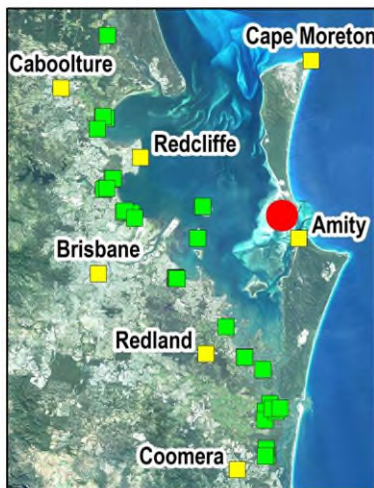
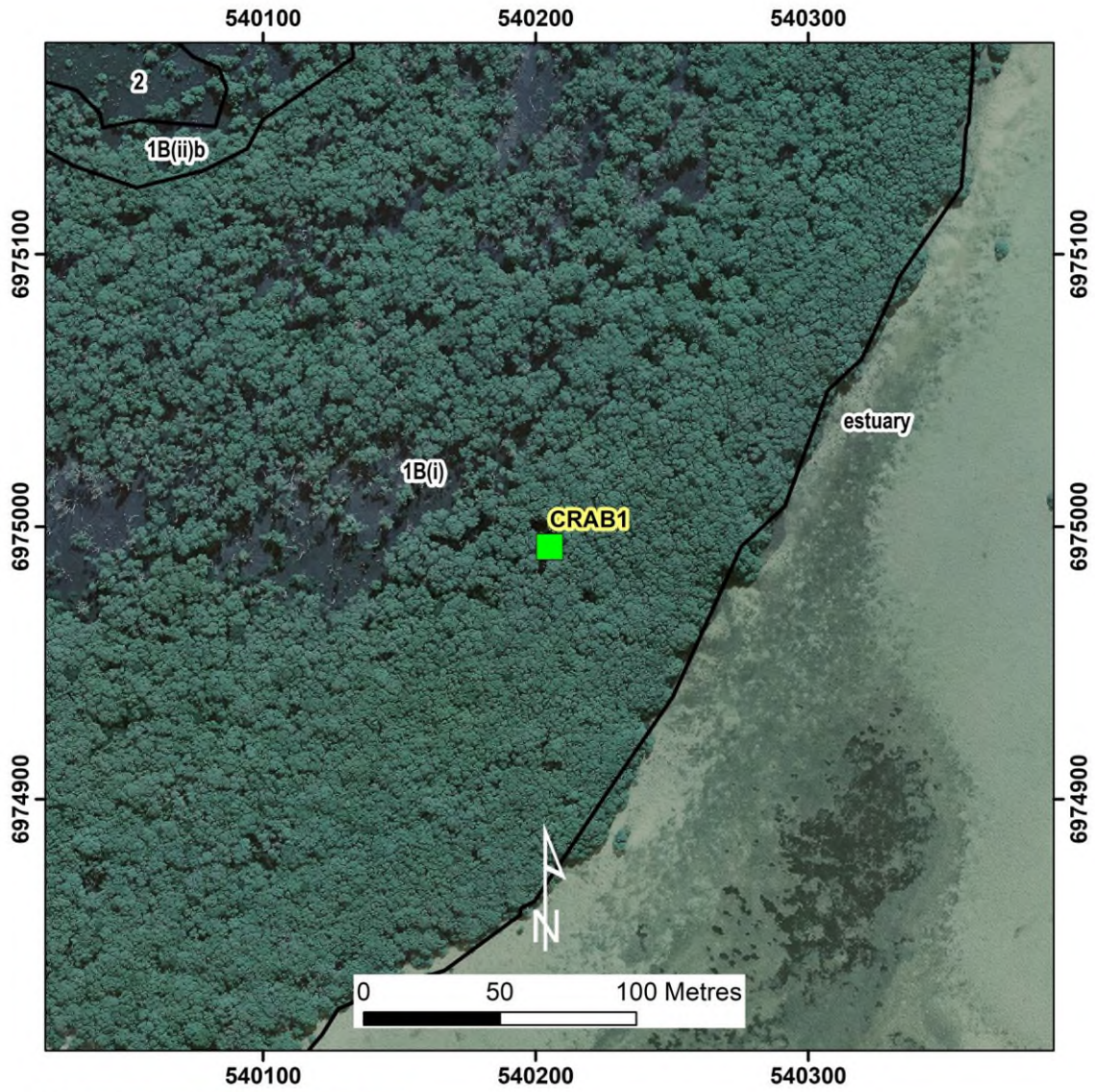


# Crab Island (site ID = CRAB1) Low Closed Forest



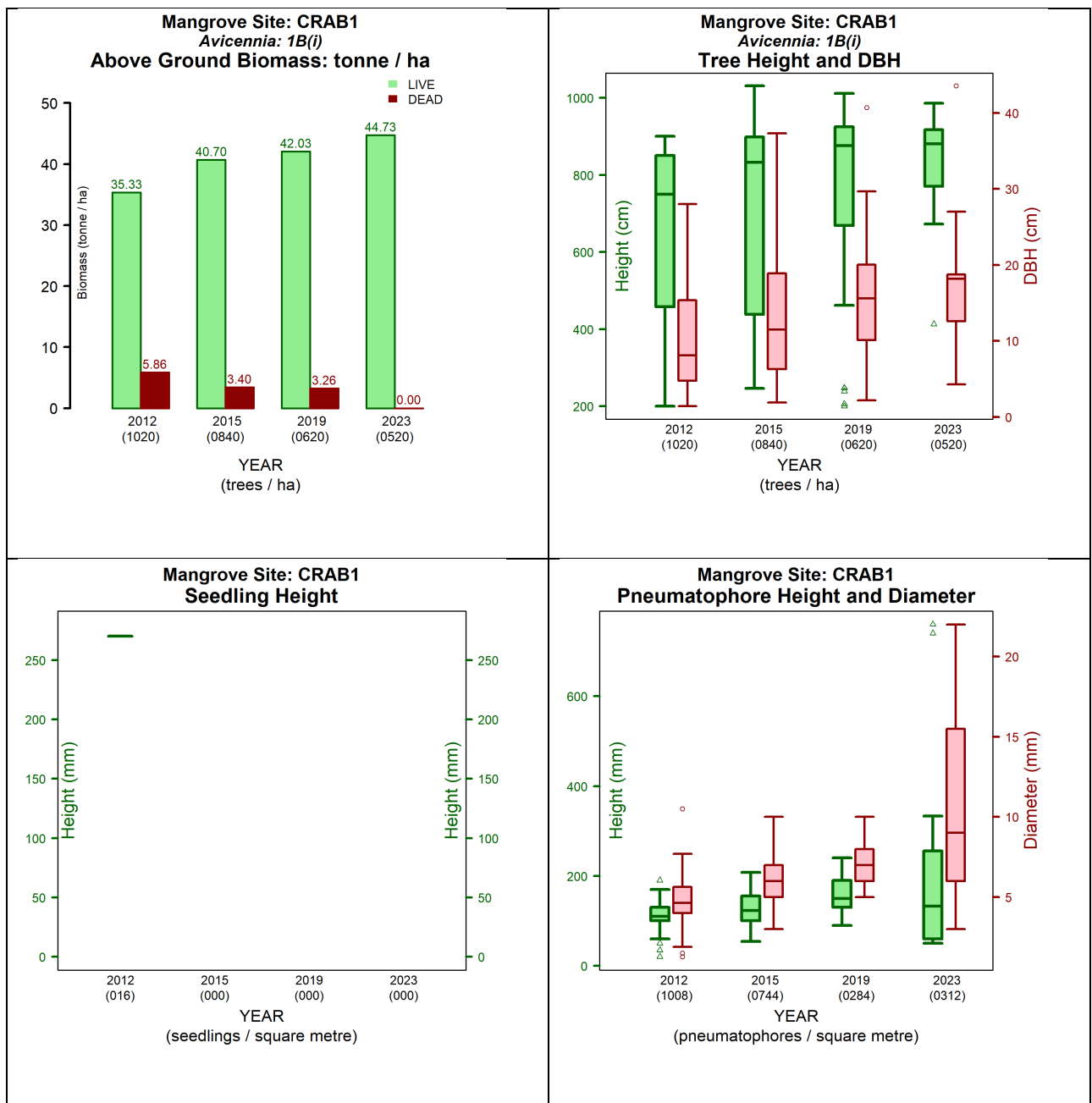


Figure 1. Measurements at site CRAB1 between 2012 and 2023 (left to right and top to bottom):

- Above ground biomass and density temporal assessment
- Tree height, diameter at breast height (DBH) and stem density temporal assessment
- Pneumatophores height, diameter, and density temporal assessment
- Seedling height and density temporal assessment.

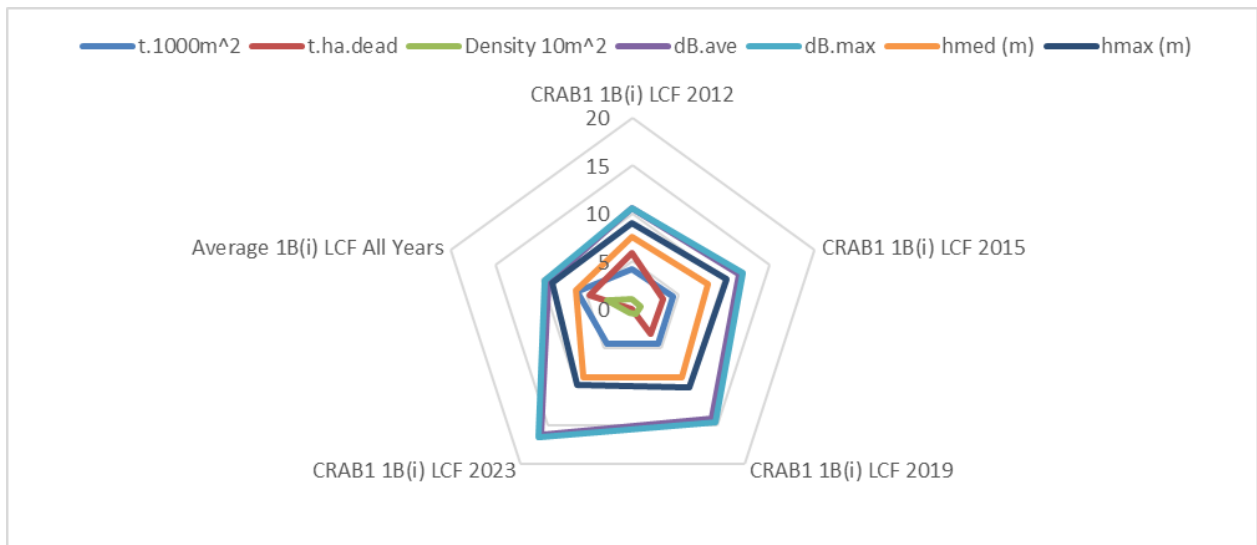
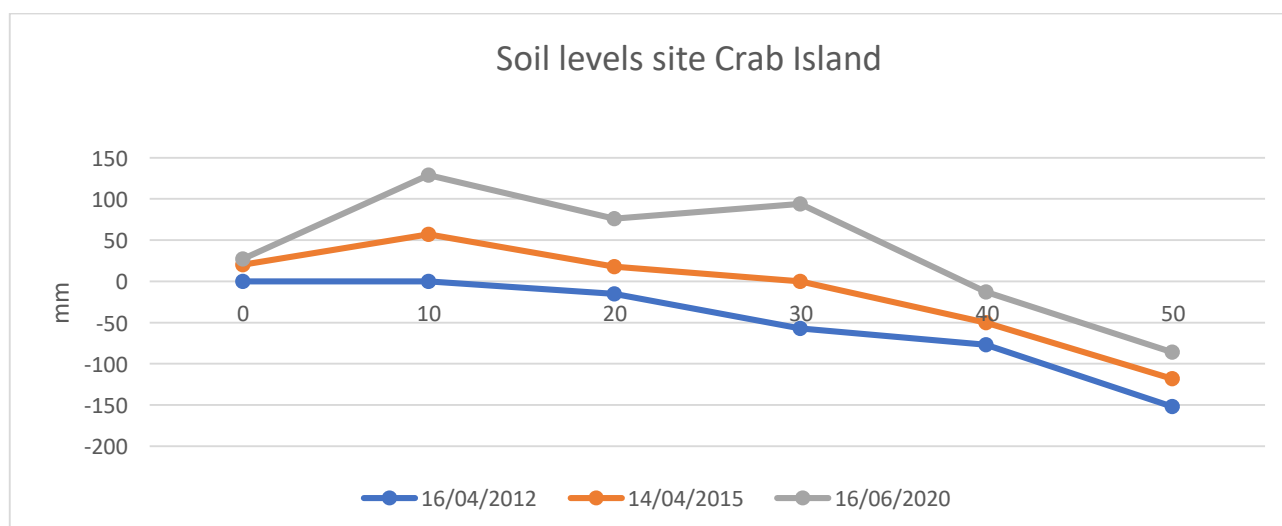


Figure 2. Structural changes over the years for Site CRAB1 in comparison to average of all sites of vegetation community type 1B(i) by structural formations. The graph indices: t.1000m<sup>2</sup> is the tonne of live biomass (tonnes) in 1000m square; t.ha.dead is the dead biomass (tonnes) in a hectare; Density 10m<sup>2</sup> is the number of trees in 10m square; dB.ave is the average diameter at breast height in centimetres; dB.max is the maximum diameter at breast height in centimetres; hmed (m) is the median tree height (meters); hmax (m) is the maximum tree height (meters).

Table 1. Queensland Biodiversity Ecological Information System (QBEIS) temporal assessment for site CRAB1.

Date	10.12.2012	7.12.2015	13.05.2019	31.03.2023
E Spp.				
T1 Spp.	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Rhizophora stylosa</i>	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Rhizophora stylosa</i> ; Dead tree	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Rhizophora stylosa</i> ; Dead tree	<i>Avicennia marina</i> subsp. <i>Australasica</i> ; <i>Rhizophora stylosa</i> ; Dead tree
T1 Med Canopy Height	8.5	9	9	9
T1 Range low	7	8.5	8.5	8.5
T1 Range High	9	9.5	9.5	9.5
T1 Crown Cover	90	92	88	86
T1 Stem Count	26; 2	26; 3; 3	28; 2; 1	18; 2; 4
T2 Spp.	<i>Avicennia marina</i> subsp. <i>australasica</i>	<i>Avicennia marina</i> subsp. <i>australasica</i>	<i>Avicennia marina</i> subsp. <i>australasica</i>	<i>Avicennia marina</i> subsp. <i>australasica</i>
T2 Med Canopy Height	8	6.5	7	7
T2 Range low	7	6	6	6
T2 Range high	9	9	9	8
T2 Crown Cover	5	5	5	5
T2 stem count	5	?	?	?

S1 Spp.	<i>Avicennia marina</i> subsp. <i>australasica</i>	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Rhizophora stylosa</i> ; Dead tree ( <i>Rhizophora</i> )	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Rhizophora stylosa</i> ; Dead tree ( <i>Rhizophora</i> )	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Rhizophora stylosa</i> ;
S1 Med Canopy Height	2.5	2.5	2.5	3
S1 Range low	2	2	2	2
S1 Range high	3	3.5	3.5	3.5
S1 Crown Cover	2	3	3	3
S1 stem count	7	4; 1; 5	2; 2; 1	2; 1
S2 Spp.	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Rhizophora stylosa</i>	<i>Rhizophora stylosa</i> ; <i>Avicennia marina</i> subsp. <i>australasica</i> ;	<i>Rhizophora stylosa</i>	<i>Rhizophora stylosa</i>
S2 Med Canopy Height	1.8	1.8	1.8	2
S2 Range low	1.5	1.5	1.5	1.5
S2 Range high	2	2	2	2
S2 Crown Cover	2	1	1	1
S2 stem count	4; 6	3; 1	3	1
G Spp.	<i>Avicennia marina</i> subsp. <i>australasica</i>	<i>Avicennia marina</i> subsp. <i>australasica</i>	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Rhizophora stylosa</i>	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Rhizophora stylosa</i>
G Med Canopy Height	0.25	0.3	0.3	0.7
G Range low	0.1	0.2	0.2	0.3
G Range high	0.3	0.4	0.6	1.0
G Cover	2	1	1	2
Individual Covers	2	1	1; +	1; 1



**Figure 3. Soil surface elevation measurements (mm) are taken across the QBEIS sites using dumpy level.**

### **Summary**

1. Stable species composition in T1, T2 and S1 with an increased number of dead trees. S2 layer has increased dominance by *Rhizophora stylosa*. *Rhizophora stylosa* also occurring in the ground layer in 2019.
2. T1 tree heights increased by 0.5m and with a slight increase in density, T2 tree heights reduced with stable density; S1 stable; Ground height has slightly increased, and cover has decreased. By 2023 most trees in T1 are above 8m and some reaching 10m.
3. Mean tree heights and mean DBH have increased while densities have reduced by 64% that has led to an increase of 9% in above ground biomass in the site.
4. Reduction (from 14.2% in 2012 to 7.2% in 2019) in the proportion of dead to live biomass within the site.
5. Pneumatophores mean height and girth has increased over the years with a very big change in 2023. This change points to increase in the level levels of ponding.
6. Seedlings have been recorded only in 2012 in our quadrats but are present during all years across the site.
7. Soil max range level fluctuated has largely increased with larger accretion at the centre of the plot. Substrate had become too boggy and dangerous to measure soil levels in 2023.
8. Soil levels over the whole period have accreted.
9. All the dead branches had fallen to the ground by 2023.
10. The site was too dangerous to conduct some of the measurements in 2023 including the surface elevation and the foliage projected cover.



Figure 4. Photograph of Site Crab Island *Avicennia marina* subsp. *australasica* community type 1B(i) Low Closed Forest