

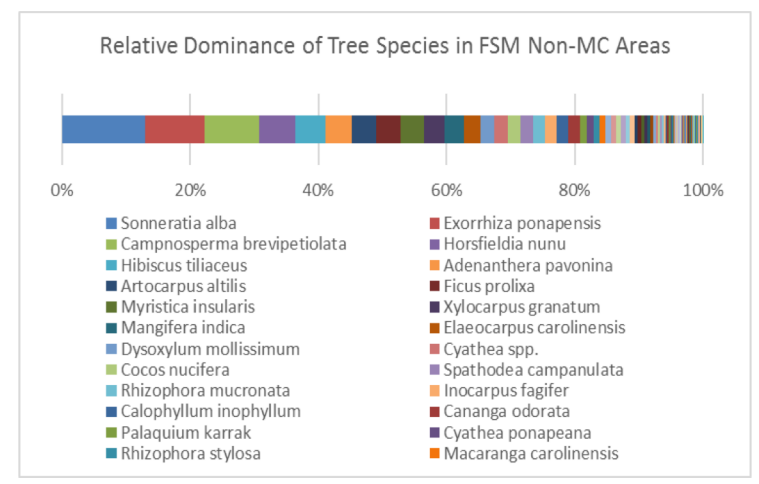
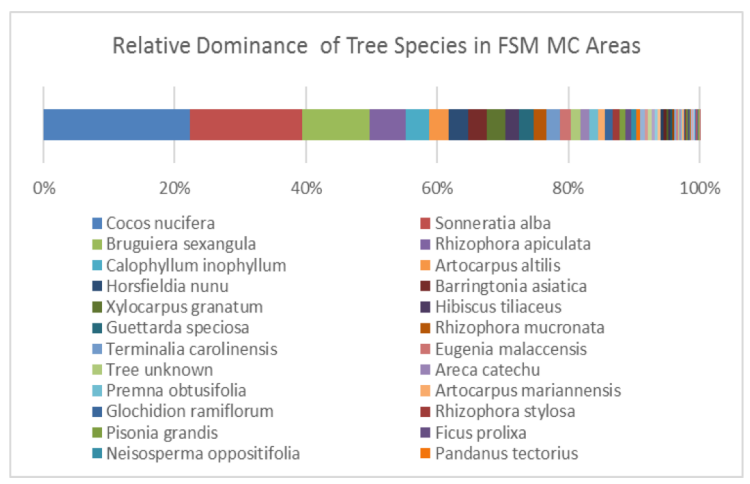
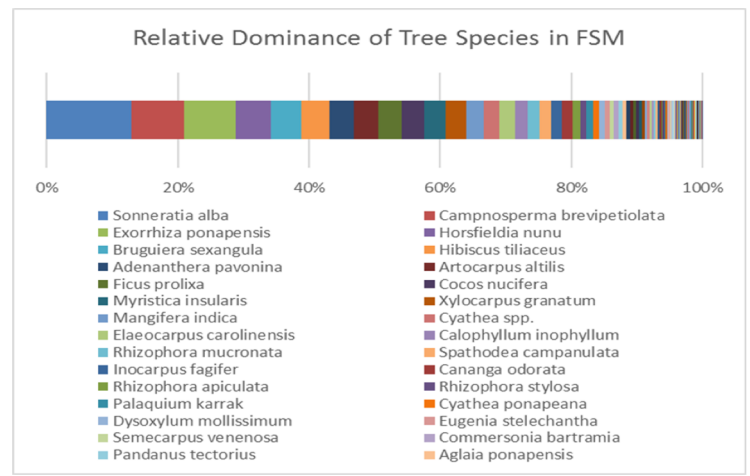


Forest Types

- 57% Lowland Tropical Rainforest
- 18% Agroforestry
- 17% Mangrove Swamps
- 5% Montane Rainforest
- 3% Strand Vegetation

Terrestrial Measures Indicator Summaries

Overarching goal: Provide a regional framework to assess the regional monitoring indicators that measure the status of managed conservation areas set aside under the Micronesia Challenge.

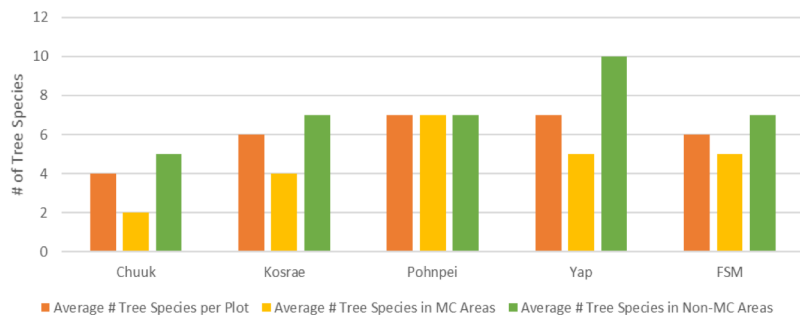




There are three main types of species diversity measures from FIA forest plots reported here:

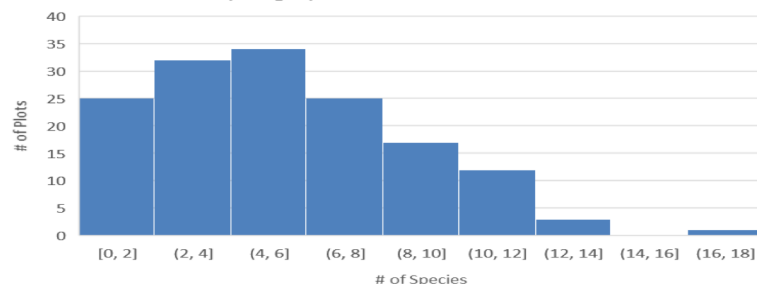
- Two are measures of species richness, or total numbers of plant species per area of interest.
- The third is relative dominance, which is a proportional indicator of the amount of wood each tree species contributes to the forest overall. One measure of species richness is the total number of tally trees, meaning the shrubs and trees which are at least 1 inch in diameter at breast height (DBH). The other is the total number of vascular plant species occurring on forest plots, which includes ferns, forbs, herbs, orchids, grasses, vines, shrubs, trees, and seedlings.

Average Tree Species Richness Per Plot in FSM



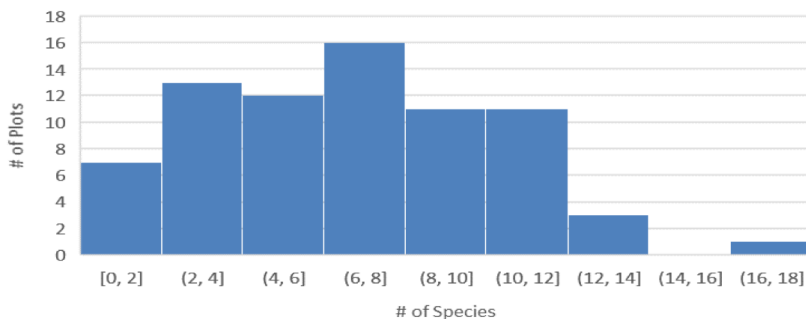
Average # of species per plot = 5.9 (SD=3.3)

Tree and Sapling Species Richness Per Plot in FSM



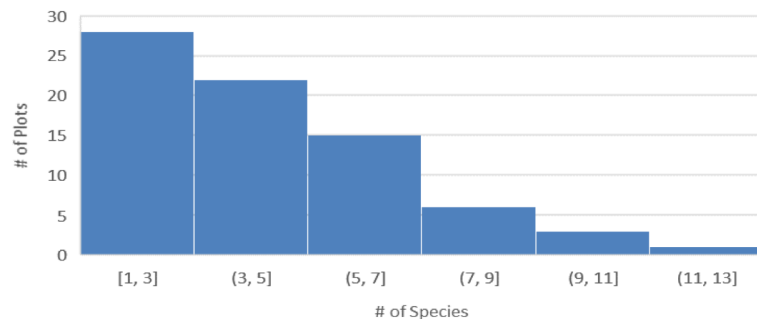
Average species richness per plot = 7.1 (SD = 3.6)

Tree and Sapling Species Richness Per Plot in FSM Non-MC Areas

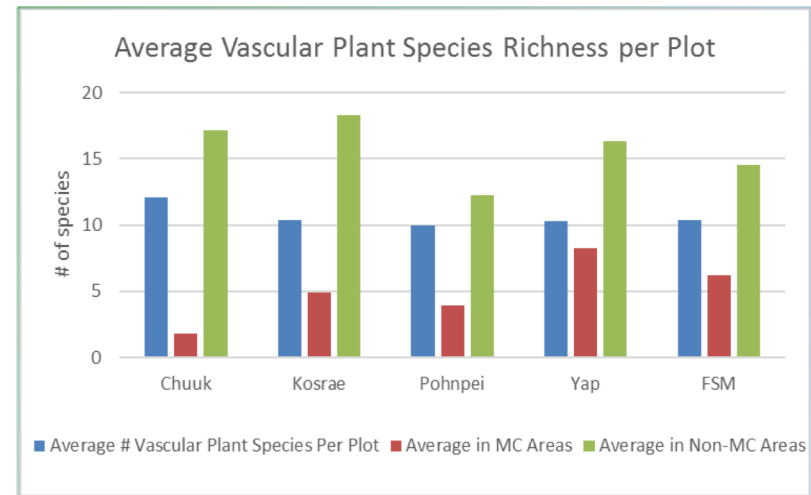
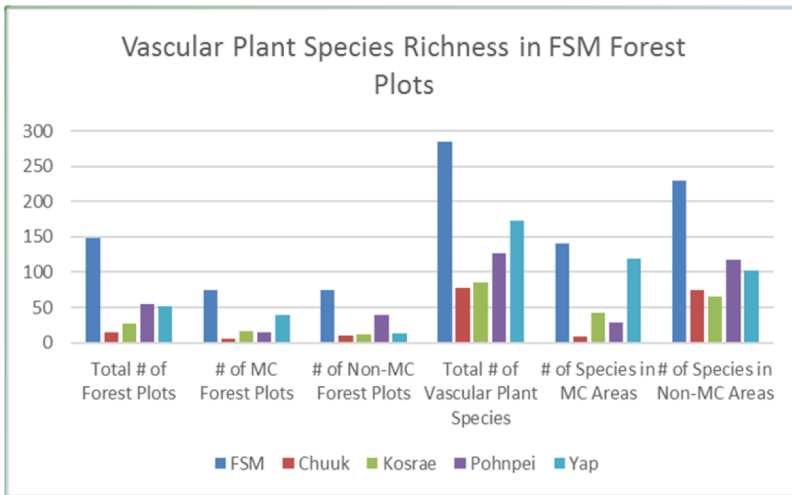
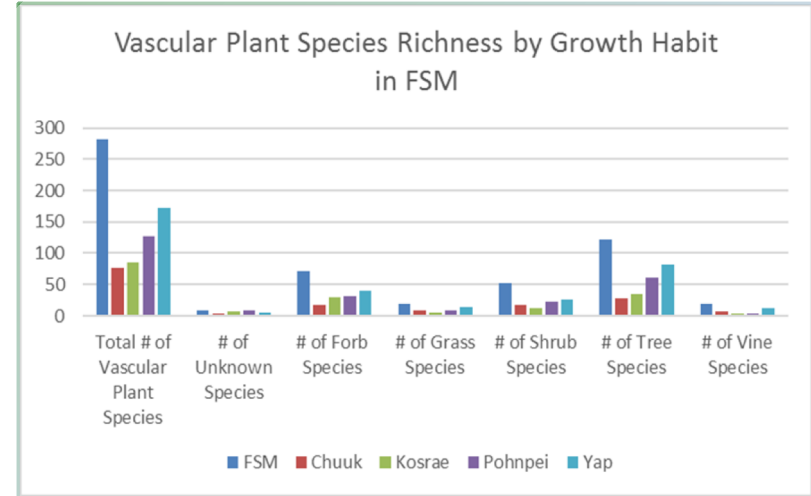
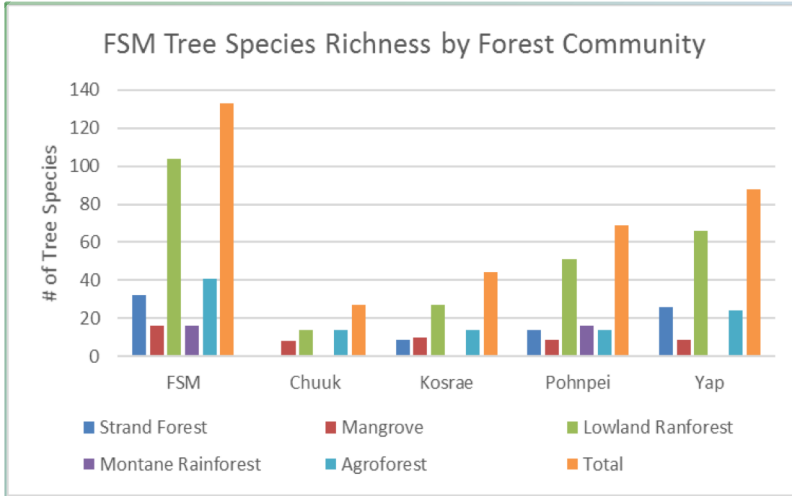


Average tree species richness per plot = 4.7 (SD = 2.5)

Tree and Sapling Species Richness per Plot in FSM MC Areas



Federated States of Micronesia Species Diversity



Federated States of Micronesia

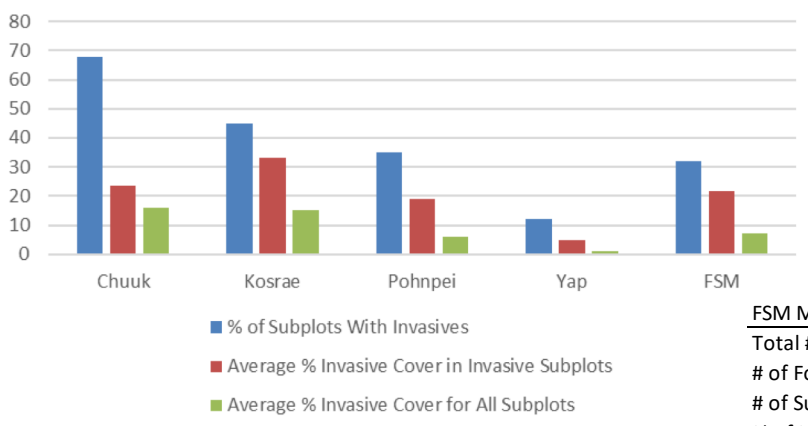
Invasive Plants



Comparison of invasive subplot summaries for the FSM and its four states

	Chuuk	Kosrae	Pohnpei	Yap	FSM
Total # of Invasive Species	10	10	9	7	20
# of Forested Subplots	57	98	192	180	527
# of Mangrove Subplots	14	37	58	18	127
# of Subplots With Invasives	39	44	67	21	171
% of Invasive Subplots	68	45	35	12	32
Average % Invasive Cover in Invasive Subplots	23	33	19	5	22
Average % Invasive Cover for All Subplots	16	15	6	1	7

Invasive Subplots in FSM



Comparison of invasive subplot summaries in MC and Non-MC areas in the FSM and its four states

FSM Micronesia Challenge Areas	Chuuk	Kosrae	Pohnpei	Yap	FSM
Total # of invasive species in invasive subplots	2	8	1	4	10
# of Forested Subplots	19	55	52	132	258
# of Subplots with invasives	8	7	4	8	27
% of Invasive subplots	42%	13%	8%	6%	10%
Average % invasive cover in subplots with invasives	24%	54%	10%	4%	24%
Average % invasive cover for all MC Area subplots	10%	7%	1%	0.2%	2%
FSM Non-MC Areas	Chuuk	Kosrae	Pohnpei	Yap	FSM
Total # of invasive species in invasive subplots	10	6	9	7	16
# of Forested Subplots	38	43	140	48	269
# of Subplots with invasives	31	37	63	13	144
% of Invasive subplots	82%	86%	45%	27%	53%
Average % invasive cover in subplots with invasives	23%	27%	19%	6%	21%
Average % invasive cover for all Non-MC Area subplots	19%	24%	9%	2%	11%



All invasive plant species, % occurrence and average % cover in FSM invasive subplots

Species Name	# of Subquads Present	% Occurrence	Average % Cover
Merremia peltata	123	23%	18
Costus speciosus	69	13%	7
Chromolaena odorata	33	6%	5
Spathodea campanulata	13	2%	25
Hedychium coronarium	11	2%	4
Momordica charantia	10	2%	5
Sphagneticola trilobata	7	1%	5
Lantana camara	6	1%	3
Clerodendrum quadriloculare	5	1%	14
Leucaena leucocephala	4	1%	4
Coccinia grandis	3	1%	15
Falcataria moluccana	3	1%	33
Mimosa diplotricha	2	0%	3
Dieffenbachia seguine	1	0%	18
Mimosa pudica	1	0%	5
Phragmites karka	1	0%	3
Saccharum	1	0%	6
2PLANT	1	0%	10
2TREE	1	0%	10
2SHRUB	1	0%	15



Comparison of most common invasive plant species in MC and Non-MC areas in the FSM and its four states

FSM Micronesia Challenge Areas	Chuuk	Kosrae	Pohnpei	Yap	FSM
Most common invasive species	Merremia peltata	Merremia peltata	Chromolaena odorata	Merremia peltata	Merremia peltata
Occurrence (%) in all subquads	42%	11%	8%	3%	7%
Average % cover	19%	45%	10%	5%	23%
Second most common invasive species	Chromolaena odorata	Costus speciosus		Costus speciosus	Chromolaena odorata
Occurrence (%) in all subquads	21%	7%		3%	3%
Average % cover	9%	12%		2%	8%
FSM Non-MC Areas	Chuuk	Kosrae	Pohnpei	Yap	FSM
Most common invasive species	Merremia peltata	Merremia peltata	Costus speciosus	Costus speciosus	Merremia peltata
Occurrence (%) in all subquads	71%	88%	26%	15%	39%
Average % cover	20%	24%	8%	1%	17%
Second most common invasive species	Momordica charantia	Costus speciosus	Merremia peltata	Merremia peltata	Costus speciosus
Occurrence (%) in all subquads	24%	37%	24%	10%	23%
Average % cover	5%	10%	11%	6%	7%

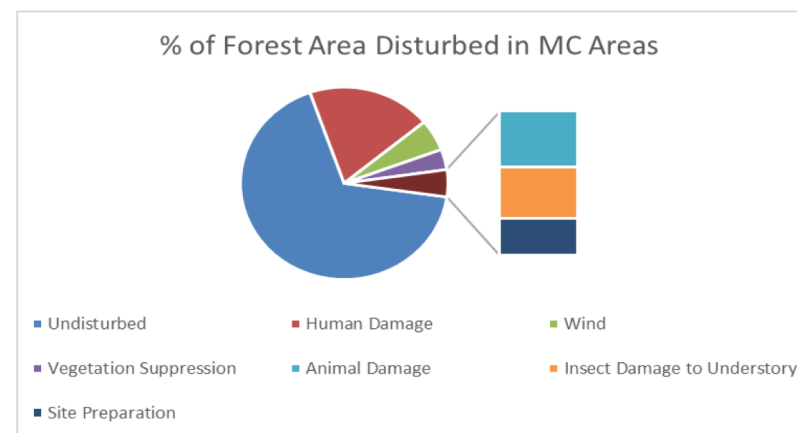
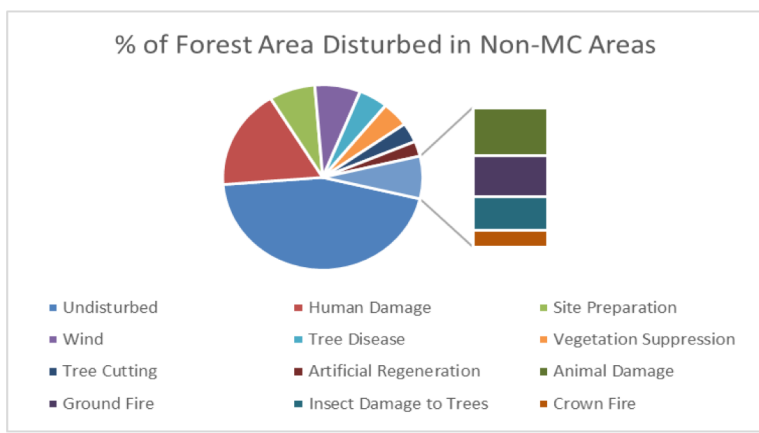
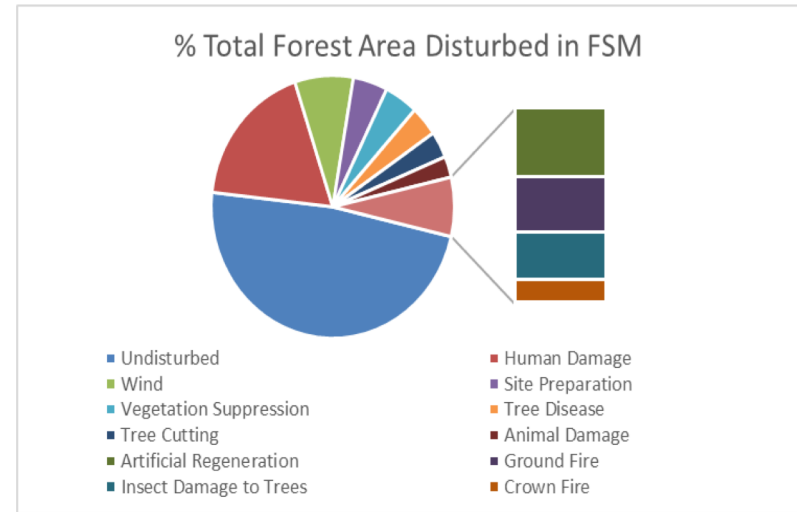
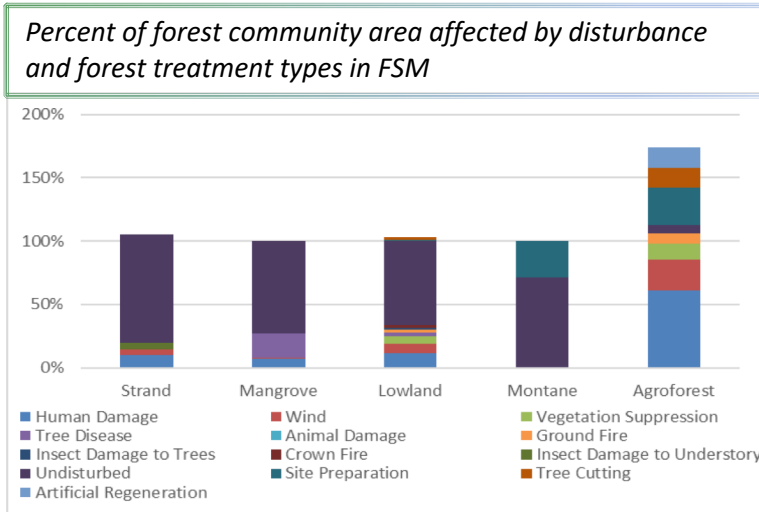
Number of invasive tree species and % of all estimated trees in FSM and its four states

	Chuuk	Kosrae	Pohnpei	Yap	FSM
Total Invasive Tree Species	1	1	2	0	3
% of Total Trees That Are Invasive	23%	2%	5%	0%	5%
Invasive Tree Species in MC Areas	0	1	0	0	1
% of Trees That are Invasive in MC Areas	0%	0.30%	0%	0%	0.05%
Invasive Tree Species in Non-MC Areas	1	1	2	0	3
% of Trees That are Invasive in Non-MC Areas	24%	3%	5%	0%	6%



Disturbance

The FIA protocol records disturbances (from animals, weather, vegetation, fires, & general human activity) of 1 acre in size or larger, or that affect 25% or more of all trees or 50% or more of a single tree species on each forest condition sampled per plot. Up to three disturbances and three treatments can be recorded per forest condition.



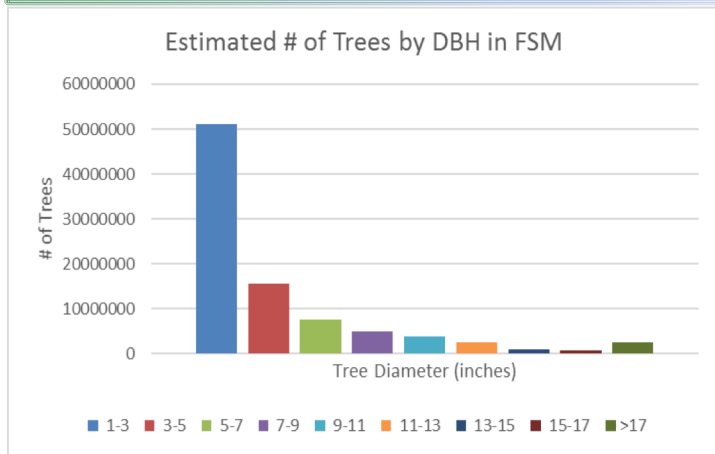
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Forest Structure

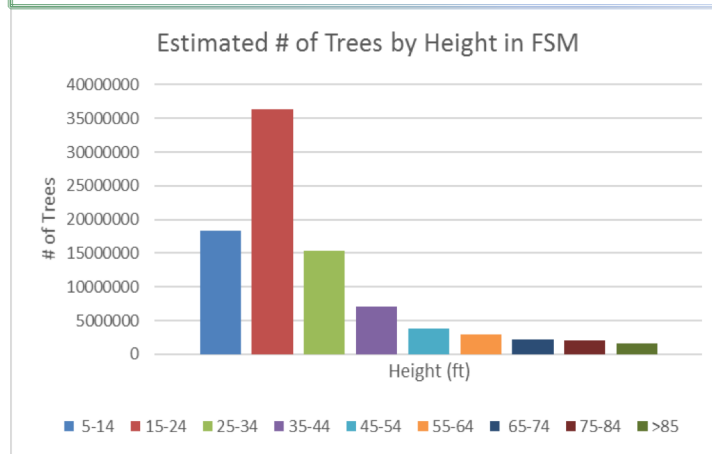


There are five measures of forest structure summarized here. These include the total estimated number of trees and saplings by diameter at breast height (DBH) and by height, the average DBH and height of trees and saplings per plot, and the stem density per plot and per acre.

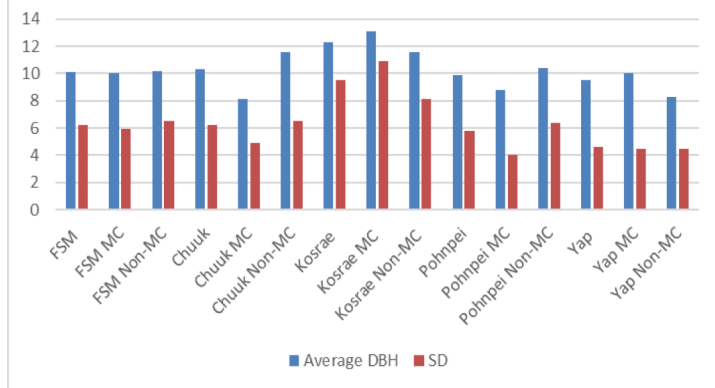
Average DBH of estimated trees = 4.6 inches and quadratic mean diameter (QMD) = 6.8 inches.



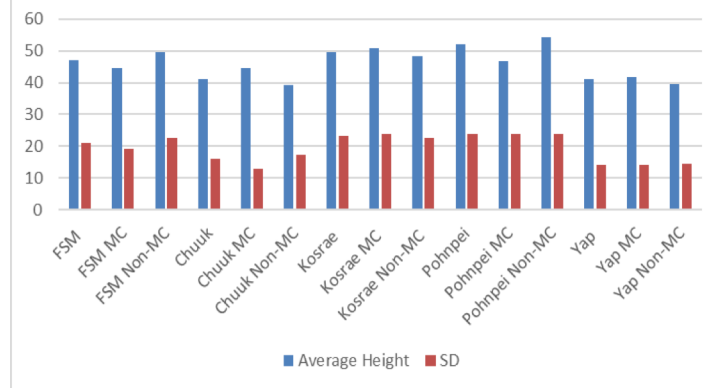
Average height of estimated trees = 27.7 feet.

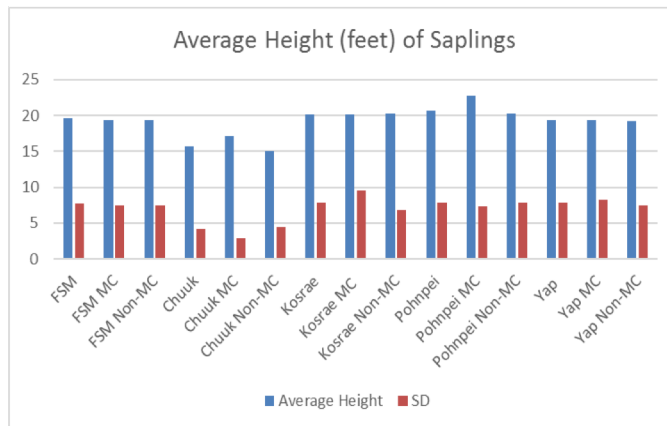
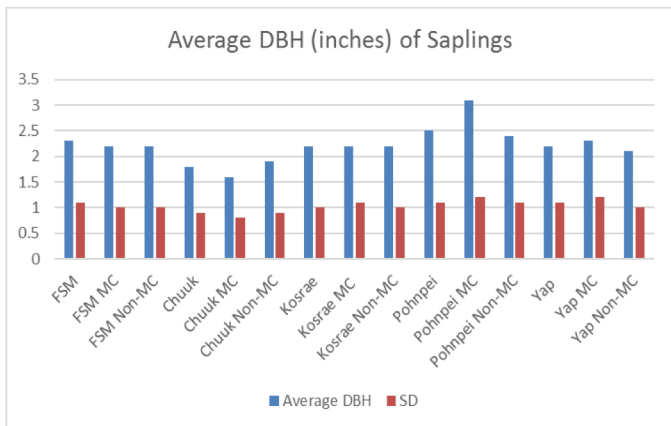


Average DBH (inches) of Trees

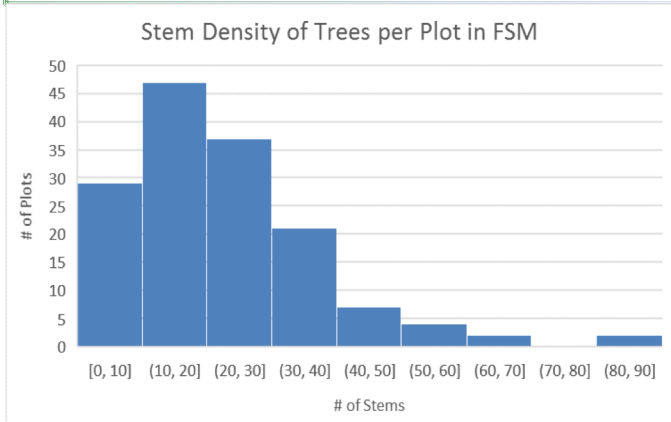


Average Height (feet) of Trees

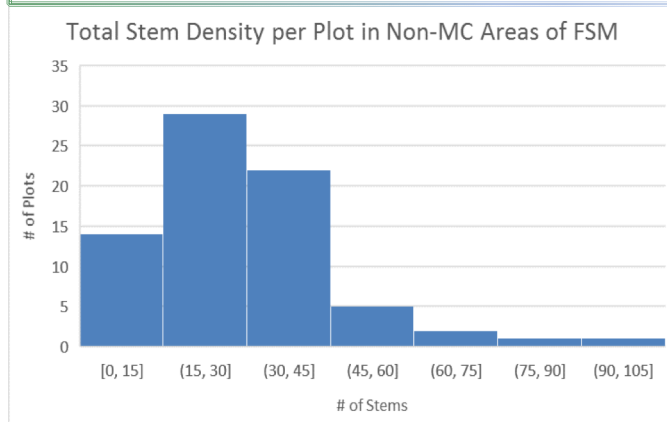




Average stem density = 27.0 (SD = 16.3)



Average stem density = 29.5 (SD = 17.8)



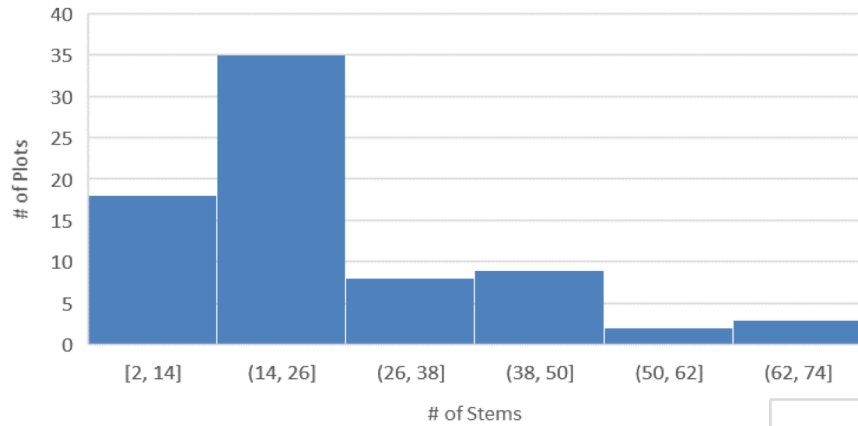
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Forest Structure

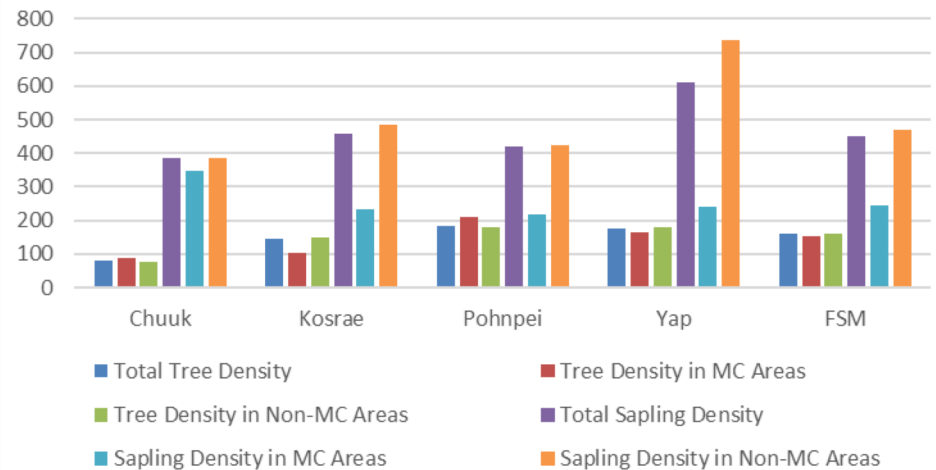


Average stem density = 24.6 (SD = 14.5)

Total Stem Density per Plot in MC Areas of FSM

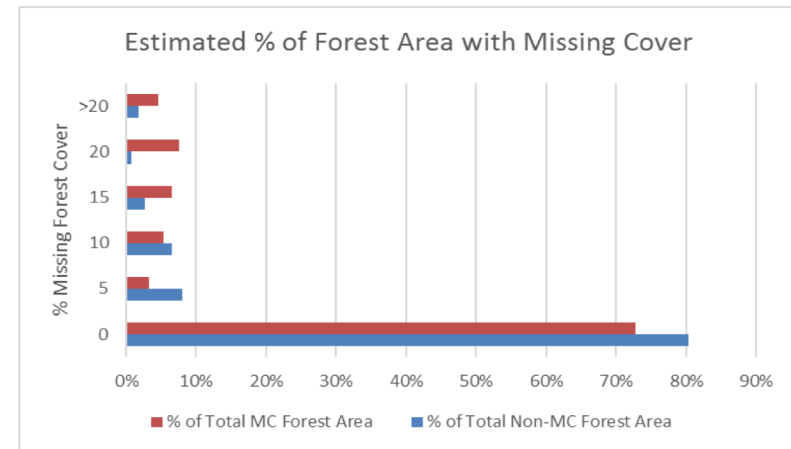
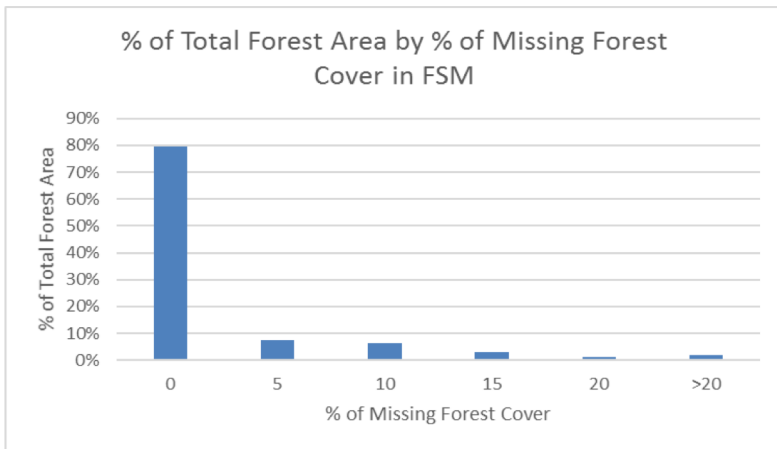
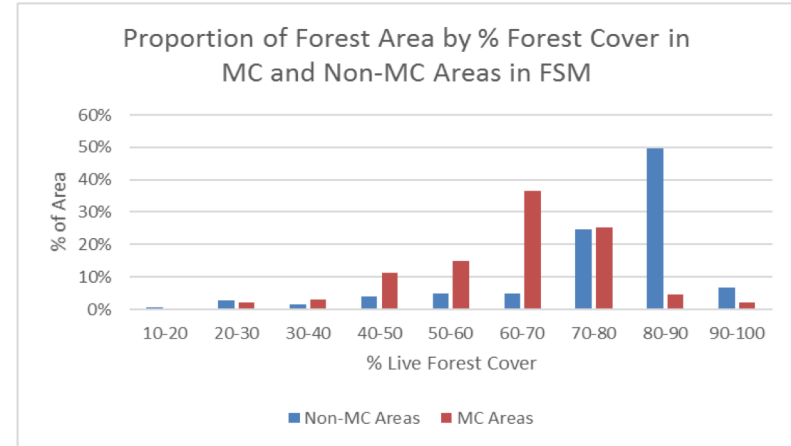
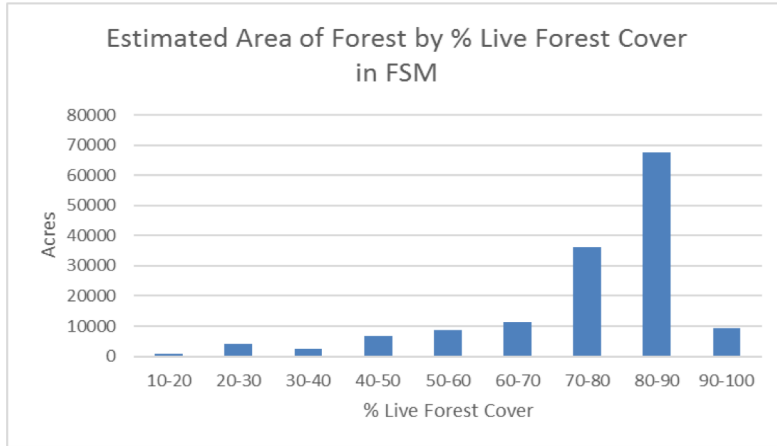


Stem Density of Subplots and Microplots in FSM





Forest Cover



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Tree Abundance



Abundance (estimated % of all trees) of tree species in FSM. Of 133 total species, 31 species listed here comprise 1% or more of the population, and 102 species not listed here comprise <1%.

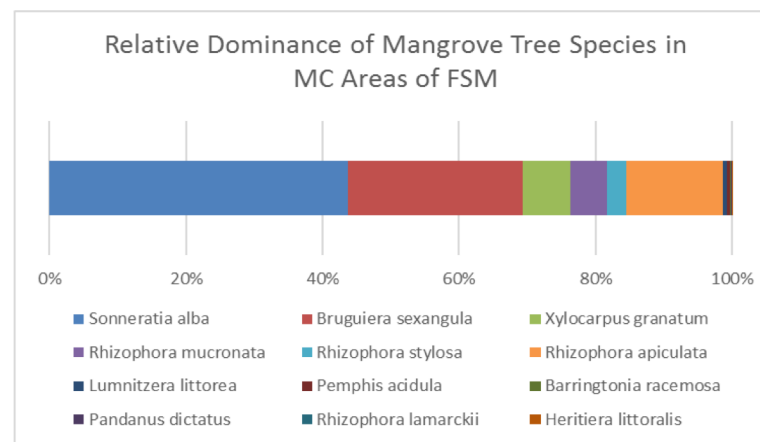
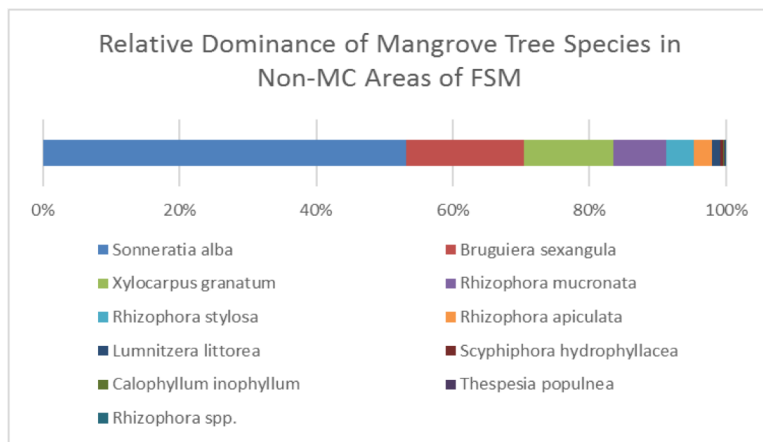
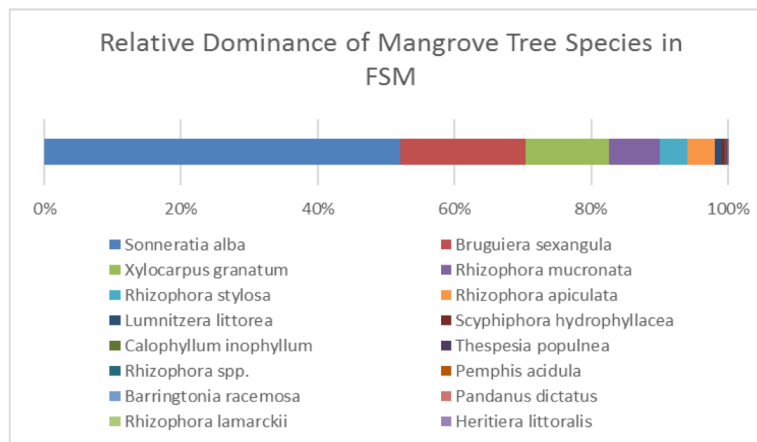
GENUS	SPECIES	% of Total Trees
<i>Hibiscus</i>	<i>tiliaceus</i>	12.6%
<i>Eugenia</i>	<i>stelechantha</i>	6.6%
<i>Pandanus</i>	<i>cominsii</i>	5.3%
<i>Exorrhiza</i>	<i>ponapensis</i>	4.9%
<i>Aglaia</i>	<i>ponapensis</i>	4.8%
<i>Cyathea</i>	<i>spp.</i>	4.2%
<i>Adenanthera</i>	<i>pavonina</i>	3.2%
<i>Cananga</i>	<i>odorata</i>	2.7%
<i>Bruguiera</i>	<i>sexangula</i>	2.7%
<i>Rhizophora</i>	<i>stylosa</i>	2.3%
<i>Spathodea</i>	<i>campanulata</i>	2.2%
<i>Artocarpus</i>	<i>altilis</i>	2.0%
<i>Macaranga</i>	<i>carolinensis</i>	1.9%
<i>Camptosperma</i>	<i>brevipetiolata</i>	1.8%
<i>Horsfieldia</i>	<i>nunu</i>	1.7%
<i>Morinda</i>	<i>citrifolia</i>	1.6%
<i>Rhizophora</i>	<i>apiculata</i>	1.6%
<i>Pandanus</i>	<i>tectorius</i>	1.5%
<i>Glochidion</i>	<i>spp.</i>	1.4%
<i>Atuna</i>	<i>racemosa</i>	1.4%
<i>Sonneratia</i>	<i>alba</i>	1.3%
<i>Antidesma</i>	<i>kusaiense</i>	1.3%
<i>Myristica</i>	<i>insularis</i>	1.2%
<i>Cocos</i>	<i>nucifera</i>	1.2%
<i>Ficus</i>	<i>copiosa</i>	1.1%
<i>Barringtonia</i>	<i>racemosa</i>	1.1%
<i>Cyathea</i>	<i>ponapeana</i>	1.0%
<i>Syzygium</i>	<i>carolinense</i>	1.0%
<i>Rhizophora</i>	<i>mucronata</i>	1.0%
<i>Premna</i>	<i>spp.</i>	1.0%
<i>Scaevola</i>	<i>taccada</i>	1.0%

Abundance (estimated % of all trees) of tree species in Non-MC areas and MC areas of FSM. Of 105 total species in Non-MC areas, 27 species listed here comprise 1% or more of the population, and 78 species not listed here comprise <1%. Of 72 total species in MC areas, 27 species listed here comprise 1% or more of the population, and 45 species not listed here comprise <1%.

Non-MC Areas			MC Areas		
GENUS	SPECIES	% of Total Trees	GENUS	SPECIES	% of Total Trees
<i>Hibiscus</i>	<i>tiliaceus</i>	12.3%	<i>Rhizophora</i>	<i>apiculata</i>	15.3%
<i>Eugenia</i>	<i>stelechantha</i>	7.6%	<i>Bruguiera</i>	<i>sexangula</i>	11.8%
<i>Pandanus</i>	<i>cominsii</i>	6.1%	<i>Cocos</i>	<i>nucifera</i>	8.2%
<i>Exorrhiza</i>	<i>ponapensis</i>	5.5%	<i>Areca</i>	<i>catechu</i>	5.0%
<i>Aglaia</i>	<i>ponapensis</i>	5.4%	<i>Hibiscus</i>	<i>tiliaceus</i>	4.5%
<i>Cyathea</i>	<i>spp.</i>	4.7%	<i>Rhizophora</i>	<i>mucronata</i>	4.2%
<i>Adenanthera</i>	<i>pavonina</i>	3.6%	<i>Glochidion</i>	<i>ramiflorum</i>	3.8%
<i>Cananga</i>	<i>odorata</i>	3.1%	<i>Horsfieldia</i>	<i>nunu</i>	3.0%
<i>Rhizophora</i>	<i>stylosa</i>	2.5%	<i>Morinda</i>	<i>citrifolia</i>	2.7%
<i>Spathodea</i>	<i>campanulata</i>	2.4%	<i>Artocarpus</i>	<i>mariannensis</i>	2.5%
<i>Bruguiera</i>	<i>sexangula</i>	2.2%	<i>Artocarpus</i>	<i>altilis</i>	2.3%
<i>Artocarpus</i>	<i>altilis</i>	2.1%	<i>Aidia</i>	<i>cochinchinensis</i>	2.2%
<i>Macaranga</i>	<i>carolinensis</i>	2.1%	<i>Sonneratia</i>	<i>alba</i>	2.2%
<i>Camptosperma</i>	<i>brevipetiolata</i>	2.0%	<i>Neisosperma</i>	<i>oppositifolia</i>	2.1%
<i>Horsfieldia</i>	<i>nunu</i>	1.8%	<i>Premna</i>	<i>obtusifolia</i>	2.1%
<i>Morinda</i>	<i>citrifolia</i>	1.7%	<i>Garcinia</i>	<i>rumiyo</i>	1.9%
<i>Pandanus</i>	<i>tectorius</i>	1.7%	<i>Rhizophora</i>	<i>stylosa</i>	1.9%
<i>Antidesma</i>	<i>kusaiense</i>	1.4%	<i>Macaranga</i>	<i>carolinensis</i>	1.8%
<i>Myristica</i>	<i>insularis</i>	1.4%	<i>Tree</i>	<i>unknown</i>	1.7%
<i>Sonneratia</i>	<i>alba</i>	1.4%	<i>Semecarpus</i>	<i>venenosa</i>	1.5%
<i>Ficus</i>	<i>copiosa</i>	1.3%	<i>Pandanus</i>	<i>cominsii</i>	1.2%
<i>Cyathea</i>	<i>ponapeana</i>	1.2%	<i>Pandanus</i>	<i>tectorius</i>	1.2%
<i>Premna</i>	<i>spp.</i>	1.2%	<i>Inocarpus</i>	<i>fagifer</i>	1.2%
<i>Scyphiphora</i>	<i>hydrophyllacea</i>	1.1%	<i>Syzygium</i>	<i>spp.</i>	1.1%
<i>Barringtonia</i>	<i>racemosa</i>	1.1%	<i>Ficus</i>	<i>copiosa</i>	1.0%
<i>Elaeocarpus</i>	<i>carolinensis</i>	1.0%	<i>Premna</i>	<i>serratifolia</i>	1.0%
<i>Syzygium</i>	<i>carolinense</i>	1.0%	<i>Dendrocnide</i>	<i>latifolia</i>	1.0%



Tree Abundance



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