

Minimum Sampling Requirements

- For soil organic carbon (%SOC) and bulk density (BD), samples should be collected to 30 cm (where not impeded by rock) in at least two depth increments. We recommend 0-15 and 15-30 cm, though smaller increments are acceptable (e.g., 0-10, 10-20, 20-30 cm). Whatever you choose, collect SOC and BD samples from matching depth increments, where possible. If the actual sampling depth falls within 2 cm of the target depth, retain the sample and record the discrepancy. If the target depth cannot be reached within 2 cm, attempt to collect the sample from at least two alternative locations within one meter of the original sampling point.
- Samples that are used to measure bulk density must be collected with a corer at least 5 cm in diameter. SOC samples may be collected using an auger or a corer. Where possible, measure SOC and BD on the same core sample.
- Samples must be individually geolocated (i.e., not composited) with horizontal precision of at least that of a standard smartphone GPS (4–5 m). Higher precision is encouraged.
- Minimum sampling densities are listed in the following table. These densities are intended to capture SOC stock for the given area to 95% CI. These are estimates that we aim to revise and improve based on the results of the Small Grants Program.

Field/AOI size	SOC samples	BD samples
0-5 acres (0-0.02 km ²)	~1 per acre /4,000 m ²	Same locations as SOC
5-20 acres (0.02 - 0.08 km ²)	~1 per 2 acres/ 8,000 m ²	Same locations as SOC or at least 1 per 3 acres/ 12,000 m ²
> 20 acres (> 0.08 km ²)	~1 per 3 acres/ 12,000 m ²	Same locations as SOC or at least 1 per 5 acres/ 20,000 m ²

- Samples may be located by any method (grid, random, cLHS, etc). Whatever method is used must be recorded, including any stratification approach.
- Samples must be tested for %C by dry combustion. If pH of the study site is less than 6.5, total carbon measured by dry combustion may be reported as SOC, as inorganic carbon is assumed to be negligible. If the pH of the soil is greater than 6.5, samples should be measured for both organic and inorganic fractions and both reported.
- Bulk density samples must be sieved to 2 mm to remove coarse fragments. Coarse fragment volume and mass should be reported along with soil dry weight and core volume. Measurements should include:
 - Total core volume (cm³)
 - Oven-dry mass of whole sample (g)
 - Oven-dry mass of coarse fragments > 2 mm (g)
 - Volume of coarse fragments > 2 mm (cm³)