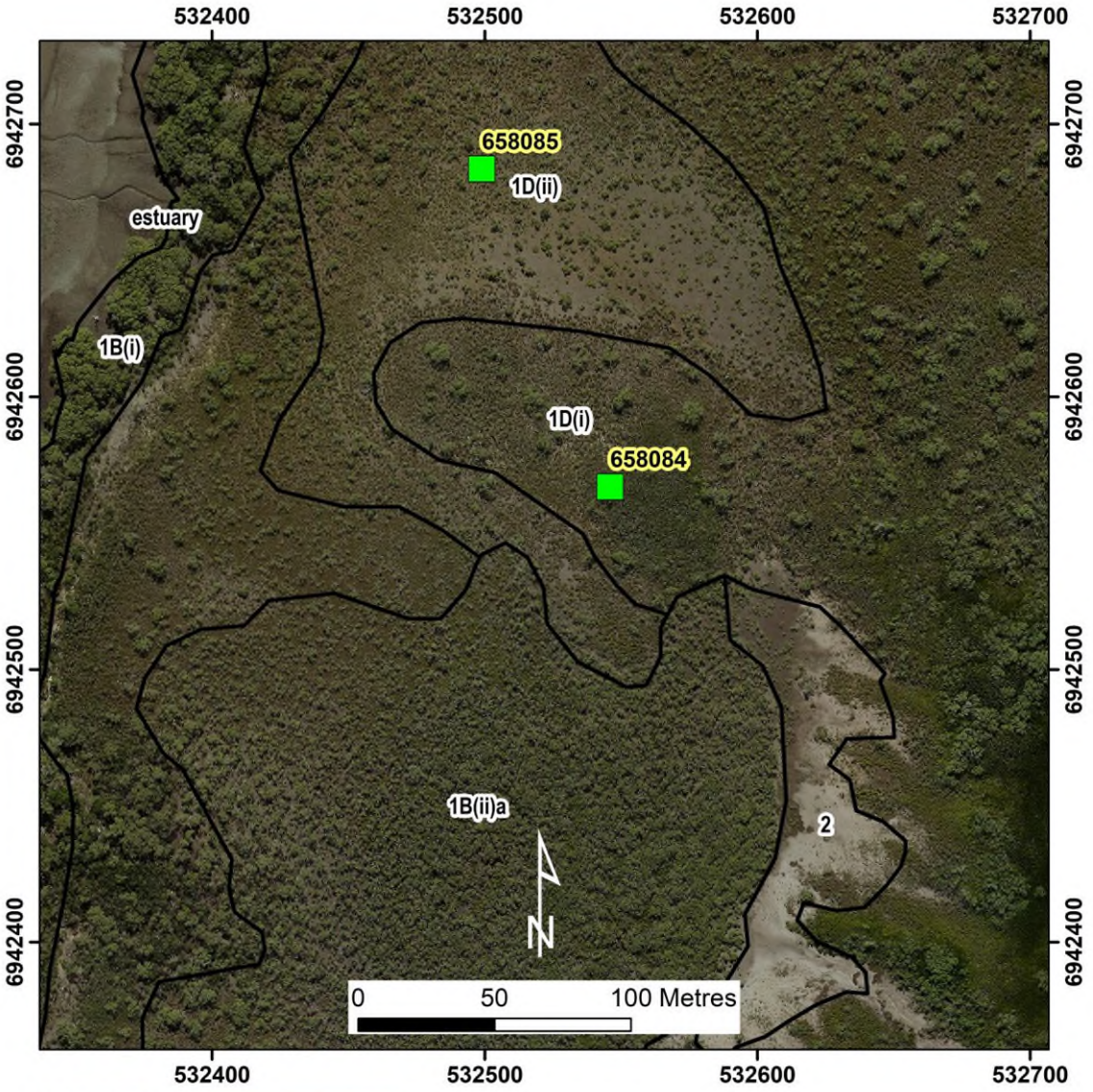
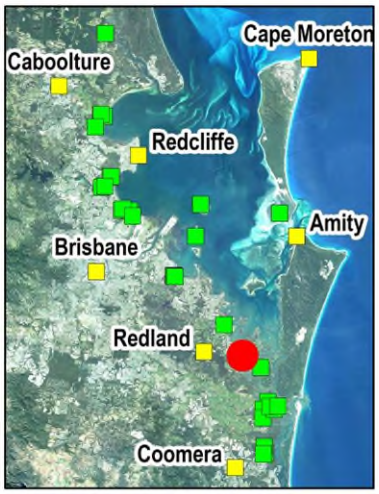
Pannikin Island (site ID = 658084) Closed Shrubland





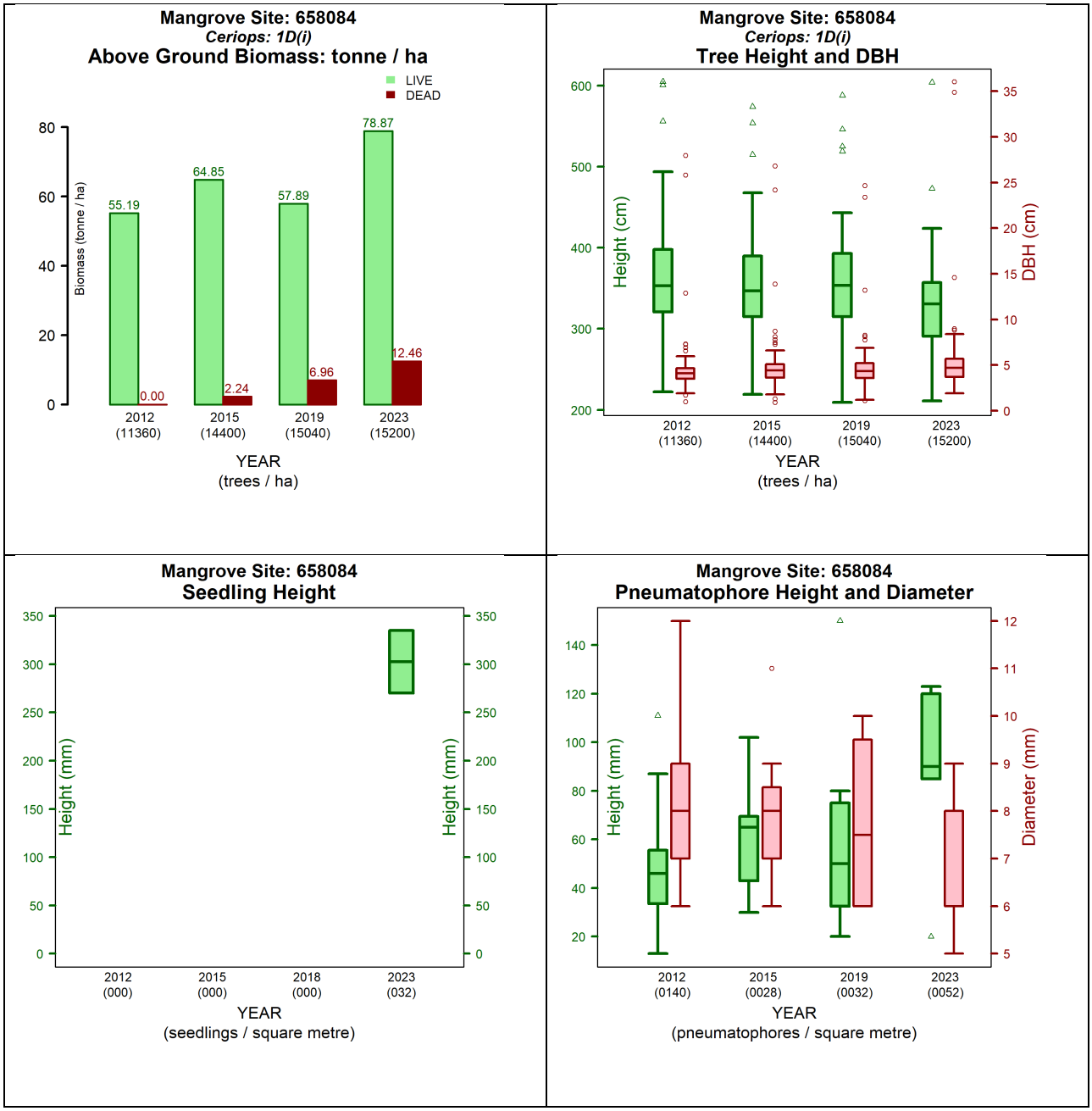


Figure 1. Measurements at site 658094 between 2012 and 2021 (left to right and top to bottom):

- **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.**

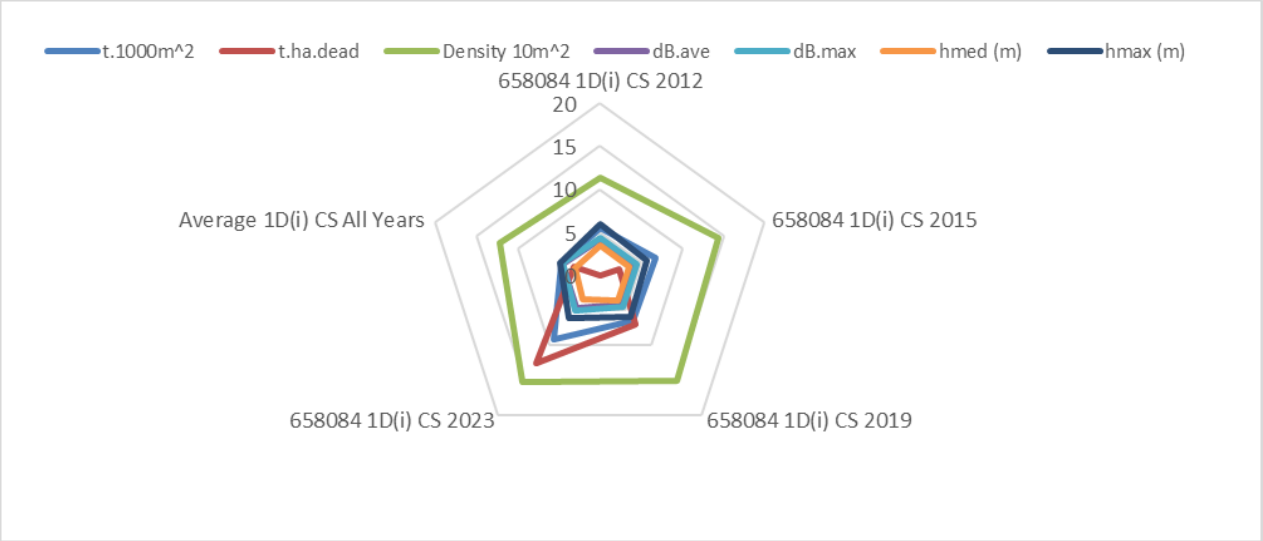


Figure 2. Structural changes over the years for Site 658084 in comparison to average of all sites of vegetation community type 1D(i) by structural formations. The graph indices: t.1000m^2 is the live biomass (tonnes) in a 1000m square; t.ha.dead is the dead biomass (tonnes) in a hectare; Density 10m^2 is the number of trees in 10m square; dB.ave is the average diameter at breast height in centimetres; dB.maxis 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 658084.

Date	26.10.2012	8.10.2015	29.04.2019	9.10.2023
E Spp.	*Avicennia marina* subsp. *australasica*	*Avicennia marina* subsp. *australasica*	*Avicennia marina* subsp. *australasica; dead Tree*	*Avicennia marina* subsp. *australasica*
T1 Spp.				
T1 Med Canopy Height	6	6	6	6
T1 Range low	6	6	6	6
T1 Range High	6	6	6	6
T1 Crown Cover	5	5	5	5
T1 Stem Count	5	5	4; 1	5
T2 Spp.				
T2 Med Canopy Height				
T2 Range low				
T2 Range high				
T2 Crown Cover				
T2 stem count				
S1 Spp.	*Ceriops australis*	*Ceriops australis; dead tree*	*Ceriops australis; dead tree*	*Ceriops australis; dead tree*
S1 Med Canopy Height	4	4	4	3.2
S1 Range low	1.5	1.5	2	2
S1 Range high	4.2	4.2	4	3.5

S1 Crown Cover	90	91	86	91
S1 stem count	222	180, 24	133; 5	103; 23
S2 Spp.	*Aegiceras corniculatum*	*Aegiceras corniculatum; Ceriops australis*	*Aegiceras corniculatum; Ceriops australis*	*Aegiceras corniculatum; Ceriops australis*
S2 Med Canopy Height	1	1.2	1	1
S2 Range low	1	1	1	1
S2 Range high	1	1.5	1.2	1.5
S2 Crown Cover	<1	<1	<1	<1
S2 stem count	?	?	>1; 1	+; +
G Spp.	*Ceriops australis*	*Ceriops australis*	*Ceriops australis*	*Ceriops australis; Avicennia marina* subsp. *australasica*
G Med Canopy Height	0.25	0.4	0.25	0.3
G Range low	0.2	0.3	0.2	0.2
G Range high	0.3	0.5	0.3	0.5
G Cover	40	40	30	25
Individual Covers	40	40	30	25; +

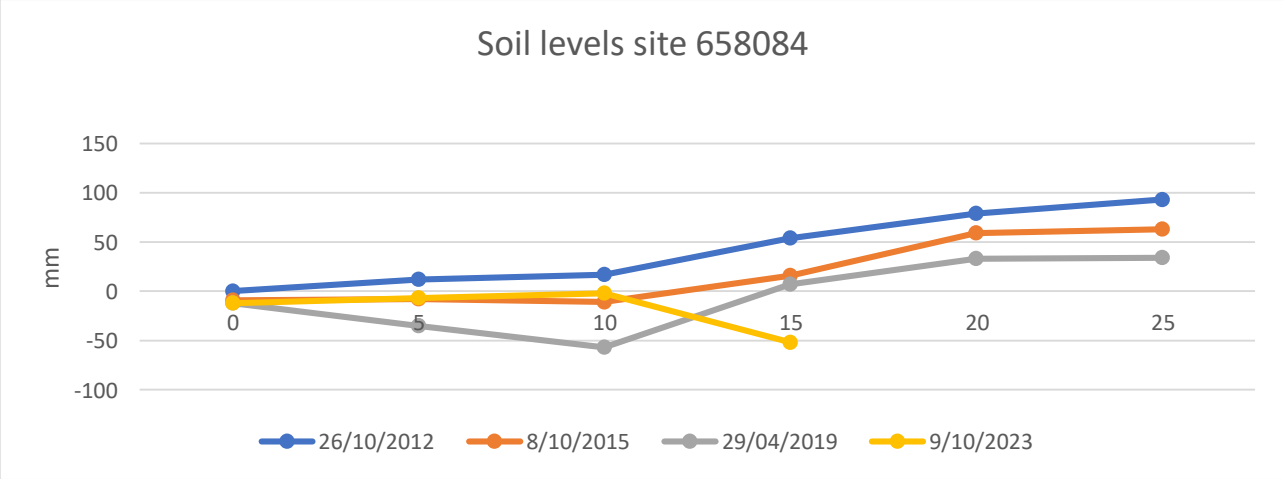


Figure 3. Soil surface elevation measurements (mm) are taken across the QBEIS sites using dumpy level.

Summary

1. Emergent layer contains *Avicennia marina* subsp. *australasica* species and one dead tree in 2018; S1 with increasing dead trees over time in the northern end of the site; S2 and ground layer contains *Ceriops australis* and *Aegiceras corniculatum*.

2. E tree height is stable, while the stem count has reduced due to one to dead tree; S1 tree heights is stable, stem count largely reducing; S2 is stable and ground cover and height is stable, but cover has reduced by 10%.

3. Mean tree height and mean DBH are stable. Density has increased by 32% leading to an increase of 17.5% in above ground biomass in the site.

4. Increase (from 0.0% in 2012 to 10.7% in 2019) of the proportion of dead to live biomass within the site.

5. Pneumatophore mean height has fluctuated and increased in range while mean girth has decreased whereas girth has increased in range over the years.

6. No seedlings have been recorded over the years in our quadrats but are present during all years across the site.

7. Soil max range level reduced by 2mm to 91mm with erosion of up to 30mm.

8. Soil levels have eroded over the years. In 2023 the northern part of the site has eroded substantially which has led to tree death.

Figure 4. Photograph of Site 658084 *Ceriops australis* community type 1D(i) Closed Shrubland.