

## GCE Plant monitoring protocol

**Permanent plots** are 0.5 x 0.5 m or 0.5 x 1.0 m, depending on elevational zone and estuarine habitat, marked by pvc stakes in 3 or 4 corners. There are 8 plots in each elevational zone at each of the 10 sites. Plots are usually separated within a zone by about 20 m.

At most sites there are two zones:

1) creekbank with tall *Spartina alterniflora*, *S. cynosuroides* or *Zizaniopsis* (usually 0.5 x 0.5 m plots except at GCE 7 where plots are 1 x 0.5 m), and

2) mid-marsh, about half-way to the upland, with short *S. alterniflora*, *Juncus* or *Zizaniopsis* (usually 0.5 x 0.5 m plots except at GCE 7 where plots are 1 x 0.5 m). At two sites (GCE 9, 10) we have added

3) a third zone consisting of a high marsh *Juncus* stand.

**Measurements:** Record the height (cm) of all stems taller than 10 cm in a 0.25 x 0.25 m (mid-marsh; high-marsh *Juncus*), 0.5 x 0.5 m (creekbank) or 1 x 0.5 m (both zones at GCE 7) quadrat centered in the plot. For all species except *Juncus* (because it flowers earlier in the year), note stems that are flowering by adding “F” after the height. If the species is not the dominant one listed on the data sheet, include a code for its name so that all stems are identified to species. For species that lack individual stems (like *Batis*), simply note their presence in the “other species” column.

A typical plot record might look like this, with SA indicating *Spartina alterniflora* and SC indicating *Spartina cynosuroides*: SA 55, 105F, 89, 99, 29, 23, 89F... SC 102, 203F...Typha 233.

If the plot is disturbed by wrack deposition, a slumping creekbank, pig grazing, snail grazing or any other disturbance, note the presence and type of disturbance in the datasheet. Otherwise write “none” for disturbance.

Some creekbank plots are lost each year due to erosion or slumping at the creekbank. If a plot has collapsed into the creek bottom (no plants are left, or those left will soon die), or cannot be found, replace it with a new plot in the same general area of the creek bank. Add 10 to the previous plot number. For example, replace plot 5 with plot 15, plot 13 with plot 23, and so on. Note that this is a new plot in the data sheet.

Ensure that numbers on stakes are legible. Score numbers into the poles using dremel tool.

After sampling the plants, score herbivore abundance for each overall zone at each site using the following scores: Absent: I didn't see any; Rare: I saw one or two; Moderate: present but not common; Abundant: they are common; Swarms: they are everywhere in dense aggregations. This is a bit subjective based on your overall experience.

At the laboratory, scan and email the data sheets to Steve Pennings, and once you have his OK, mail the originals to him.

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