

Geomorphic Analysis of Soils  
Field Exercise and Write-up

GEOL275: Geomorphology

**Field Activity** for the sampling, description, and field analysis of soils at Dixie Plantation, Hollywood, SC

**Description:** Students will sample and describe a series of soils in the field. Data gathered in the field will be used to compare sampled soils to mapped soils and local soil development.

**Goals:**

- sampling and describing soils in the field
- reading and interpreting NRCS soil data
- reading and locating points on an aerial photograph
- relating sampled soils to topography
- relating sampled soils to degree of soil development
- relating sampled soils to past and present land use
- preparing a technical write up of the soils sampled, their description, and how the soils relate geomorphically to other soils in the area

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## **Geol 275 Lab #4**

### **Geomorphic Analysis of Soils**

For this lab we will be studying various soils at Dixie Plantation. You will be classifying the soils based on their location, soil horizons and horizon development, and physical characteristics. Attached are an aerial image of the area of Dixie we will be investigating, a map showing the soils of the area as mapped by the NRCS, and an example of a soil catena as shown and discussed in lecture.

The write-up for this lab should include the following:

1. Map showing locations of sampling sites.
2. Diagrams showing the soil horizons, their depths, and brief field descriptions of the soils (see Soil Catena slide in Weathering and Soils lecture for examples).
3. List and describe the field techniques and any tests or analyses you did in the field.
4. A brief discussion (~2 – 3 pages) on:
  - a. the types of soils sampled;
  - b. their relationship to other soils in the area;
  - c. their relationship to the relative topography of the area;
  - d. the degree of horizon development and maturity of the soils;
  - e. a comparison of the soils sampled to soils mapped at that location by the NRCS.
    - i. You can find information on the various soil series in the .pdf file Charleston Soil Series on WebCT, or under Charleston County at [http://soils.usda.gov/survey/online\\_surveys/south\\_carolina/](http://soils.usda.gov/survey/online_surveys/south_carolina/).
    - ii. The descriptions of the soil series can be found in the section “Descriptions of the soils” starting on page six.

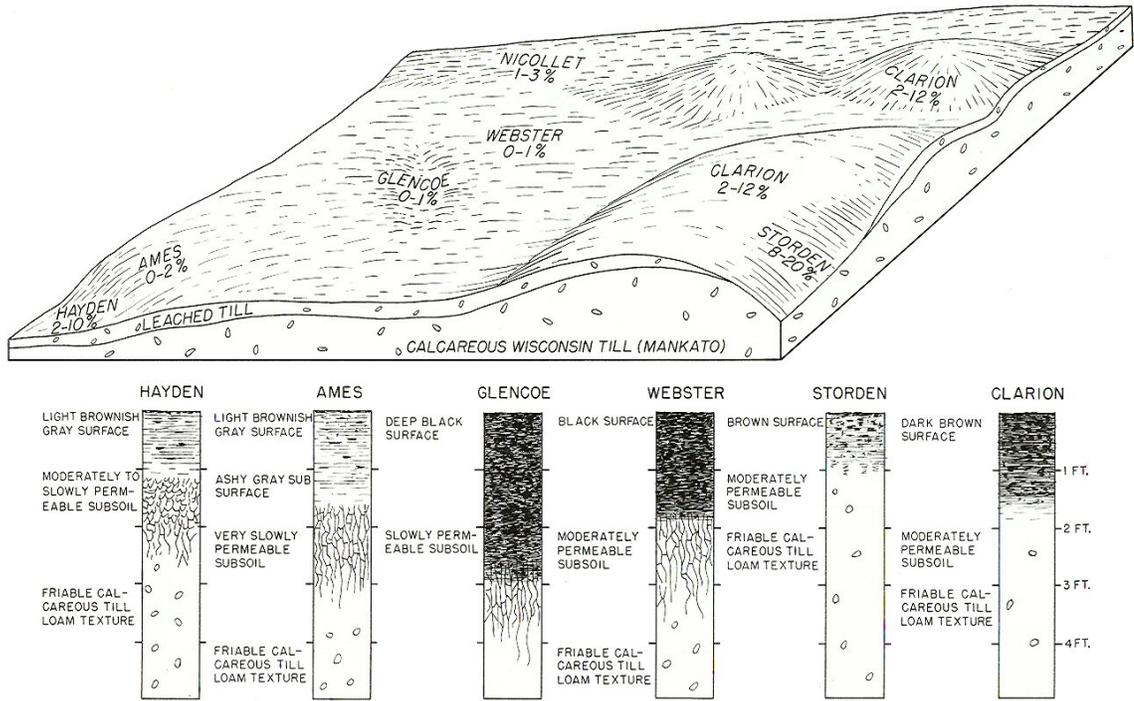


FIG. 4.7. Diagram which shows how varying topographic and drainage conditions give rise to a soil catena. The varying degrees of black indicate the relative abundance of organic matter in the soil profiles. Percentages indicate the steepness of slope. (After W. H. Scholtes, R. V. Ruhe, and F. F. Rieken.)