

Project: _____

State phase name: _____

State phase ID: _____ Plot replicate no: _____ Stratum: Kind _____ ID _____

Collector: _____ Date: _____

Cover and forest floor (O horizon) (at hoop)

Special sampling instructions: If soil sample location falls on an unsuitable location, move 2 m in a random direction until a suitable location is found. Unsuitable locations include gullies, rock outcrop, soil inclusions, etc.

Veg cover (canopy)			Soil surface cover	Litter* cover (%)
Over-story	Woody under-story	Ground		

Enter cm to nearest 0.1cm

Stratum-soil replicate ID	Horizon sequence number	Horizon symbol	Horizon depth upper (cm)	Horizon depth lower (cm)	Litter* moisture status D/M/W	User Pedon ID and horizon sequence no.	Hoop diameter (cm)	Litter* depth 1 (cm)	Litter* depth 2 (cm)	Litter* depth 3 (cm)	Litter* depth 4 (cm)

*Litter refers to the O horizon, duff.

Veg. cover (canopy) (select one) (Over 30 cm hoop)

- NC = No perennial canopy
- PG = Perennial grass
- AG = Annual grass
- F = Perennial forb or herbaceous
- Sh = Shrub
- T = Tree

Soil surface cover codes (select one) (Within the 30 cm hoop)

- S = Soil, without other surface code
- R = Rock fragments
- M = Moss
- LC = Lichen
- D = Duff/O horizon/litter
- W = Wood >1/4" diameter
- PC = Physical crust
- Other _____

NOTES: Describe features at the soil sample location that may affect fine-scale variability (e.g., trail, tree-throw...)

Bulk density (core)

Enter cm to nearest 0.1 cm

Stratum-soil replicate ID	Horizon sequence no.	Horizon symbol	Horizon depth upper (cm)	Depth lower (cm)	Soil moisture status D/M/W	User pedon ID and horizon sequence no.	Ring diameter (cm)	Total ring length (cm)	Ring ht 1 (cm)	Ring ht 2 (cm)	Ring ht 3 (cm)	Ring ht 4 (cm)

Penetration resistance

Depth (cm)	Soil moisture status D/M/W	Penetrometer tip Rod or Foot ?	Type of spring	Reading 1	Reading 2	Reading 3	Reading 4
Surface							
2							
5							
8							
11							
14							
17							
20							
23							
26							
29							

Penetrometer tip (diameter)

- Rod, flat end (6.4mm)
- Foot (25mm)

Spring type (in order of increasing strength)

- L= Lee
- O= Original
- J1= Jones 11
- J3= Jones 323

INSTRUCTIONS: Soil Sample Location for FOREST

11/06/2008

(Complete only appropriate items for other land uses)

Follow this sequence at each soil sample location:

Soil sample location

1. Go to flag marking a soil sample location (the stratum-soil replicate). Flags are placed during plot layout, see Plot Master_FOREST_circular.
2. Record project, plot, and sample ID and data on forms: Soil Sample, Db(core), Penetration Resistance, Forest Floor_FOREST. Use Soil Aggregate Stability Test(field)_RANGE only if suitable.
3. Visualize a north-south line and an east-west line through the point marked by a flag as in diagram below.
4. Place 30 cm diameter hoop for forest floor sample in the SW quadrant in relation to the flag.
5. Locate the nearest 30 cm diameter area that is at least 1 m from the flag and mimics the surface features of the SW quadrant. Assess visual class attributes for that area (draft FS method).

Cover

6. Assign codes for vegetative and soil surface cover to the 30 cm area within the hoop.
7. Carefully remove all plants, but not the O horizon. Clip as close to the soil surface as possible. Do not disturb roots or soil surface.

Forest floor (O horizon) sample

8. Within 30 cm hoop, estimate litter/O horizon/duff cover (%) and make 4 measurements of depth (to nearest 0.1 cm) along the perimeter of the hoop. Discard surface wood > 6 mm (¼ in) diameter and live above-ground plant material. Collect remaining surface wood and litter, O horizon, and all roots and place in paper or cloth bag. Sample Oi, Oe, Oa horizons and current-year litter separately if necessary.

Penetration resistance and soil stability

9. Place bulk density ring over area where sample will be collected (for protection), but do not insert.
10. Randomly select points for 4 penetration readings of the soil surface and if suitable, 3 soil stability samples. Measure and collect these pedoderm properties before the surface is disturbed for soil sample collection.
11. Excavate a small hole about 40 cm wide and 50 cm deep adjacent to the bulk density ring.
12. Place a 30 cm ruler against the pit face; secure with golf tees. The top of the ruler should be flush with the top of the O horizon. Collect 4 penetration resistance readings from the pit face, starting at 2 cm, and at each depth listed on the form *before the soil dries*.

Description

13. Describe the soil profile, including O horizon, to the bottom of the hole. If a horizon is greater than 25 cm thick, subdivide, describe, and sample as two layers. Subdivide based on morphology, if present, or at the midpoint. Note any horizons that need special analysis.

Bulk density and mineral soil samples

14. Record stratum soil replicate ID, horizon sequence number, symbol and depth to be sampled. Base of final sample should be exactly _____ cm below the mineral surface. Use 40 cm for most projects.
15. Starting at the mineral soil surface, insert bulk density ring to 2 cm (or the base of the A if less than 5 cm thick). Make 4 measurements (nearest 0.1 cm) of ring height above soil sample; measure *on the outside of the ring*. Insert spackle blade directly under the ring and carefully remove soil core. *Do not disturb the soil below*. Place in sealed bag as soon as sampled for field moist weights. (Oven dry weights will be measured in the laboratory.)
16. Collect a 1500 g **sample of each layer**, essentially as a slice from top to bottom of the horizon or layer. Mix, and split for analyses, if needed, as follows:
 - a. _____ g for _____
 - b. _____ g for _____
 - c. _____ g for _____
 - d. _____ g for _____
17. Repeat 15 and 16 for the remainder of the surface horizon (from 2 cm to the upper boundary of the next horizon). Handle each layer sampled as a separate horizon and number consecutively.
18. Repeat 15 and 16 for the remaining horizons or layers. Handle each layer sampled as a separate horizon and number consecutively. Base of last sample should be exactly _____ cm below the mineral surface.
19. **Optional root biomass.** Place 15 cm diameter ring on top of mineral soil surface and within or adjacent to 30 cm hoop. Insert ring 10 cm deep. Measure ring height (4 places on outside of ring). Carefully remove soil core with spackle blade. Place soil and all roots in sealed bag as soon as sampled for field and oven dry weights.



