

## BCI Gravimetric Soil Moisture Measurements

(Last rev. 17/09/2018)

Soil moisture is determined gravimetrically based on samples collected every two weeks during the period June to November, and weekly from December to May within the 9.73 ha protected catchment of the Lutz creek on the Northeast slope of Barro Colorado Island. Samples were also taken from the center Plateau area from 1981 to 1984.

Samples are taken at two depths (0-10cm and 30-40cm) from ten 1m sq. sample locations in the Lutz catchment area (see Figure 4 for sample locations).

To reduce the effects caused by soil perturbation due to technician activity, sample locations are moved to adjacent locations every 3-4 years. When sample locations are moved, parallel sets of samples are taken from both old and new locations for approximately 3 months in order to assure comparability. New sites that are found to differ significantly from old sites are abandoned and a new site is chosen.



Fig. 1 Sampling site and equipment

Samples of approximately 2.5 cm soil cores are made with an 'Oakfield punch' and immediately transferred to pre-weighed metal sampling containers. Samples are returned to the lab where they are weighed and then placed into a drying oven at 105°C for 48-72 hours. Samples are then re-weighed. Tared wet and dry weights are recorded. Soil moisture is calculated as percent water by wet weight, and percent water by dry soil weight.



Fig 2 a,b. Oakfield punch



Fig. 3a,b Drying oven (left) and measuring balance (right)

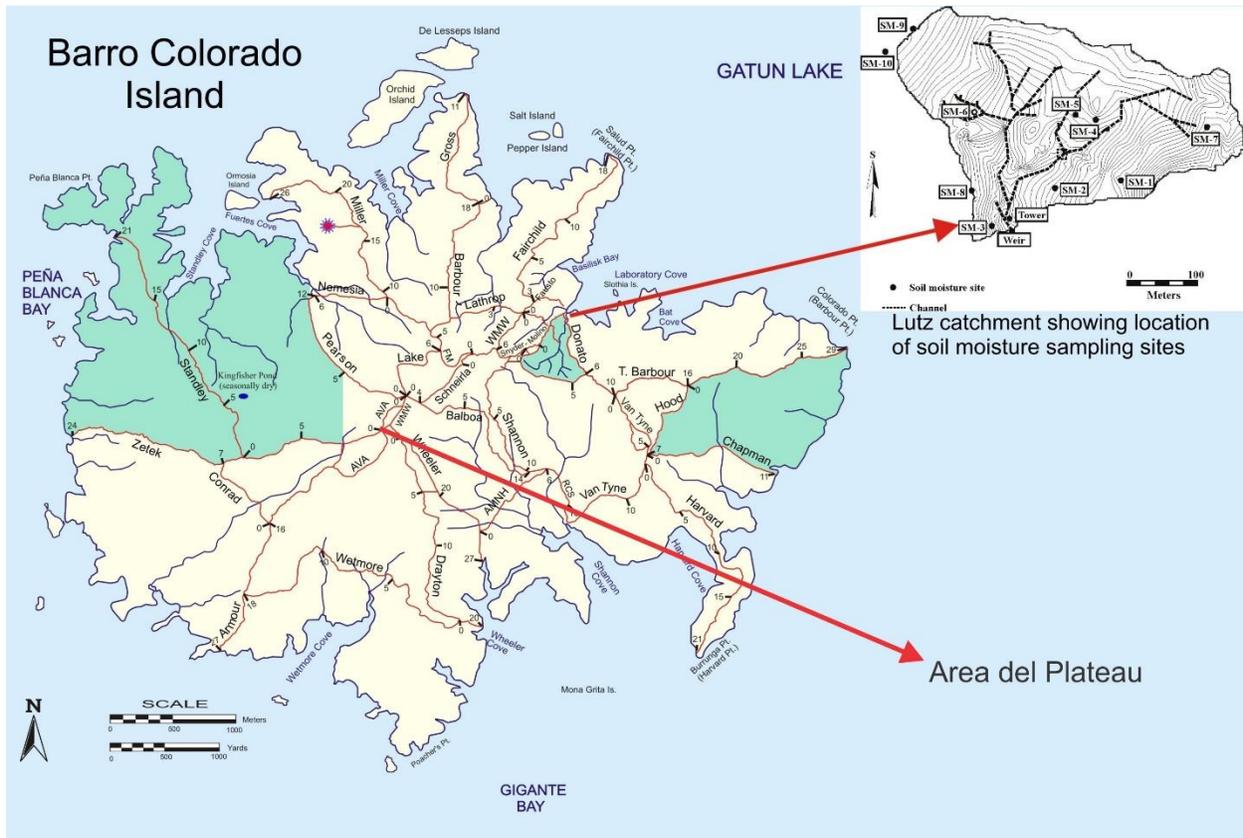


Fig 4. Barro Colorado Island showing location of soil moisture sampling sites.