**Soils and Forests**

**Objective**

Students will identify the most common tree species on a forested site and use observations and Web Soil Survey to learn more about the site conditions.

**Standards of Learning:**  Science 6.1, LS.1, LS.6, LS.9, ES.1, ES.6, BIO.1, BIO.8

**Materials**

Virginia Forest Cover Types map and background information

Common Native Trees of Virginia or other identification guides

Trowels

Web Soil Survey: <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> (free program)

**Activity**

In the field:

Visit a forested area at least an acre in size. \*The site chosen should not be a park-like or other obviously planted area. Have students work in pairs to identify the major tree species on the site, using tools such as identification guides or apps. Students should also make and record general observations about soil color, texture, moisture and slope.

In the classroom:

Use Web Soil Survey to generate a soil map of the location. (See directions below.) Click on the individual soil type shown for your study site. Use this information and the Forest Cover Types map and background to complete the worksheet below.

**Optional Enrichment**

Repeat the field and classroom activities on a different forested site, preferably one with visibly different site conditions and/or trees. Compare and contrast the species and site conditions.

*Lesson plan developed by Ellen Powell, Virginia Dept. of Forestry*

**Instructions for Using Web Soil Survey**

Web Soil Survey contains a lot of information, much of it too complicated for anyone who is not a soil scientist! Here’s how to pick out the less technical information:

Go to <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Click the green button that says “Start WSS.”

On the Quick Navigation menu, click Address. Type in the address where your study site is located, including city and state. (Note: If your study site has no known address, you can use State and County or Latitude and Longitude from this menu to locate your site.) Click “view,” and a map will appear in the window, with a marker on the address.

To define your Area of Interest on the site, click one of the buttons at the top of the map that says AOI and shows a figure in red. You can define your study area by clicking and dragging on the map to form a rectangle, or more exactly by clicking at each corner to form a polygon. (Double click to complete the polygon.) It is OK to define a larger area than you need, as long as your study site is included.

Now click the Soil Map tab at the top of the page. Find your study site’s soil type in the chart. You can click on the name of the soil type to get some basic information on that soil type.

If you want more detail, click the Soil Data Explorer tab at the top of the page. Click the Soil Properties and Qualities tab. Choose a feature you want to know more about, continuing to click until you can see the “view rating” option. Click “view rating” to open a chart that shows data for your area of interest. To view another feature, click “close all” and pick a new feature.

**Soils and Forests Worksheet**

*Use the Virginia Forest Cover Types map and background information to answer questions 1-3.*

1. Based on the map, what forest type would you expect to find on your study site?

2. Based on the background information about this forest type, do the species you identified on site fit into the expected forest type?

3. If not, what are some possible reasons for the differences?

*Use the Web Soil Survey results to answer questions 4-8.*

4. What observations did you make about the soil on your site?

5. According to Web Soil Survey, what was the soil type on your study site?

6. What are some characteristics of this soil type?

7. Would you expect to find a similar forest on other lands with the same soil type? Explain.

8. Besides soil, what other factors influence the forest type found on a site?