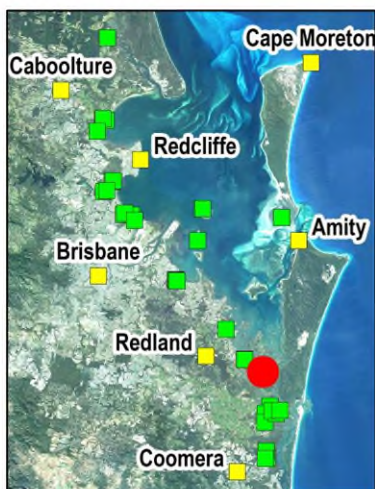
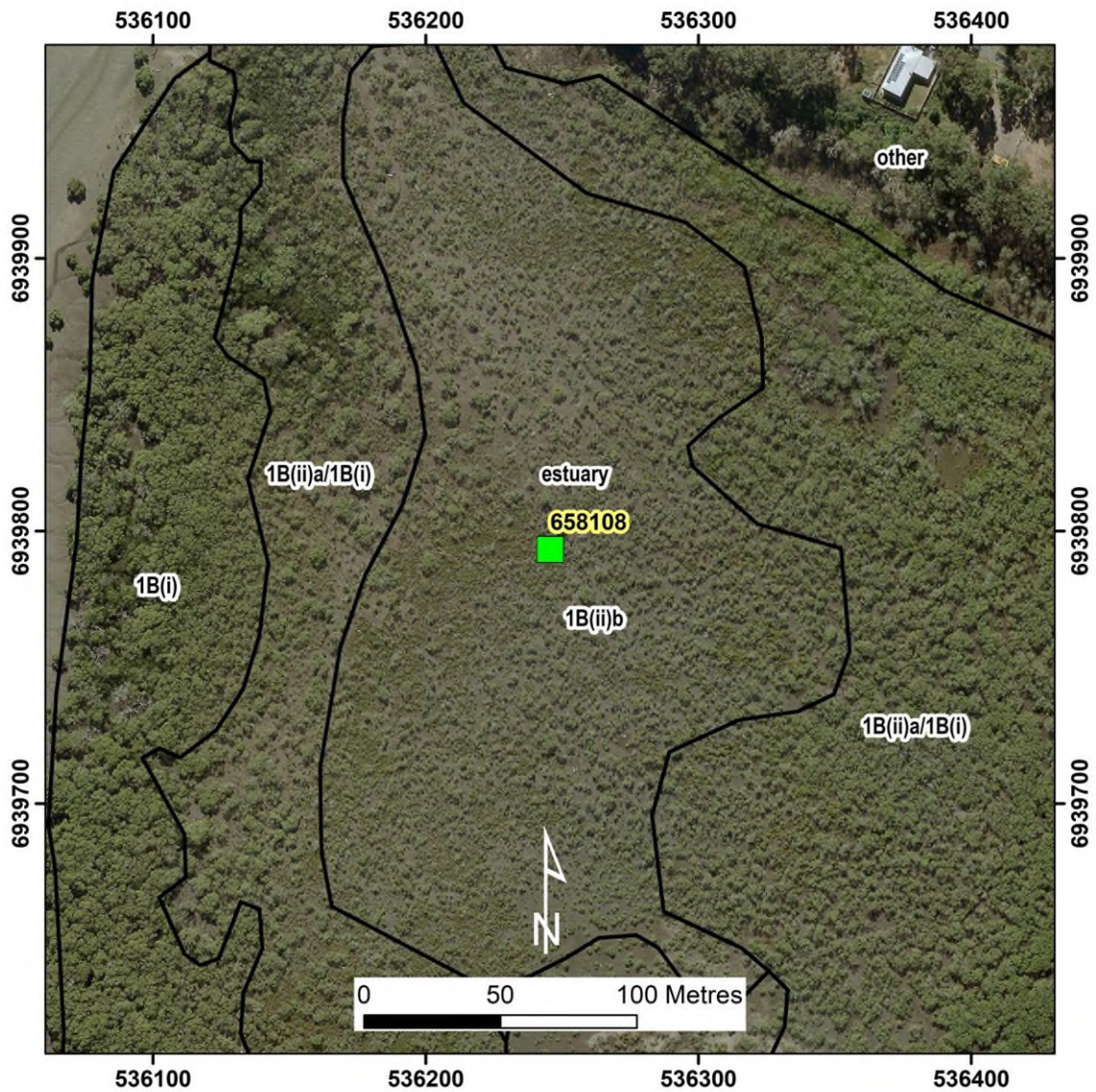


# Russell Island (site ID = 658108) Tall Open Shrubland



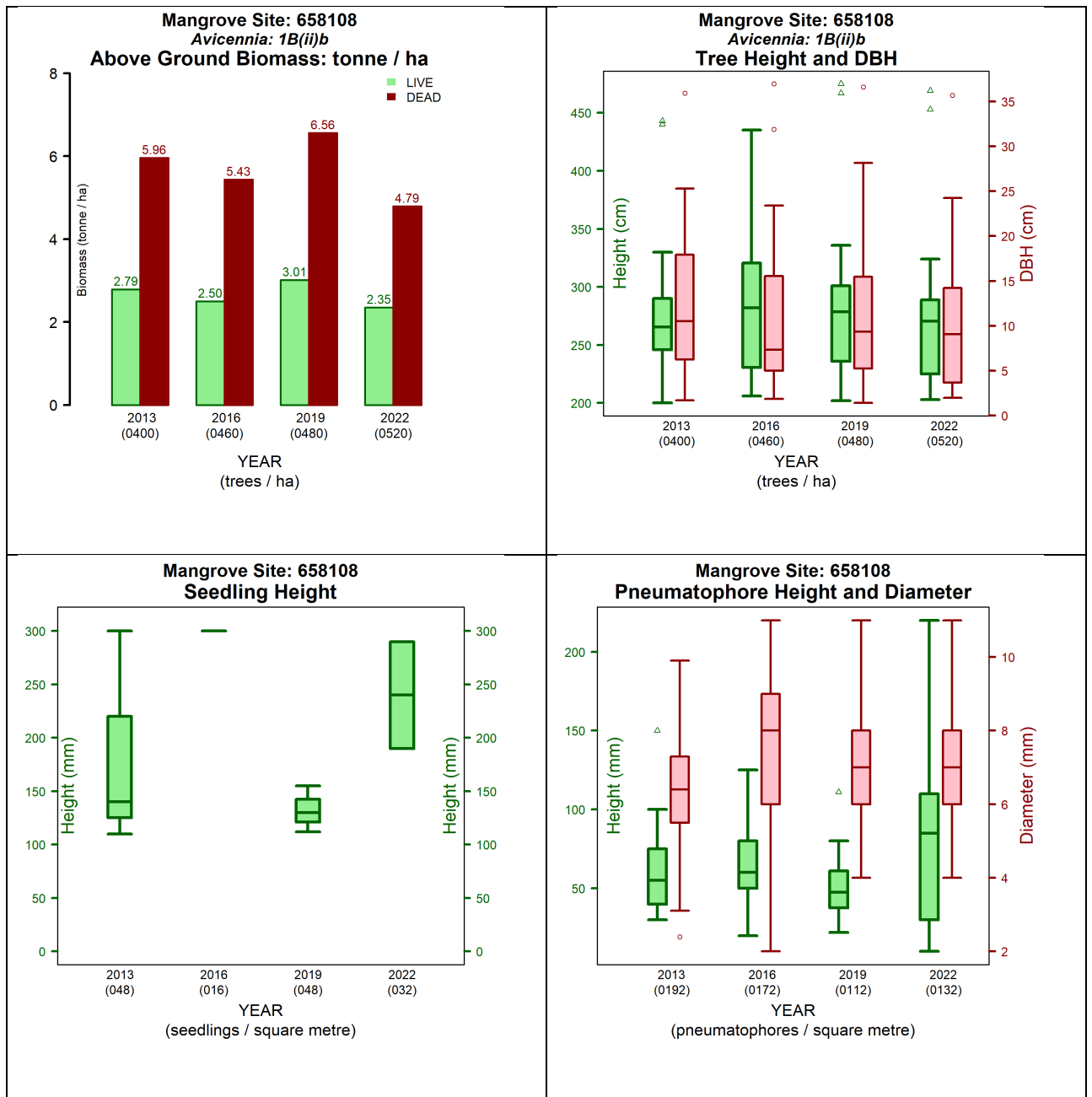


Figure 1. Measurements at site 658108 between 2013 and 2022 (left to right and top to bottom):

- 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.

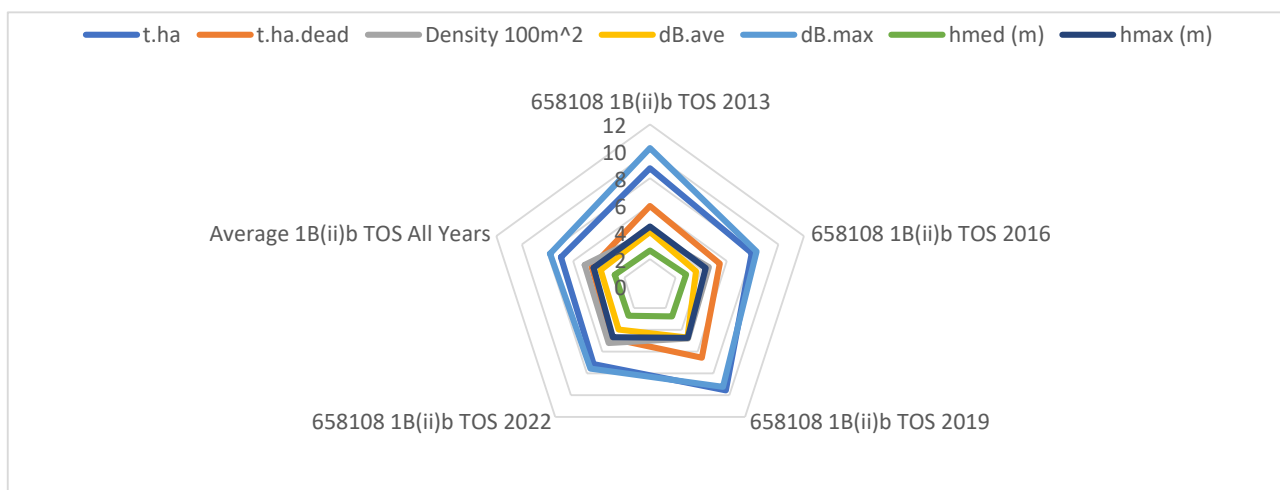


Figure 2. Structural changes over the years for Site 658108 in comparison to average of all sites of vegetation community type 1B(ii)b by structural formations. The graph indices: t.ha is the live biomass (tonnes) in a hectare; t.ha.dead is the dead biomass (tonnes) in a hectare; Density 100m<sup>2</sup> is the number of trees in 100m 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 6580108

Date	22.03.2013	18.03.2016	29.05.2019	27.06.2022
E Spp.				<i>Avicennia marina</i> subsp. <i>australasica</i>
T1 Spp.				
T1 Med Canopy Height				4.7
T1 Range low				4
T1 Range High				5
T1 Crown Cover				2
T1 Stem Count				2
T2 Spp.				
T2 Med Canopy Height				
T2 Range low				
T2 Range high				
T2 Crown Cover				
T2 stem count				
S1 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>
S1 Med Canopy Height	2.5	2.5	2.5	2.5
S1 Range low	2	2	2	2
S1 Range high	4	4	4	4
S1 Crown Cover	15	21	19	17
S1 stem count	20	23	24	26

S2 Spp.	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Ceriops australis</i>	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Ceriops australis</i>	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Ceriops australis</i>	<i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Ceriops australis</i>
S2 Med Canopy Height	1.5	1.5	1.5	1.5
S2 Range low	1	1	1	1
S2 Range high	2	2	2	2
S2 Crown Cover	9	12	12	25
S2 stem count	48; 17	45; 27	10; 2	10; 15
G Spp.	<i>Ceriops australis</i> ; <i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Suaeda arbusculoides</i>	<i>Ceriops australis</i> ; <i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Suaeda arbusculoides</i>	<i>Ceriops australis</i> ; <i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Suaeda arbusculoides</i>	<i>Ceriops australis</i> ; <i>Avicennia marina</i> subsp. <i>australasica</i> ; <i>Suaeda arbusculoides</i>
G Med Canopy Height	0.25	0.3	0.3	0.5
G Range low	0.1	0.2	0.2	0.1
G Range high	0.3	0.4	0.6	1
G Cover	2	1	30	30
Individual Covers	2	1	20; 10; +	20; 10; +

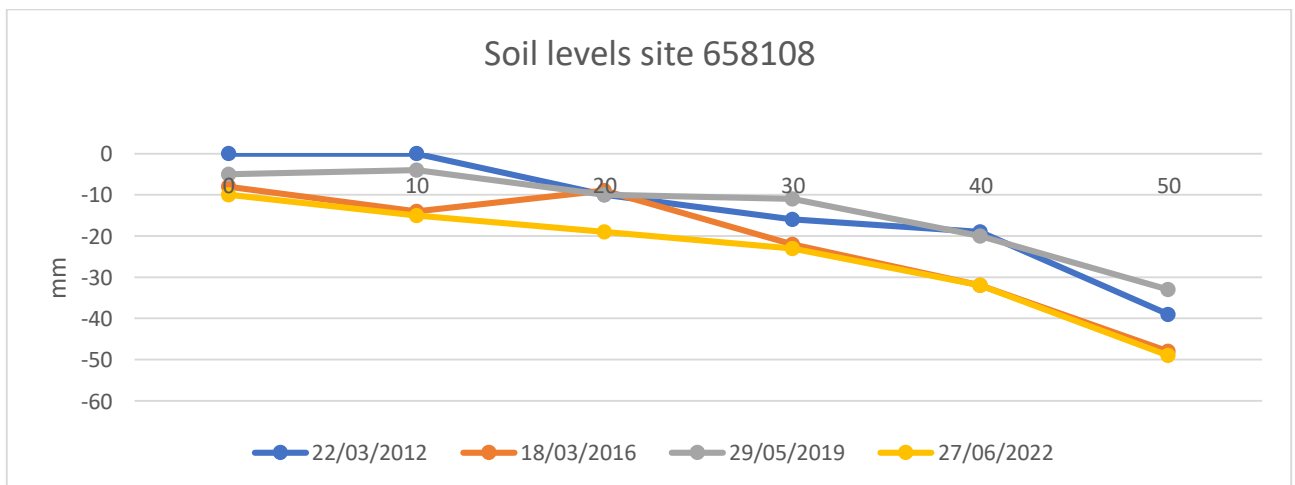


Figure 3. Soil surface elevation measurements (mm) are taken across the QBEIS sites using dumpy level.

### Summary

1. S1, S2 and ground layers species composition remain mainly unchanged with only fluctuations in stem count of *Ceriops australis* in S2
2. S1 and S2 shrub heights are stable while stem count is fluctuating. Ground cover only increased slightly in height and cover.
3. Mean tree height has increased. The mean DBH has increased slightly, densities increased by 4% leading to an increase of 9.4% in above ground biomass in the site.

4. Large proportion of the biomass is dead in this site, around 68.6% with slight increase (from 68.1% in 2013 to 68.6% in 2019 and 67.1% in 2022) of the proportion of dead to live biomass within the site.
5. Pneumatophore mean height and range has decreased up to 2019 and both height and range increased in 2022 whereas girth has slightly fluctuated over the years. Increase in pneumatophore height may reflect changes to the tidal and inundation regimes.
6. Seedling densities have been similar during the period except during 2016 where densities have been reduced. Seedling heights have fluctuated over the years.
7. Soil max range level reduced by 10mm to 29mm with erosion of up to 8mm.
8. Soil levels over the whole period have eroded.



**Figure 4.** Photograph of Site 658108 *Avicennia marina* subsp. *australasica* community type 1B(ii)b Tall Open Shrubland.