentaclethra macroloba</i>	11.4%	22.7%	71.4%	105.5%	34.1%
2	<i>Dialium guianense</i>	3.7%	11.0%	100.0%	114.7%	14.7%
3	<i>Cordia cymosa</i>	6.4%	5.5%	100.0%	111.9%	11.9%
4	<i>Croton smithianus</i>	7.8%	2.6%	42.9%	53.2%	10.4%
5	<i>Inga sp</i>	4.3%	2.0%	100.0%	106.3%	6.3%
6	<i>Simarouba amara</i>	4.0%	2.1%	100.0%	106.2%	6.2%
7	<i>Pseudolmedia spuria</i>	3.1%	1.5%	71.4%	76.0%	4.5%
8	<i>Turpinia occidentalis</i>	3.0%	1.4%	71.4%	75.8%	4.3%
9	Desconocido desconocida	2.8%	1.3%	85.7%	89.7%	4.0%
10	<i>Spondias mombin</i>	2.6%	1.3%	100.0%	103.9%	3.9%
11	<i>Cordia alliodora</i>	1.6%	2.2%	100.0%	103.7%	3.7%
12	<i>Protium stevensonii</i>	1.2%	2.3%	100.0%	103.5%	3.5%
13	<i>Zanthoxylum ekmanii</i>	1.7%	1.5%	100.0%	103.2%	3.2%
14	<i>Lonchocarpus sp</i>	1.8%	1.3%	71.4%	74.5%	3.0%
15	<i>Trichilia sp</i>	2.1%	0.8%	71.4%	74.4%	2.9%
16	<i>Tachigali costaricensis</i>	0.5%	2.4%	100.0%	102.9%	2.9%
17	<i>Pourouma bicolor</i>	1.4%	1.4%	100.0%	102.9%	2.9%
18	<i>Alchornea costaricensis</i>	1.8%	1.0%	100.0%	102.8%	2.8%
19	<i>Ocotea sp</i>	1.7%	0.9%	71.4%	74.1%	2.6%
20	<i>Pouteria sp</i>	1.4%	1.1%	100.0%	102.6%	2.6%



Cámara
Forestal
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Industria

MUCHAS GRACIAS