



COCONUT SCALE INFESTATION IN CALABARZON

A Tale of Pest Invasion and Looking Forward to New Horizon

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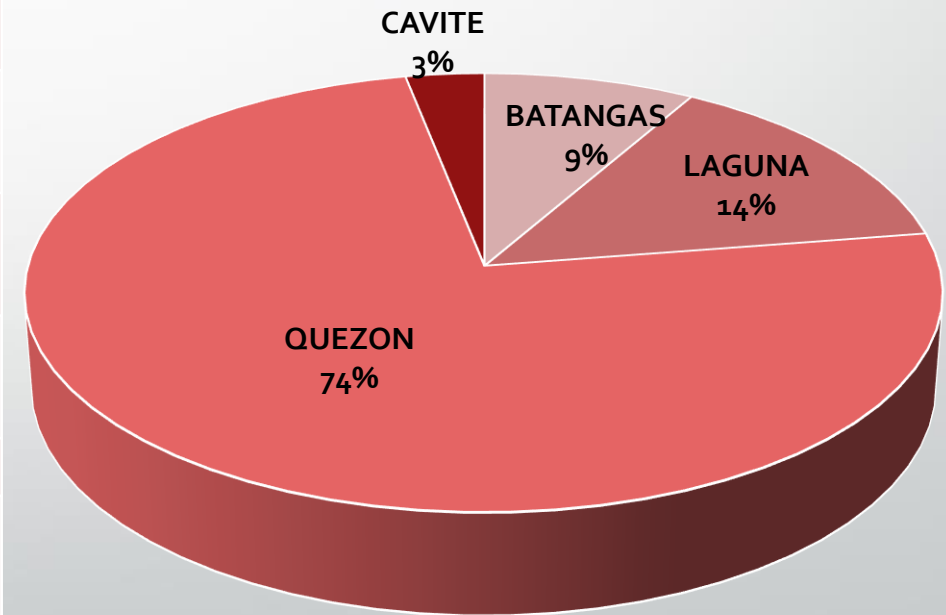
University of the Philippines Los Banos
R & D Manager, SICAP Task Force

SICAP report during the NAST Round Table Discussion
Preparing the Country from Pestiferous Invasions: Lessons from the
Coconut Scale insect Outbreak in the Philippines
April 29, 2014, Hyatt Hotel Manila, PHILIPPINES

INDUSTRY PROFILE OF CALABARZON

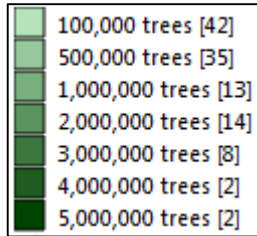
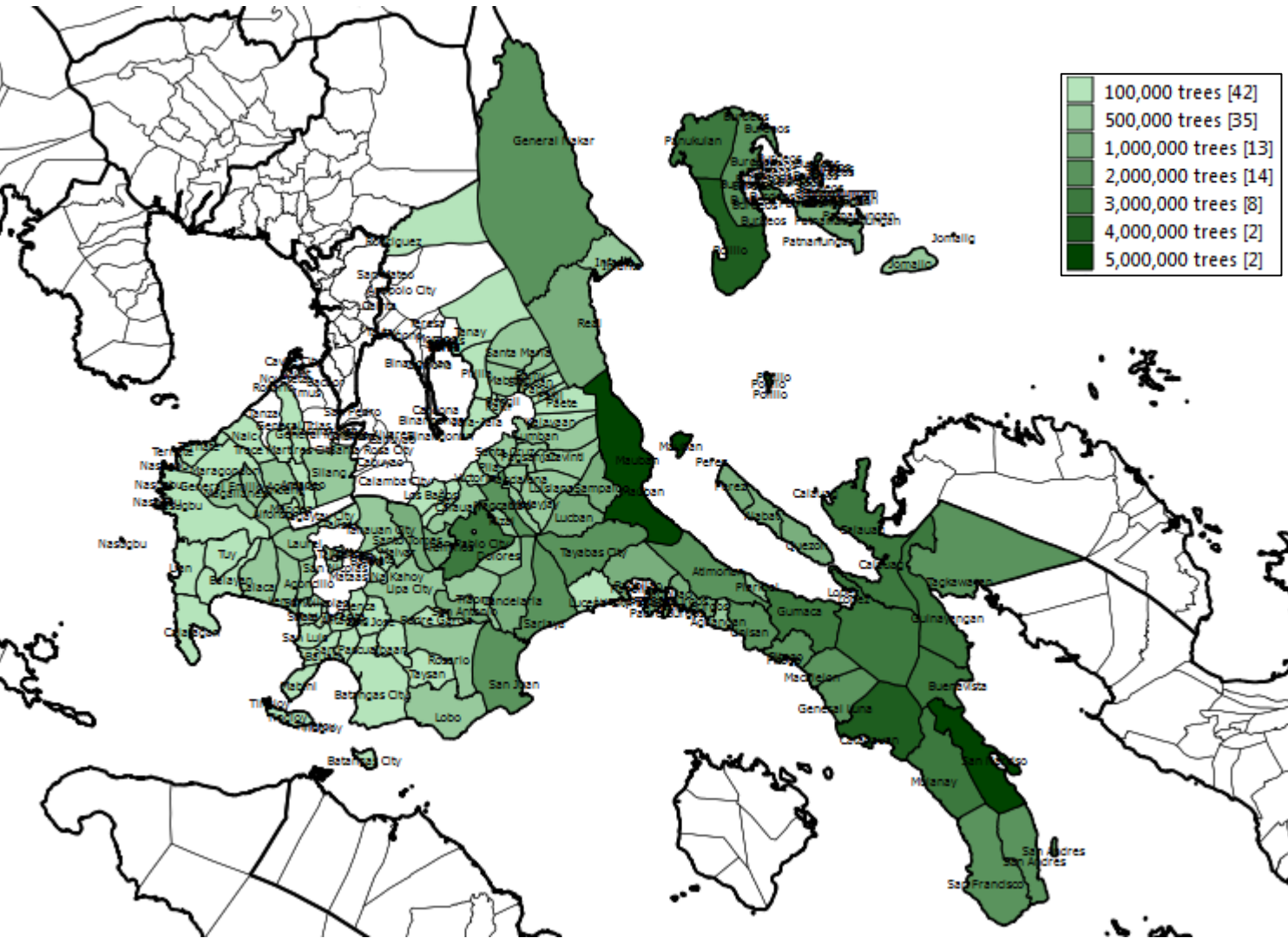
PROVINCE	AREA PLANTED (in Has.)	NO. OF BEARING TREES	VOLUME OF NUTS (in Metric Tons)
BATANGAS	36,590	4,300,000	107,439.00
LAGUNA	62,248	3,700,000	114,450.07
QUEZON	325,545	37,750,000	1,154,500.29
CAVITE	13,600	1,146,000	40,386.42
TOTAL	438,733	46,922,240	1,417,438.97

PERCENTAGE AREA PLANTED TO COCONUTS



Source: PCA-Region IV-A, 2010

TOTAL COCONUT TREES IN CALABARZON



Total Coconut Trees = 78,260,853 CSI Infestation = 1,200,480 trees (1.53%)

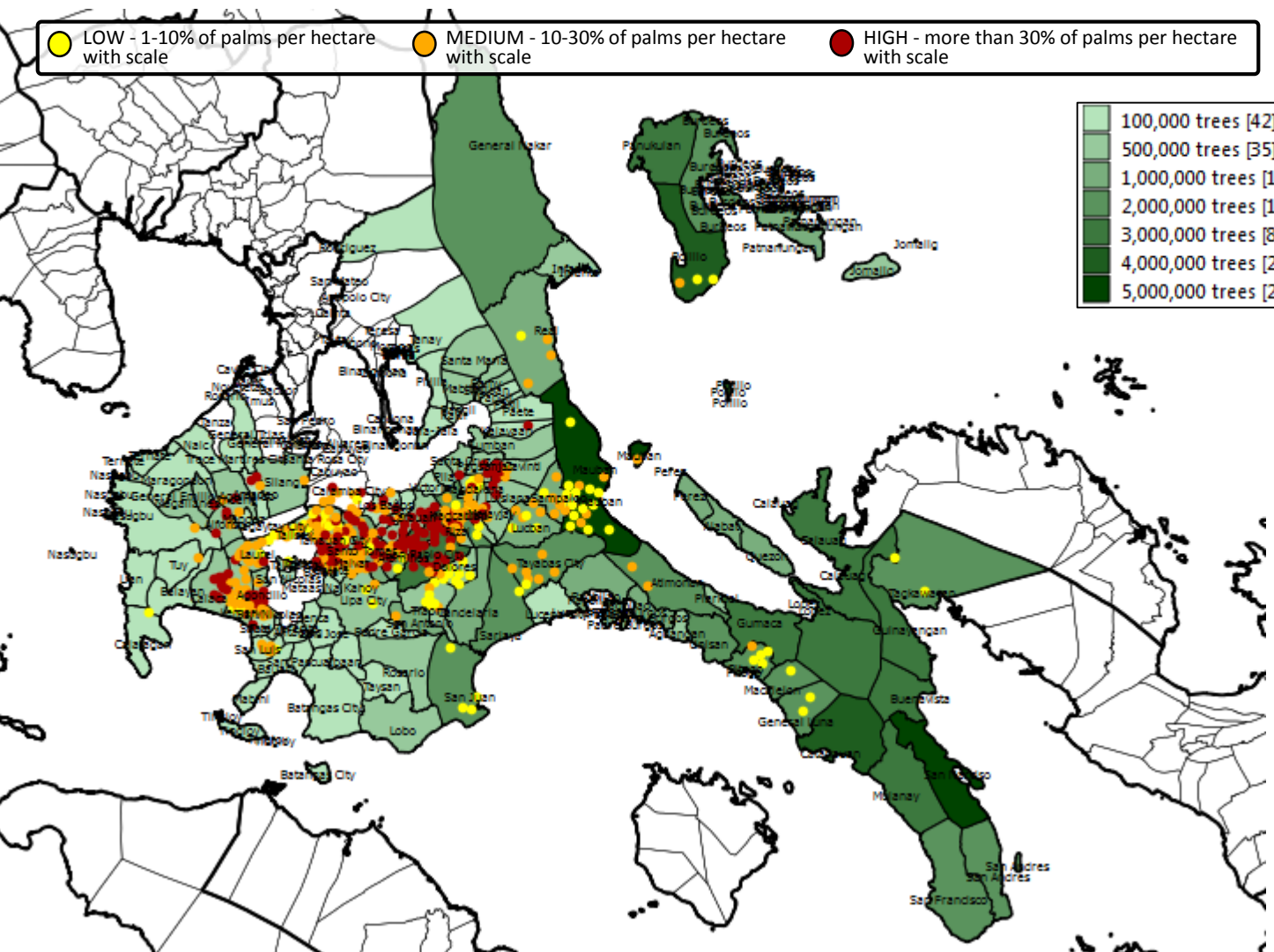
Province	Municipality	Coconut Trees	CSI Infestation
Quezon	Mauban	4,704,724	34,184
Quezon	San Narciso	4,063,851	
Quezon	Catanauan	3,673,220	
Quezon	Polillo	3,491,875	340
Quezon	Mulanay	2,862,180	
Quezon	Lopez	2,812,799	
Quezon	Panukulan	2,739,780	
Quezon	Guinayangan	2,718,809	30
Laguna	San Pablo City	2,718,720	19,239
Quezon	Gumaca	2,666,964	
Quezon	Calauag	2,428,803	
Quezon	Buenavista	2,168,856	
Quezon	Atimonan	1,991,735	1,900
Quezon	San Andres	1,860,749	
Quezon	San Francisco	1,832,865	
Quezon	Tayabas City	1,755,350	17,405
Quezon	Macalelon	1,596,902	600
Quezon	Unisan	1,504,494	
Quezon	General Luna	1,499,200	2,600
Quezon	Tagkawayan	1,484,026	600
Batangas	San Juan	1,267,500	3,923
Quezon	Burdeos	1,222,380	
Quezon	Sariaya	1,029,143	4,612
Quezon	Pitogo	1,016,400	1,470
Laguna	Nagcarlan	1,011,436	13,022
Quezon	General Nakar	1,010,727	
Quezon	Real	964,508	6,436
Quezon	Padre Burgos	923,700	
Quezon	Quezon	877,419	
Quezon	Patnanungan	838,130	
Quezon	Lucban	833,448	995
Quezon	Sampaloc	789,462	25,777
Quezon	Candelaria	773,971	
Quezon	San Antonio	772,373	3,277
Quezon	Perez	689,205	
Quezon	Alabat	651,121	
Batangas	Santo Tomas	555,150	56,663
Laguna	Alaminos	553,468	27,563
Quezon	Pagbilao	543,210	
Laguna	Majayjay	490,355	10,602
Batangas	Lemery	482,400	196,262
Quezon	Agdangan	468,900	
Laguna	Magdalena	431,480	2,172
Batangas	Lipa City	428,865	3,851
Laguna	Calauan	428,325	45,986
Quezon	Dolores	427,850	21,879
Quezon	Jomalig	380,815	
Batangas	Calaca	369,328	16,303
Laguna	Famy	362,730	
Laguna	Santa Maria	357,902	

Province	Municipality	Coconut Trees	CSI Infestation
Cavite	Magallanes	335,235	
Cavite	Indang	314,183	379
Batangas	Tanauan City	308,700	105,571
Laguna	Rizal	301,500	5,892
Laguna	Lumban	300,751	
Laguna	Luisiana	286,035	2,109
Laguna	Cavinti	266,110	9,608
Laguna	Liliw	258,911	7,531
Cavite	Silang	253,998	650
Quezon	Tiaong	251,148	25,059
Cavite	General Aguinaldo	242,321	100
Laguna	Pagsanjan	240,137	769
Laguna	Siniloan	238,807	
Batangas	Lobo	223,951	
Batangas	Rosario	216,751	
Quezon	Infanta	173,688	
Quezon	Plaridel	170,522	
Cavite	Alfonso	163,836	739
Laguna	Santa Cruz	163,271	1,092
Batangas	Laurel	155,520	111,259
Batangas	Agoncillo	138,000	68,758
Laguna	Pila	113,295	
Batangas	Malvar	111,453	42,814
Laguna	Mabita	110,279	
Batangas	Batangas City	96,280	
Batangas	Padre Garcia	75,000	
Rizal	Piilla	70,000	
Laguna	Pakil	69,280	
Laguna	Bay	69,000	24,202
Batangas	Mataas na Kahoy	67,644	
Laguna	Kalayaan	67,200	85
Quezon	Lucena City	66,366	
Rizal	Jala-Jala	64,000	
Batangas	Taysan	52,500	
Batangas	Tingloy	52,047	
Cavite	Maragondon	50,412	
Batangas	Talisay	50,251	3,794
Batangas	San Jose	50,115	
Laguna	Paete	48,794	
Batangas	Taal	44,400	
Laguna	Victoria	42,575	
Batangas	San Luis	36,451	4,257
Batangas	Santa Teresita	36,251	
Batangas	Nasugbu	34,351	1,180
Batangas	Cuenca	32,321	
Batangas	Mabini	31,213	
Batangas	Balete	26,840	15,442
Laguna	Los Baños	22,800	35,917
Cavite	Amadeo	17,947	2,074
Batangas	San Nicolas	15,451	13,058

TOTAL COCONUT TREES IN CALABARZON (Number of CSI Infested Trees)

● LOW - 1-10% of palms per hectare with scale
 ● MEDIUM - 10-30% of palms per hectare with scale
 ● HIGH - more than 30% of palms per hectare with scale

100,000 trees [42]
 500,000 trees [35]
 1,000,000 trees [13]
 2,000,000 trees [14]
 3,000,000 trees [8]
 4,000,000 trees [2]
 5,000,000 trees [2]

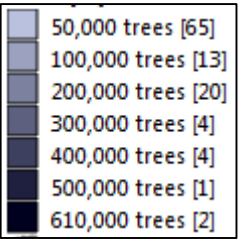
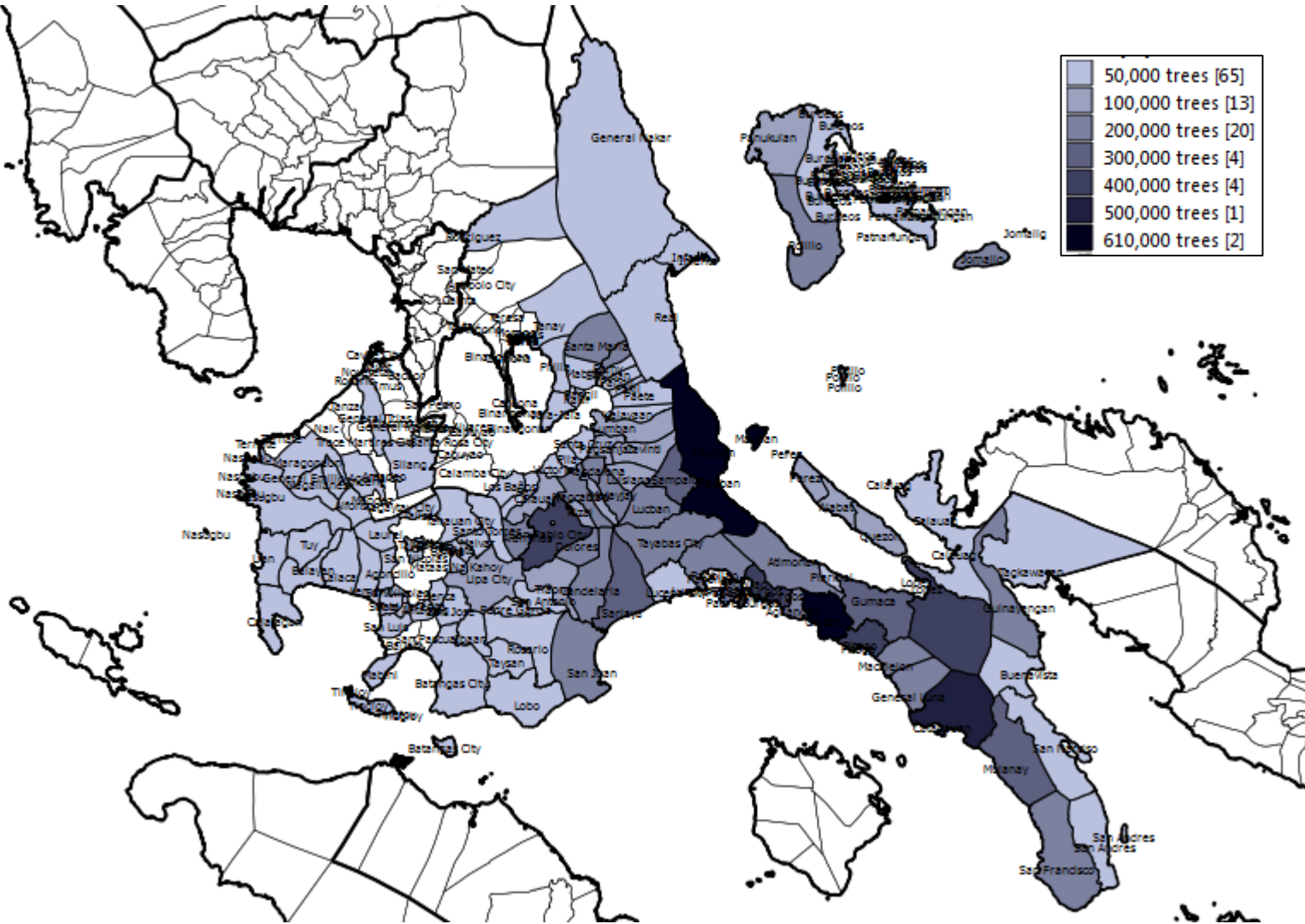


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Quezon	Pitogo	1,016,400	1,470
Laguna	Nagcarlan	1,011,436	13,022
Quezon	General Nakar	1,010,727	
Quezon	Real	964,508	6,436
Quezon	Padre Burgos	923,700	
Quezon	Quezon	877,419	
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Quezon	Lucban	833,448	995
Quezon	Sampaloc	789,462	25,777
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Laguna	Pila	113,295	
Batangas	Malvar	111,453	42,814
Laguna	Mabita	110,279	
Batangas	Batangas City	96,280	
Batangas	Padre Garcia	75,000	
Rizal	Piilla	70,000	
Laguna	Pakil	69,280	
Laguna	Bay	69,000	24,202
Batangas	Mataas na Kahoy	67,644	
Laguna	Kalayaan	67,200	85
Quezon	Lucena City	66,366	
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Total Coconut Trees = 78,260,853 CSI Infestation = 1,200,480 trees (1.53%)

SENILE COCONUT TREES IN CALABARZON



Province	Municipality	Senile	CSI Infestation
Quezon	Unisan	602,619	
Quezon	Mauban	556,504	34,184
Quezon	Catanauan	413,458	
Quezon	Pitogo	369,792	1,470
Laguna	San Pablo City	339,840	19,239
Quezon	Lopez	337,536	
Quezon	Padre Burgos	306,024	
Quezon	Gumaca	293,366	
Quezon	Sariaya	231,320	4,612
Quezon	Sampaloc	212,902	25,777
Quezon	Mulanay	207,191	
Quezon	Candelaria	194,283	
Batangas	San Juan	190,125	3,923
Quezon	Tayabas City	175,617	17,405
Quezon	Agdangan	168,565	
Laguna	Nagcarlan	166,887	13,022
Quezon	General Luna	164,590	2,600
Quezon	Guinayangan	163,612	30
Quezon	San Francisco	154,323	
Quezon	Macalelon	139,960	600
Laguna	Alaminos	138,367	27,563
Quezon	Dolores	135,781	21,879
Laguna	Majayjay	132,394	10,602
Laguna	Magdalena	125,129	2,172
Quezon	Lucban	125,017	995
Quezon	Atimonan	119,504	1,900
Quezon	Tomalig	118,061	
Quezon	Polillo	111,118	340
Laguna	Famy	103,378	
Quezon	Pagbilao	103,021	
Laguna	Santa Maria	102,001	
Quezon	Quezon	97,500	
Laguna	Calauan	87,807	45,986
Batangas	Lipa City	85,773	3,851
Quezon	Perez	75,415	
Laguna	Cavinti	69,189	9,608
Laguna	Lumban	69,173	
Quezon	Tiaong	66,432	25,059
Quezon	Alabat	65,918	
Laguna	Luisiana	65,788	2,109
Laguna	Rizal	63,315	5,892
Quezon	Panukulan	61,186	
Laguna	Pagsanjan	54,030	769
Laguna	Liliw	50,487	7,531
Laguna	Siniloan	48,955	
Batangas	Calauag	48,576	
Batangas	Lemery	48,240	196,262
Batangas	Rosario	47,685	
Quezon	Buenavista	44,943	
Batangas	Santo Tomas	44,412	56,663

Province	Municipality	Senile	CSI Infestation
Quezon	Tagkawayan	43,422	600
Quezon	Burdeos	36,671	
Quezon	San Antonio	35,569	3,277
Quezon	San Narciso	33,798	
Cavite	General Aguinaldo	32,350	100
Laguna	Mabitac	30,879	
Laguna	Santa Cruz	29,389	1,092
Quezon	Patnanungan	25,144	
Quezon	Real	23,700	6,436
Cavite	Silang	22,786	650
Quezon	General Nakar	20,215	
Cavite	Indang	19,357	379
Laguna	Bay	19,320	24,202
Laguna	Pakil	18,013	
Batangas	Tanauan City	15,435	105,571
Cavite	Magallanes	14,780	
Laguna	Pila	14,728	
Quezon	Plaridel	13,642	
Batangas	Lobo	11,198	
Quezon	San Andres	11,115	
Laguna	Kalayaan	11,088	85
Batangas	Calaca	11,080	16,303
Batangas	Batangas City	9,628	
Cavite	Alfonso	9,165	739
Batangas	Tingloy	8,848	
Batangas	Laurel	7,776	111,259
Quezon	Infanta	7,661	
Batangas	San Jose	7,517	
Batangas	Padre Garcia	7,500	
Batangas	Agoncillo	6,900	68,758
Batangas	Mataas na Kahoy	6,764	
Quezon	Lucena City	6,661	
Laguna	Victoria	6,386	
Laguna	Paete	3,923	
Batangas	Malvar	3,447	42,814
Batangas	Nasugbu	3,435	1,180
Batangas	Mabini	3,121	
Laguna	Pangil	2,880	
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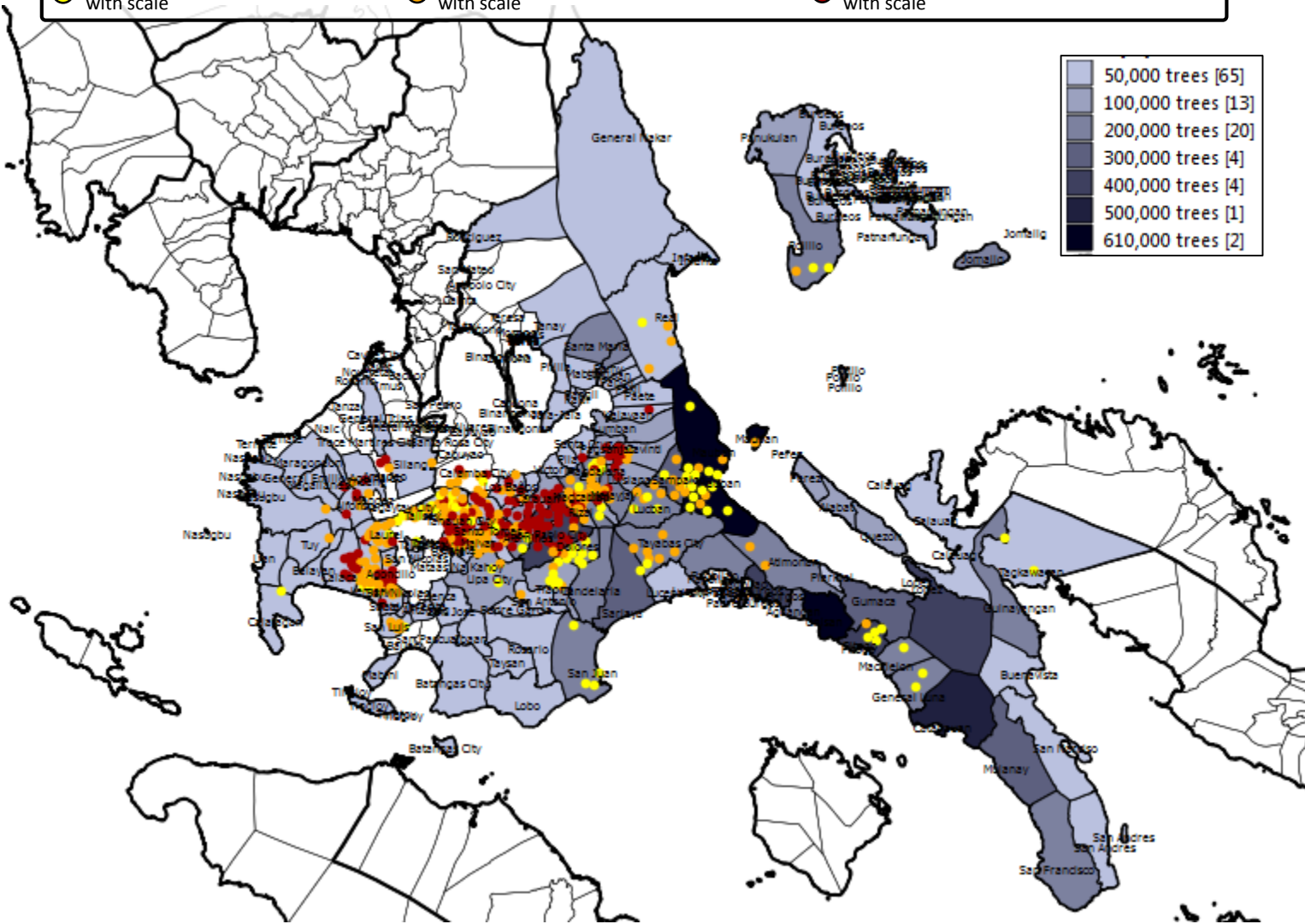
Senile Coco Trees = 3,874,869

CSI Infestation = 1,200,480 trees

SENILE COCONUT TREES IN CALABARZON

(Number of CSI Infested Trees)

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 ● MEDIUM - 10-30% of palms per hectare with scale
 ● HIGH - more than 30% of palms per hectare with scale



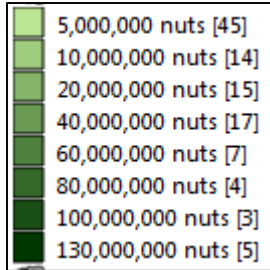
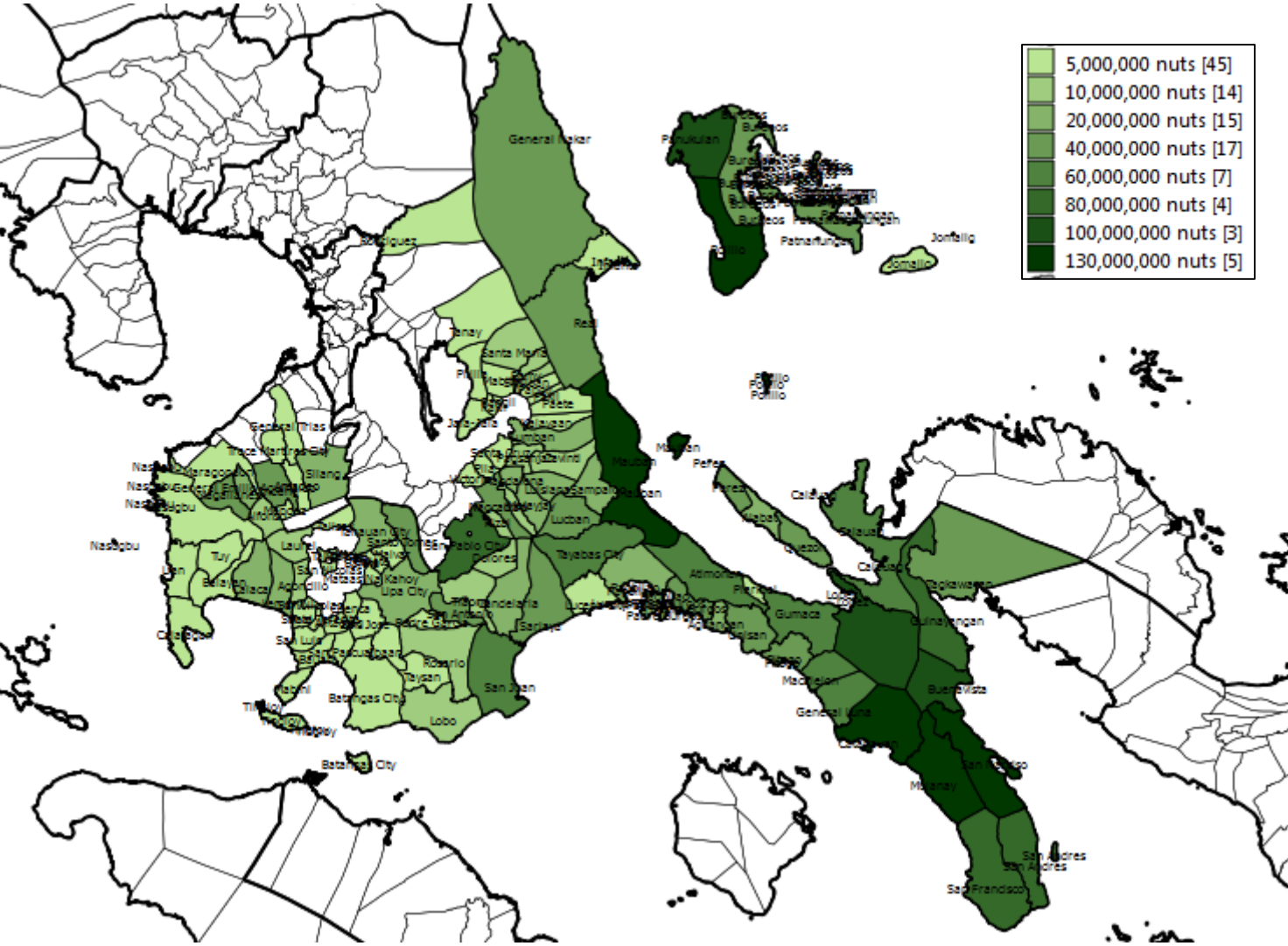
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Quezon	Sariaya	231,320	4,612
Quezon	Sampaloc	212,902	25,777
Quezon	Mulanay	207,191	
Quezon	Candelaria	194,283	
Batangas	San Juan	190,125	3,923
Quezon	Tayabas City	175,617	17,405
Quezon	Agdangan	168,565	
Laguna	Nagcarlan	166,887	13,022
Quezon	General Luna	164,590	2,600
Quezon	Guinayangan	163,612	30
Quezon	San Francisco	154,323	
Quezon	Macalelon	139,960	600
Laguna	Alaminos	138,367	27,563
Quezon	Dolores	135,781	21,879
Laguna	Majayjay	132,394	10,602
Laguna	Magdalena	125,129	2,172
Quezon	Lucban	125,017	995
Quezon	Atimonan	119,504	1,900
Quezon	Atomig	118,061	
Quezon	Polillo	111,118	340
Laguna	Famy	103,378	
Quezon	Pagbilao	103,021	
Laguna	Santa Maria	102,001	
Quezon	Quezon	97,500	
Laguna	Calauan	87,807	45,986
Batangas	Lipa City	85,773	3,851
Quezon	Perez	75,415	
Laguna	Cavinti	69,189	9,608
Laguna	Lumban	69,173	
Quezon	Tiaong	66,432	25,059
Quezon	Alabat	65,918	
Laguna	Luisiana	65,788	2,109
Laguna	Rizal	63,315	5,892
Quezon	Panukulan	61,186	
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Senile Coco Trees = 3,874,869

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CALABARZON NUT PRODUCTION (in pcs)



Nut Production = 2,323,208,570 pcs.

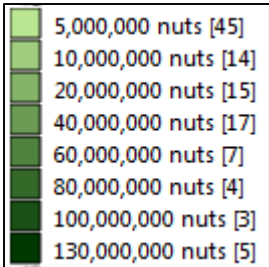
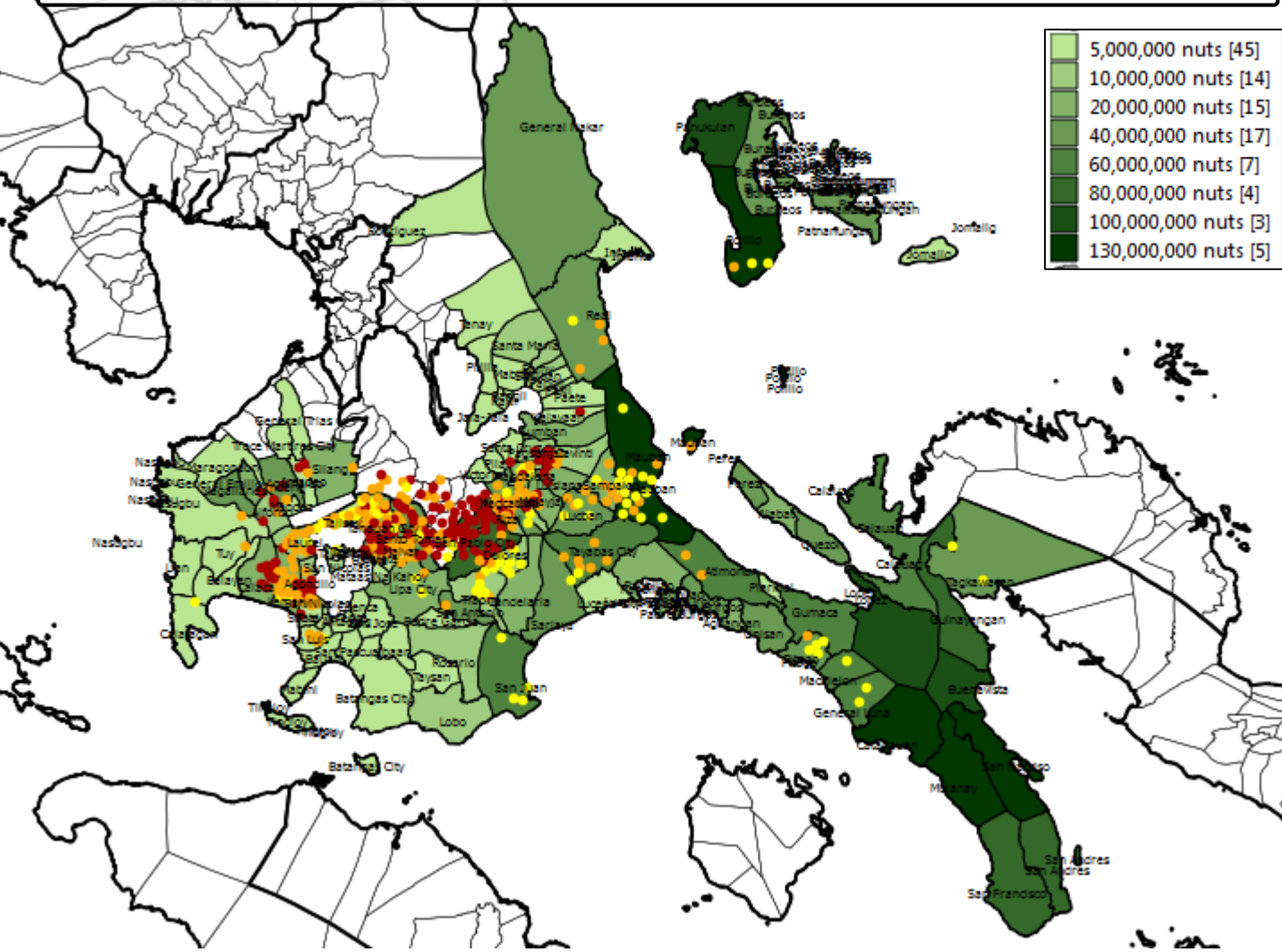
CSI Infestation = 1,200,480 trees

Province	Municipality	Nut Production (pcs)	CSI Infestation
Quezon	Catanauan	129,508,862	
Quezon	San Narciso	122,904,760	
Quezon	Polillo	114,805,388	340
Quezon	Mauban	108,942,263	34,184
Quezon	Mulanay	102,035,850	
Quezon	Panukulan	93,468,472	
Quezon	Lopez	83,371,354	
Quezon	Buenavista	81,334,620	
Quezon	Guinayangan	75,058,536	30
Laguna	San Pablo City	69,599,232	19,239
Quezon	San Francisco	63,654,234	
Quezon	San Andres	62,820,920	
Quezon	Calauag	56,348,240	
Quezon	Gumaca	55,072,815	
Quezon	Tayabas City	53,711,604	17,405
Quezon	Atimonan	53,099,668	1,900
Batangas	San Juan	52,284,375	3,923
Quezon	General Luna	46,273,010	2,600
Quezon	Macalelon	45,327,800	600
Quezon	Burdeos	38,313,869	
Quezon	Tagkawayan	37,688,596	600
Quezon	San Antonio	33,646,530	3,277
Quezon	General Nakar	29,361,640	
Quezon	Real	28,062,825	6,436
Quezon	Unisan	27,023,004	
Quezon	Patnanungan	26,401,095	
Quezon	Quezon	26,332,100	
Batangas	Santo Tomas	25,981,020	56,663
Cavite	Magallanes	24,490,326	
Laguna	Nagcarlan	24,274,464	13,022
Quezon	Lucban	24,038,417	995
Quezon	Padre Burgos	23,497,408	
Quezon	Sariaya	21,557,844	4,612
Quezon	Perez	21,328,184	
Quezon	Pitogo	21,080,842	1,470
Cavite	Indang	20,085,736	379
Quezon	Candelaria	19,893,382	
Quezon	Alabat	19,734,920	
Laguna	Majayjay	19,148,470	10,602
Batangas	Lipa City	17,690,695	3,851
Batangas	Lemery	16,884,000	196,262
Cavite	General Aguinaldo	16,436,934	100
Laguna	Magdalena	16,137,385	2,172
Batangas	Calaca	15,423,168	16,303
Quezon	Sampaloc	14,293,720	25,777
Quezon	Pagbilao	13,188,717	
Cavite	Silang	13,138,230	650
Batangas	Tanauan City	12,841,920	105,571
Laguna	Lumban	10,526,250	
Quezon	Agdangan	10,391,040	
Laguna	Luisiana	10,297,250	2,109
Quezon	Dolores	9,965,093	21,879
Laguna	Liliw	9,134,440	7,531
Laguna	Santa Maria	8,761,464	
Laguna	Famy	8,749,044	
Batangas	Lobo	8,566,110	
Laguna	Pagsanjan	7,726,455	769
Laguna	Rizal	7,661,115	5,892
Laguna	Cavinti	7,650,650	9,608
Cavite	Alfonso	7,390,308	739
Batangas	Rosario	7,033,567	
Batangas	Agoncillo	6,451,500	68,758
Batangas	Laurel	6,345,216	111,259
Laguna	Siniloan	6,275,880	
Quezon	Tiaong	5,156,900	25,059
Batangas	Malvar	4,963,680	42,814
Quezon	Jomalig	4,660,670	
Quezon	Plaridel	4,474,494	
Laguna	Santa Cruz	3,866,240	1,092
Quezon	Infanta	3,646,055	
Batangas	Batangas City	3,466,080	
Laguna	Pila	3,033,485	
Batangas	Padre Garcia	2,812,500	
Laguna	Mabitan	2,798,856	
Batangas	Mataas na Kahoy	2,536,650	
Batangas	Taysan	2,343,600	
Laguna	Kalayaan	2,313,360	85
Batangas	Talisay	2,135,650	3,794
Cavite	Maragondon	2,024,655	
Quezon	Lucena City	1,990,638	
Batangas	San Jose	1,879,300	
Rizal	Piilla	1,764,000	
Batangas	Tingloy	1,709,730	
Batangas	Taal	1,631,700	
Laguna	Pakil	1,496,448	
Rizal	Jala-Jala	1,382,400	
Laguna	Paete	1,381,695	
Laguna	Victoria	1,272,132	
Batangas	Santa Teresita	1,223,460	
Batangas	San Luis	1,184,650	4,257
Batangas	Nasugbu	1,071,744	1,180
Batangas	Mabini	1,053,450	
Batangas	Cuenca	906,672	
Cavite	Trece Martires City	660,114	
Batangas	San Nicolas	630,384	13,058
Batangas	Balayan	544,704	
Batangas	Balete	525,700	15,442
Cavite	Amadeo	472,815	2,074
Laguna	Pangil	293,760	

CALABARZON NUT PRODUCTION (in pcs)

(Number of CSI Infested Trees)

● LOW - 1-10% of palms per hectare with scale
 ● MEDIUM - 10-30% of palms per hectare with scale
 ● HIGH - more than 30% of palms per hectare with scale



Nut Production = 2,323,208,570 pcs. CSI Infestation = 1,200,480 trees

Province	Municipality	Nut Production (pcs)	CSI Infestation	Province	Municipality	Nut Production (pcs)	CSI Infestation
Quezon	Catanauan	129,508,862		Laguna	Luisiana	10,297,250	2,109
Quezon	San Narciso	122,904,760		Quezon	Dolores	9,965,093	21,879
Quezon	Polillo	114,805,388	340	Laguna	Liliw	9,134,440	7,531
Quezon	Mauban	108,942,263	34,184	Laguna	Santa Maria	8,761,464	
Quezon	Mulanay	102,035,850		Laguna	Famy	8,749,044	
Quezon	Panukulan	93,468,472		Batangas	Lobo	8,566,110	
Quezon	Lopez	83,371,354		Laguna	Pagsanjan	7,726,455	769
Quezon	Buenavista	81,334,620		Laguna	Rizal	7,661,115	5,892
Quezon	Guinayangan	75,058,536	30	Laguna	Cavinti	7,650,650	9,608
Laguna	San Pablo City	69,599,232	19,239	Cavite	Alfonso	7,390,308	739
Quezon	San Francisco	63,654,234		Batangas	Rosario	7,033,567	
Quezon	San Andres	62,820,920		Batangas	Agoncillo	6,451,500	68,758
Quezon	Calauag	56,348,240		Batangas	Laurel	6,345,216	111,259
Quezon	Gumaca	55,072,815		Laguna	Siniloan	6,275,880	
Quezon	Tayabas City	53,711,604	17,405	Quezon	Tiaong	5,156,900	25,059
Quezon	Atimonan	53,099,668	1,900	Batangas	Malvar	4,963,680	42,814
Batangas	San Juan	52,284,375	3,923	Quezon	Jomalig	4,660,670	
Quezon	General Luna	46,273,010	2,600	Quezon	Plaridel	4,474,494	
Quezon	Macalelon	45,327,800	600	Laguna	Santa Cruz	3,866,240	1,092
Quezon	Burdeos	38,313,869		Quezon	Infanta	3,646,055	
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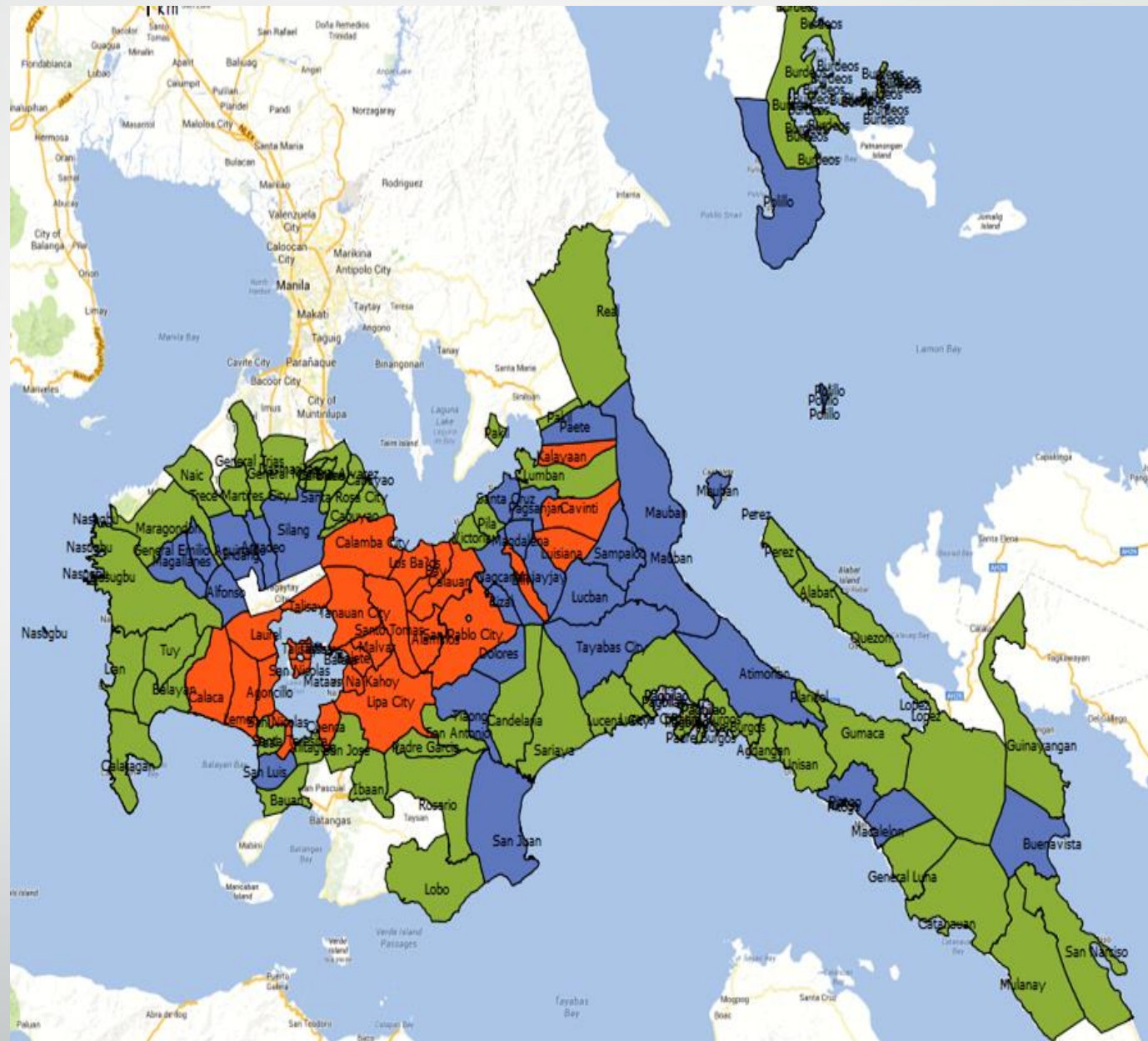
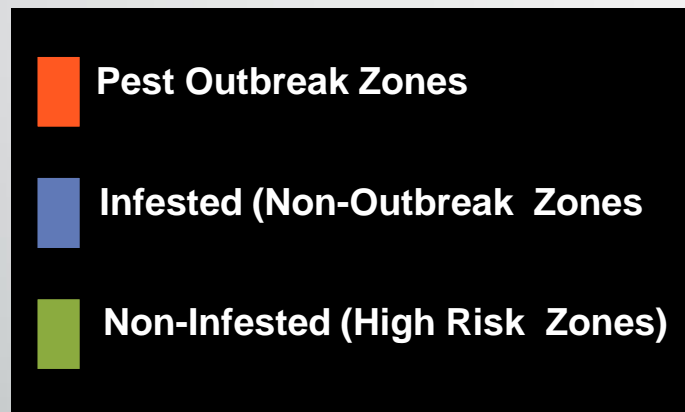
COCONUT POPULATION AND PEST INFESTATION STATUS (2012 -2014)

As of March 30, 2014

PROVINCE	TOTAL TREES PLANTED	AFFECTED TREES	
		No.	%
Batangas	4,347,300	644,144	14.81
Laguna	3,630,000	211,012	5.81
Quezon	32,550,000	147,164	0.45
Cavite	1,145,800	3,942	0.34

Province	Total Bearing Trees	Affected Bearing Trees		Total Non-Bearing Trees	Affected Non-Bearing Trees		Senile Trees
		No.	%		No.	%	
Batangas	3,898,097	536,106	13.75	567,588	108,038	19.03	533,225
Laguna	6,591,037	175,466	2.66	620,550	35,546	5.73	1,753,574
Quezon	46,528,580	92,821	0.20	10,081,356	54,343	0.54	6,121,732
Cavite	1,055,691	2,242	0.21	249,721	1,700	0.68	100,778
TOTAL	58,073,405	806,635	1.39%	11,519,265	199,627	1.73	8,509,309

CSI INFESTATION SCENARIO CALABARZON



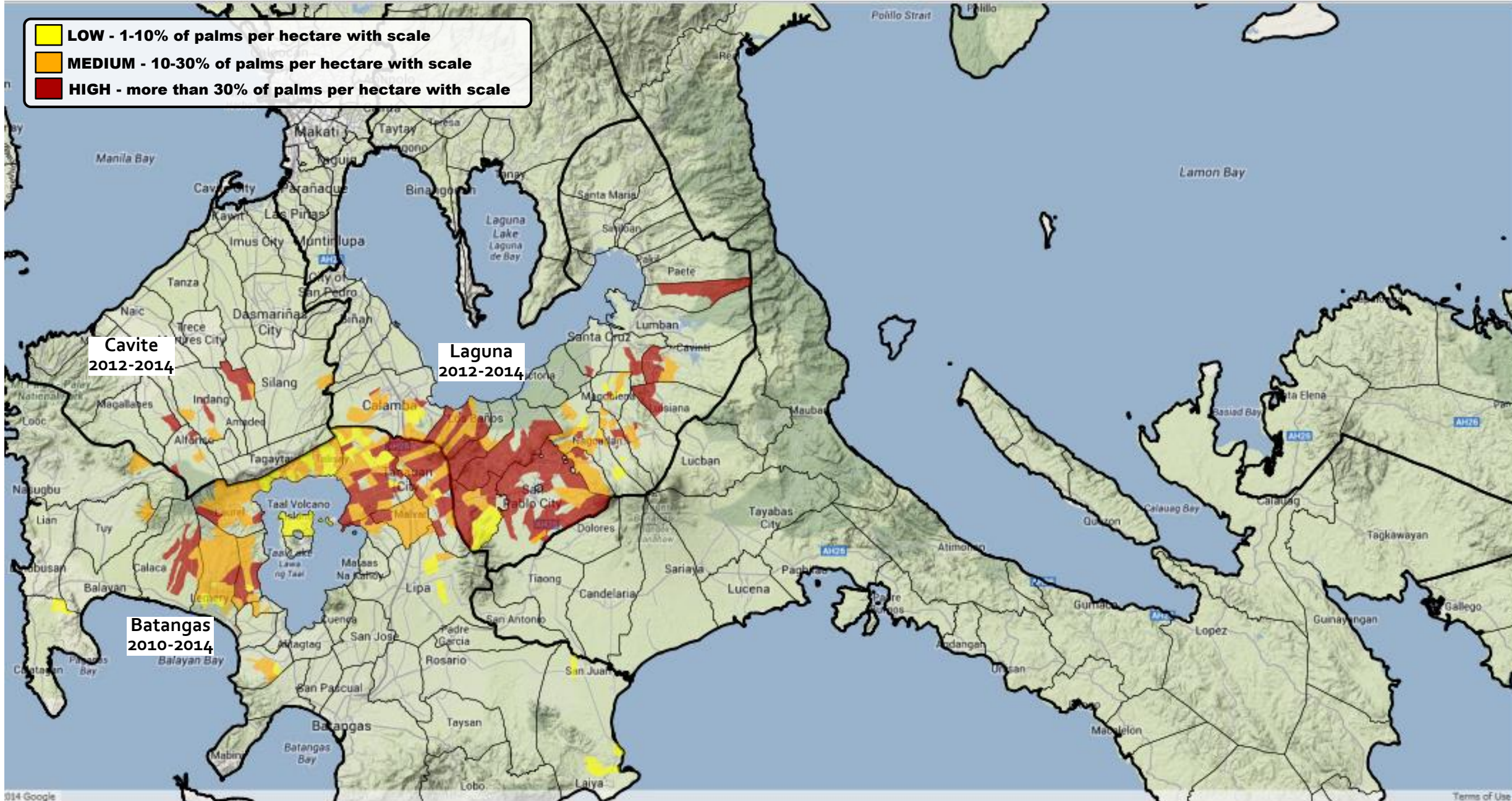
Source: PCA Survey
Reports, 2012-2014

SEVERITY RATING OF COCONUT SCALE INSECT (CSI)-INFESTATION IN CALABARZON

Infestation Level in the Farm based on PCA Survey (Year 2012-March 2014)

EVOLUTION OF INFESTATION

LOW - 1-10% of palms per hectare with scale
MEDIUM - 10-30% of palms per hectare with scale
HIGH - more than 30% of palms per hectare with scale

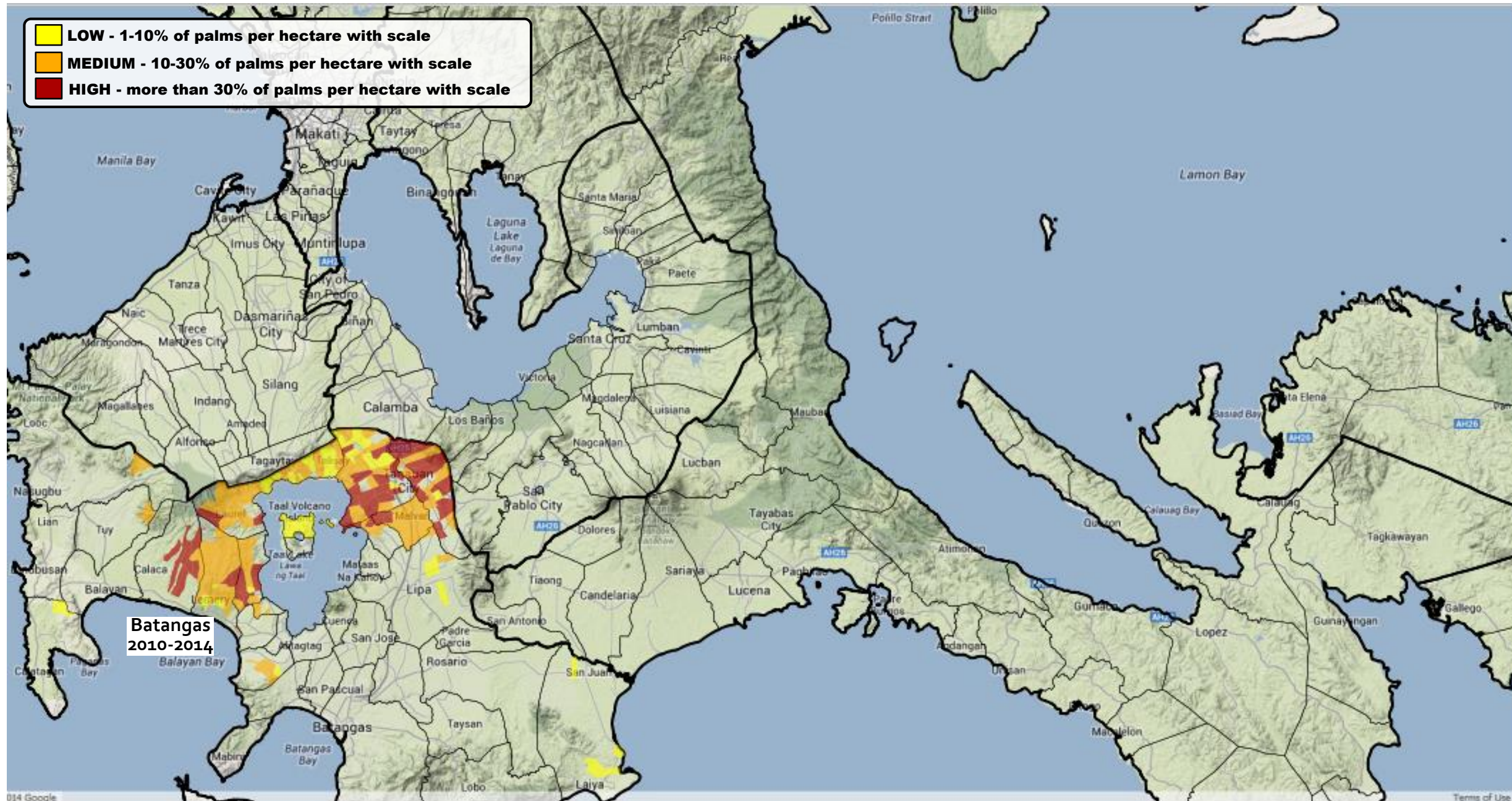


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SEVERITY RATING OF COCONUT SCALE INSECT (CSI)-INFESTATION IN CALABARZON

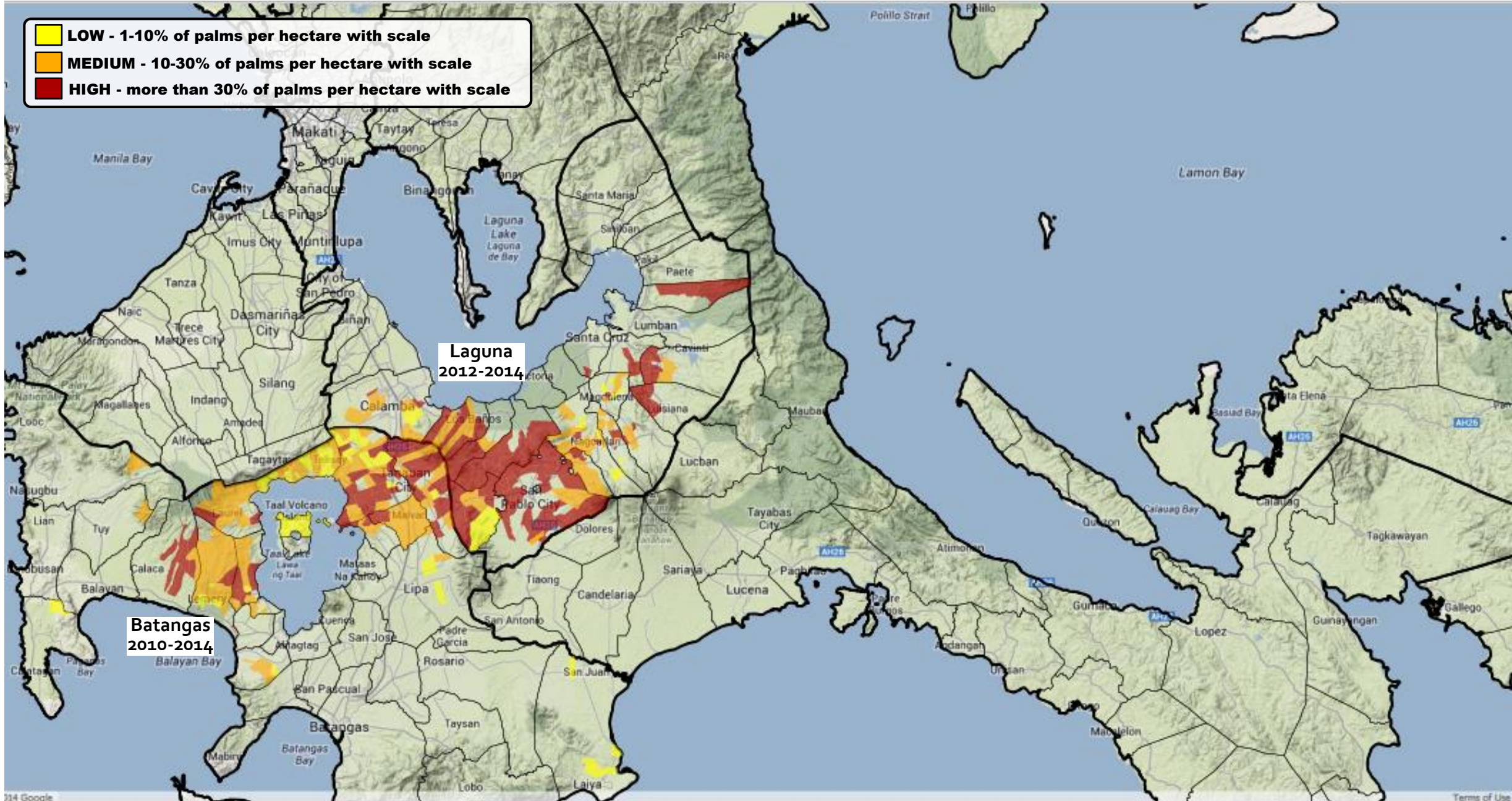
Infestation Level in the Farm based on PCA Survey (Year 2012-March 2014)

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- LOW** - 1-10% of palms per hectare with scale
- MEDIUM** - 10-30% of palms per hectare with scale
- HIGH** - more than 30% of palms per hectare with scale



SEVERITY RATING OF COCONUT SCALE INSECT (CSI)-INFESTATION IN CALABARZON

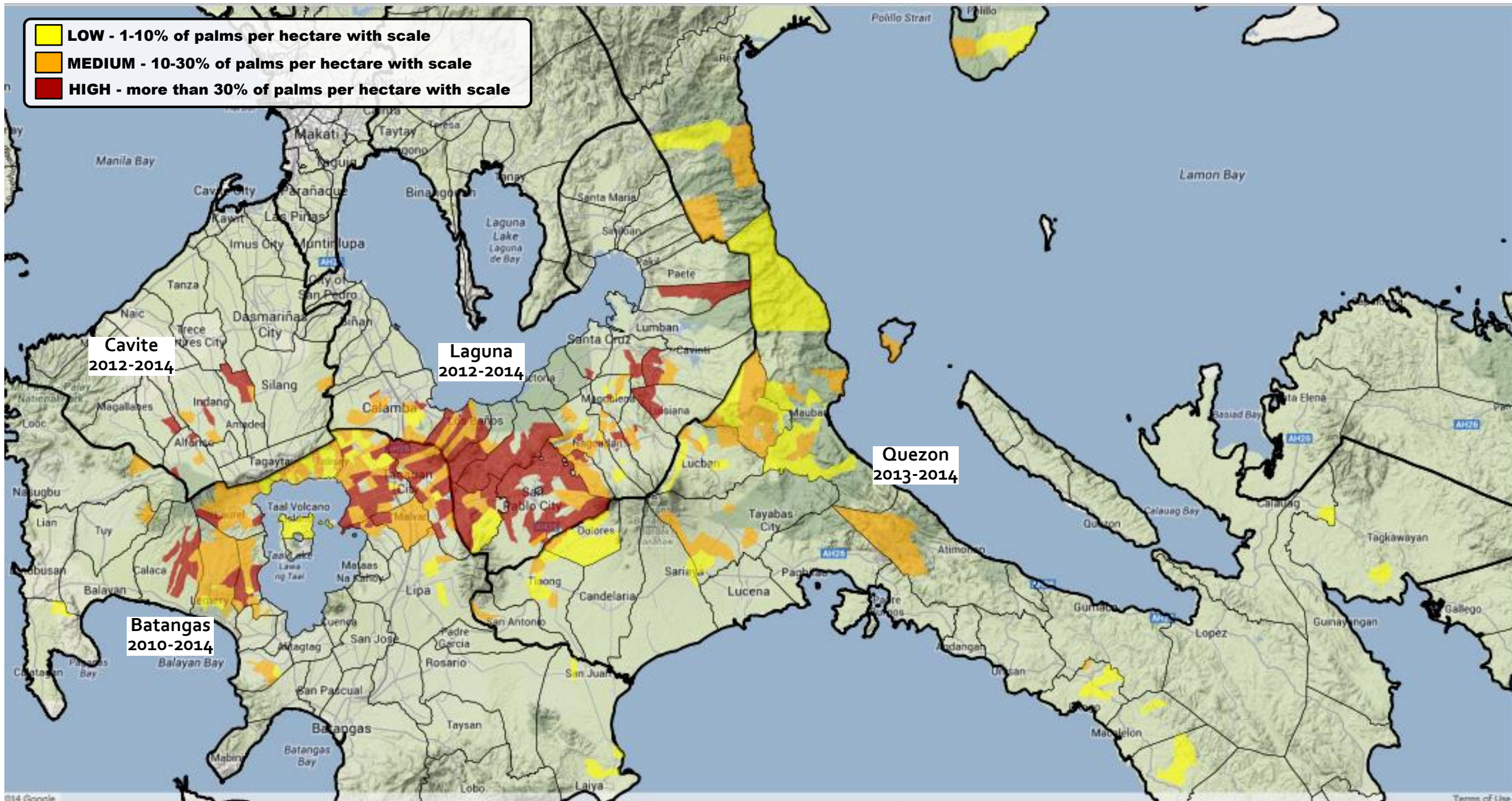
Infestation Level in the Farm based on PCA Survey (Year 2012-March 2014)

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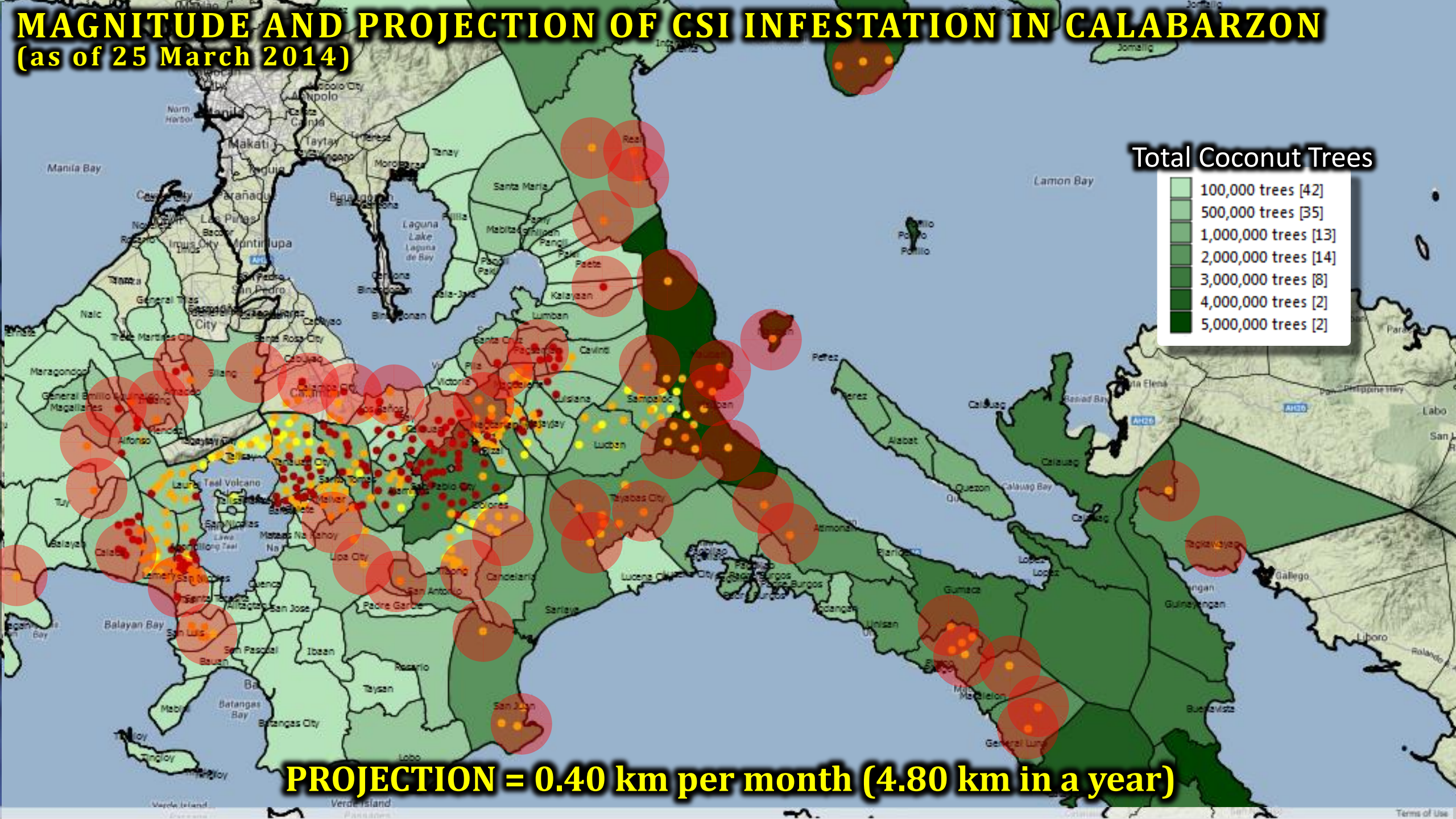
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- LOW** - 1-10% of palms per hectare with scale
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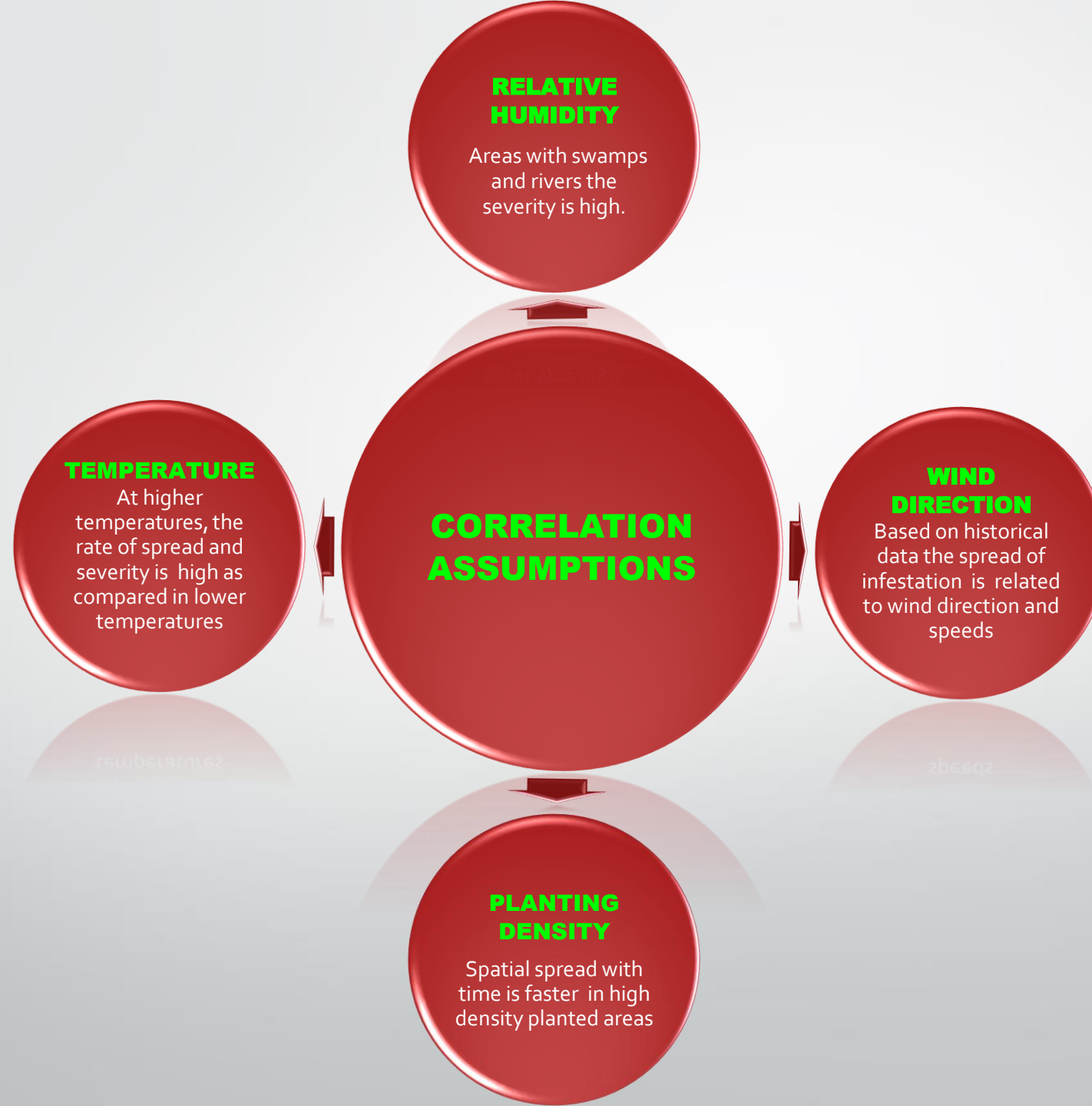
MAGNITUDE AND PROJECTION OF CSI INFESTATION IN CALABARZON (as of 25 March 2014)



PROJECTION = 0.40 km per month (4.80 km in a year)



CONTRIBUTORY FACTORS TO PEST INFESTATION AND OUTBREAKS



PEST INFESTATION STAGES

Early stage : starts with yellowing of lowermost leaves

Severe stage : Almost all leaves are dried up leaving only the youngest leaf green

Recovering stage : New green leaves are produced with at least 6-7 new green leaves with emerging inflorescence



What has been done? Why? and When?

Leaf Pruning and Mass Releases of biocontrol agents

Immediate and Ecologically safe

3rd Q of 2010-2012



Spraying of Banole Oil and Cochin

Safe spray to lower pest population

3rd Q of 2012-2013

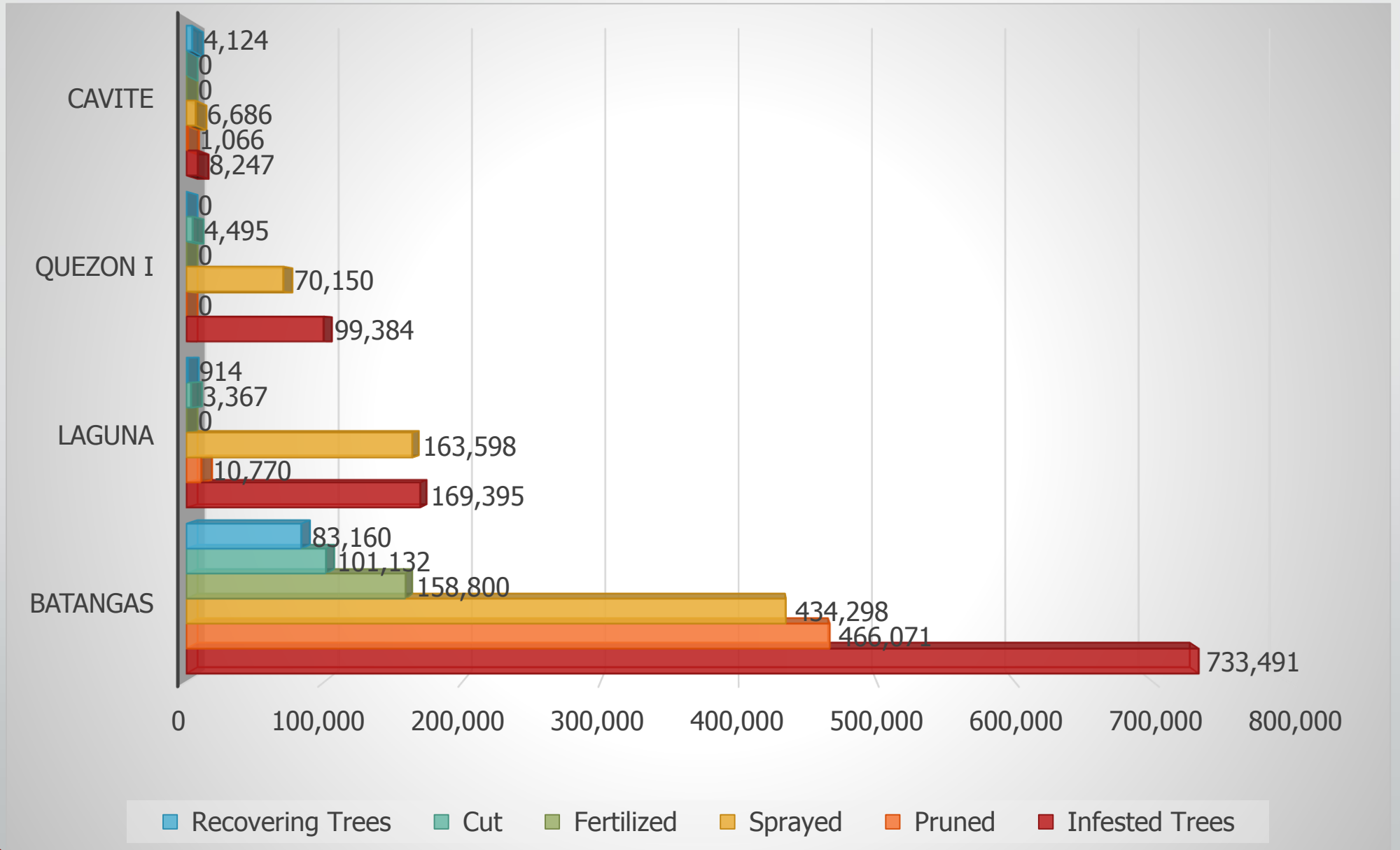


Creation of Task Force and Research Initiatives

Comprehensive and unified efforts

2nd and 3rd Q of 2013 up to present

ACCOMPLISHMENTS: *FIELD OPERATIONS* (2012-2013)



THE SICAP TASK FORCE

Scale Insect Comprehensive Action Program

PROGRAM ADVISORY GROUP
Chair: **Secretary Proceso Alcalá, DA**
Vice Chair: **Administrator Euclides Forbes, PCA**
Members:
Dr. Patricio Faylon, PCAARRD
Dr. Nicomedes Eleazar, DA-BAR
Dr. Clarito Barron, BPI
Dr. Norlito Gicana, FPA
Dr. Rex Victor Cruz, UPLB
Mr. Alfredo Gozales, CPAP

SCALE INSECT TASK FORCE
National Program Manager: **Erlene C. Manohar, PCA**
Finance Coordinator: **Fe A. Constantino, PCA**
Communications Coordinator: **Rochelle Gayagay, PCA**
Technical Staff: **Joselito Francisco and Vanessa Felices, PCA**

Operations and Support Services
Field Services and Operations
Lanie A. Lapitan, PCA

Scale Insect Comprehensive Research Team (SICRT)
Research and Development
R&D Manager: **Dr. Luis Rey I. Velasco, UPLB**
R & D Coordinator: **Dr. Jocelyn E. Eusebio, PCAARRD**

Technical Working and Management Group for Other High Value Crops
Dir. **Vilma Dimaculangan, DA-RFU IV-A**

Cluster A: SAGIP Field Operations
Bibiano Concibido Jr., PCA

Cluster A: Fertilization, Defoliation, Cultural
Dr. Gina Pangga, UPLB and Dr. Liberty Canja, PCA

Cluster B: Quarantine
Merle Palacpac, DA-BPI

Cluster B: Biological Control
Dr. Celia Medina, UPLB and Gil Manalo, PCA

Cluster C: Information Campaign
Dr. Theresa Velasco, UPLB and Arturo A. Alejar Jr., CPAP

Cluster C: Chemical Control
Dr. Celia Medina, UPLB

Cluster D: Surveillance and Quick Response
Alvin Ardeza, PCA and Dr. Ireneo Pangga, UPLB


Cluster D: Biology, Taxonomy and Ecology
Dr. Barbara Caoili and Sheryl Yap, UPLB
Joan Orense, PCA

Cluster E: Coconut-Based Farmers Field School
Marietta Perez, PCA and Susan Bacud, UPLB

Cluster E: Biotechnology
Dr. Reynaldo Eborá, UPLB and Dr. Cristeta Cueto, PCA


Field Operations
Provincial and Municipal
Agriculturists

Research and Development
RCPC, BPI Stations



SICAP GOAL: *“To restrict the spread and damage of Coconut Scale Insect using Science-based strategies; and helping the farmers through inter-agency and inter-sectoral collaboration.”*

OPERATIONS

- 
- 1.** Massive spraying operation of cochin in Batangas, Laguna and Cavite thru SAGIP (Sama-samang Aksyon ng Gobyerno, Industriya at Pamayanan (February 2013 – December 2013)
 - 2.** Surveillance and Quick Response Actions in high risk areas thru delimiting surveys (December 2013 up to present)
 - 3.** Mass production and releases of bio-control agents
 - 4.** Issuance and implementation of BPI Quarantine SO #01
 - 5.** Fertilization of recovering trees with Ammonium Sulfate
 - 6.** Establishment of 15 Farmers Field Schools and Information Dissemination thru IEC materials and local radio programs.



SICAP GOAL : *“ To restrict the spread and damage of Coconut Scale Insect using Science-based strategies; and helping the farmers through inter-agency and inter-sectoral collaboration.”*

RESEARCH

- 1.** Pest Mapping and Correlation Studies (PCAARRD funded)
- 2.** Biology and Taxonomic Identification (PCA funded)
- 3.** Evaluation of systemic pesticides and mode of delivery trials (PCAARRD funded)
- 4.** Development of pesticide assessment protocols (PCA funded)
- 5.** Field trials of non-chemical based pesticides (PCA, Private Sectors)
- 6.** Optimization of biocon agents mass production protocols (PCA, BPI)
- 7.** Collection and identification of biocon agents (PCA, UPLB)

SAGIP PROGRAM

- *A community-based pest management and information dissemination thru FFS*
- Massive spraying of cochin employing the local people of the affected barangays
- Establishment of mass production laboratories and inundative releases of predators.
- Collaborative efforts of LGU, Private Sectors, PCA and the communities.
- 870,000 trees sprayed in CALABARZON
- 260 spraymen from the barangays were hired during the operation
- An estimated 120,000 predators released in 25 municipalities.
- A total of 15 FFS established with a total of 350 farmer-participants completed the module



CHALLENGES AND LIMITATIONS

- **Encountered uncooperative and absentee farm-owners.**
- **Limited support from the LGUs and availability of manpower.**
- **Limited supply and lack of water in some areas particularly in high elevations**
- **Total dependence to the government support and the wait and see attitude**
- **Trees are high and some are senile with less production and spraying is not cost effective**
- **Difficulty in spraying residential and intercropped farms.**

REHABILITATION PROGRAM

- aims to improve the farm productivity thru replacement of senile and beyond recovery trees
- fertilize the existing and treated trees to enhance faster recovery
- augment farm income thru intercropping
- Nursery management of 150,000 sown in four municipalities seed nuts s of Batangas in collaboration with LGUs



Replanting



Fertilization



Intercropping

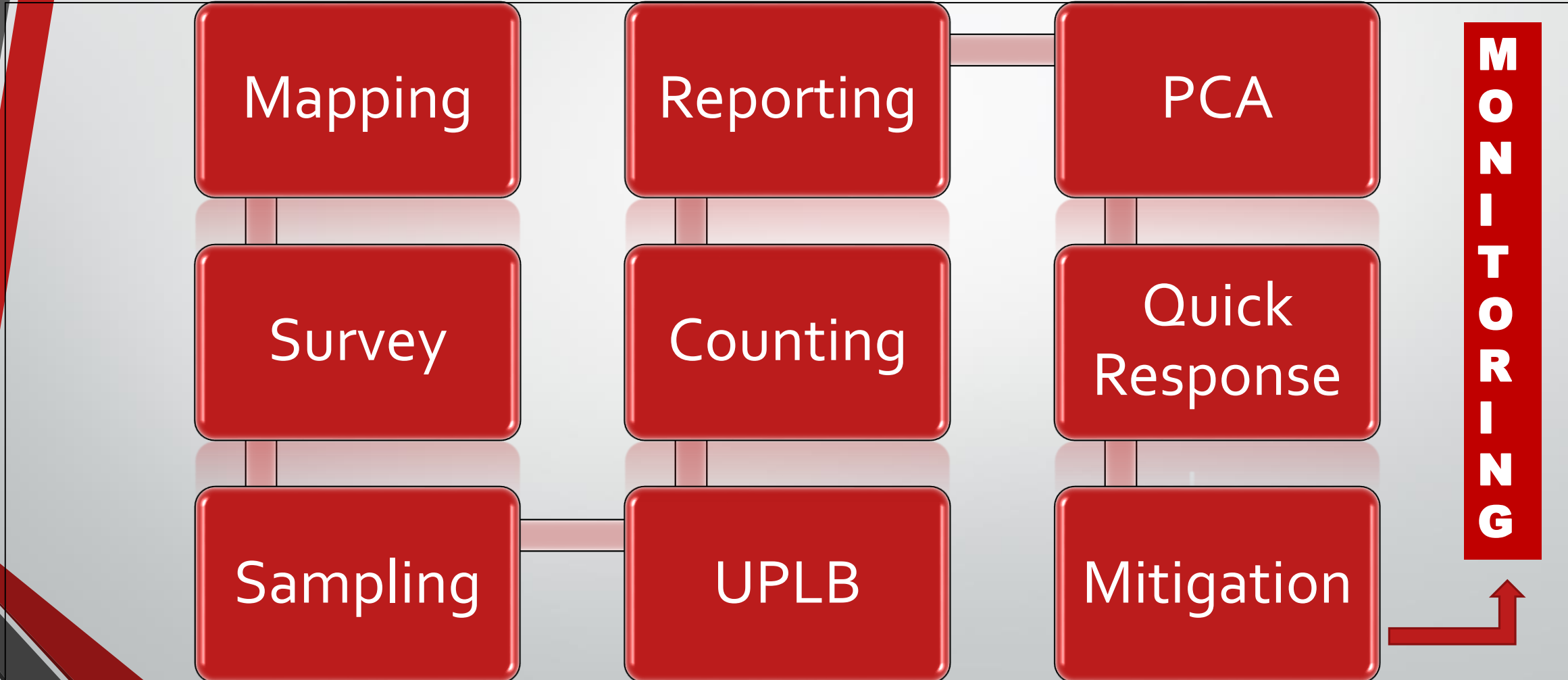
CHALLENGES AND LIMITATIONS

- Reluctant attitude to the replanting program due to the presence of cocolisap in the agroecosystem of CALABARZON.
- Diversion of fertilizer application to other crops and problem of labor requirement
- Mostly fruit trees preferred for intercropping are host plants and infested by other scale types.
- Lack of community efforts and declining interest in coconut farming.

SURVEILLANCE AND QUICK RESPONSE

- Based on quantum pest map zones, adjacent to infested areas and high risk areas should be subjected to delimiting survey.
- Delimiting surveys is conducted thru sampling of non-symptomatic trees using the UPLB sampling technique to determine presence, absence and pest population level.
- Sampled leaflets are being sent to UPLB for counting of lab aides and results were forwarded to PCA data center.
- Data center shall inform the Quick Response Team to implement the mitigating measures based on the severity of infestation.
- Treated trees are monitored by Agricultural Technicians for the assessment of the reaction to the mitigating measures

Process flow of surveillance and quick response action team



CHALLENGES AND LIMITATIONS

- Coverage of sampling size and difficulty in sampling due to the height of coconut.
- Difficulty in sampling in interior and remote areas
- Support and cooperation of farm owners and tenants in adopting quick response treatments
- Limited manpower and technical skills of field staff.

USE OF SYSTEMIC PESTICIDES

- Evaluation of registered systemic pesticides recommended for scale insect of other crops is on-going.
- Application to FPA for emergency use permit of evaluated systemic pesticides prior to massive utilization.
- Mode of application were tried such as trunk injection, soil drenching and drip method.
- Residue analysis of the pesticides level in the meat, water and leaves is required prior to massive use.
- Massive operation through contract arrangement with PACPA

CHALLENGES AND LIMITATIONS

- Limited options in using systemic pesticides for coconut.
- Expensive and limited data on the effectiveness of using other mode of application.
- Only trunk injection was proven to be effective for coconut in the pesticide mode of delivery

LESSONS LEARNED

- 1.** Promptness and regular monitoring of pest infestation and accurate identification
- 2.** Proactive quick response actions and cooperation among key players
- 3.** Strict implementation of the BPI-Quarantine Special Order # 1 was not immediate to restrict movement of infested plant parts.
- 4.** Basic R and D on invasive pests should be well-established.
- 5.** Intensive efforts of awareness drives should be effectively implemented.
- 6.** Operationalization of massive pest management action plans is a major problem due to the bureaucratic system.