

Web Soil Survey Opens New Options for Utilizing Soils Information

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Soil survey information has long been used as a base layer of information for site-specific interpretation and management. Many land use issues—such as erosion control, assessment of soil productivity, determination of crop inputs, planning for roads, buildings, livestock facilities—are based on the properties, location and distribution of soils. Texture, slope length, slope steepness, drainage, acidity, stoniness and depth are important characteristics in soil management. These soil properties can be identified in the Soil Survey published by the USDA-NRCS.

A soil survey consists of a soil map, descriptions of the soils, and interpretations (predictions) of their potential uses or limitations. This information is especially useful when developing management zones for site specific farming. Information found within the Soil Survey allows users to discover general soil problems that can be encountered—for example, native soil fertility, water tables and permeability, weight bearing strengths and expected yield differences.

Web Soil Survey

Soils information has for years been published in book form, but the USDA-NRCS has recently focused more on the Web Soil Survey (WSS), opening many new avenues for accessibility and utility. The WSS eliminates the publishing backlog, provides the most current soils information and allows the user to get only the information needed. WSS allows a user to select on the area of interest, which could be specific fields or farms, and get tailored soil maps and interpretations for the defined area. If, after reviewing the soil survey report, you still have unanswered questions about the survey or the soil on your construction site, you can contact the nearest NRCS or conservation district office. In some Indiana Counties, a printed soil survey can still be obtained from county NRCS offices, many libraries, soil conservation district offices, and county Extension offices.

How to Use Web Soil Survey

Web Soil Survey is accessed via the link <http://websoilsurvey.nrcs.usda.gov/app/>. Once at the homepage, click the green “Start WSS” button near the top. Once you are directed to the mapping page, you must select an area of interest (AOI) to view the soils information. The AOI can be determined by street address, county and state, soil survey area, latitude and longitude, section, township and range, federal land boundaries and hydrologic unit. You can also just click on the United States map and continue to zoom in to locate your farm. As seen in Figure 1, there are two ways to define the AOI for soils information. The red arrow in Figure 1 indicates the icon for irregular fields was selected, but another option is the icon just to the left, where a user can select a rectangular area.

As you are clicking to define your area a red line will outline the area, then turn to light blue once the area is defined. After that select tabs for the information you want. The **Soil Map** tab (selected in Figure 2, indicated by red arrow) allows you to view the soil series’ mapped on the property. The associated table lists the soil series’ names and the acres of each series mapped. You can select the soil series within the table and a list of properties will appear that gives information about the texture, depth to limiting layer and other features about the soil.



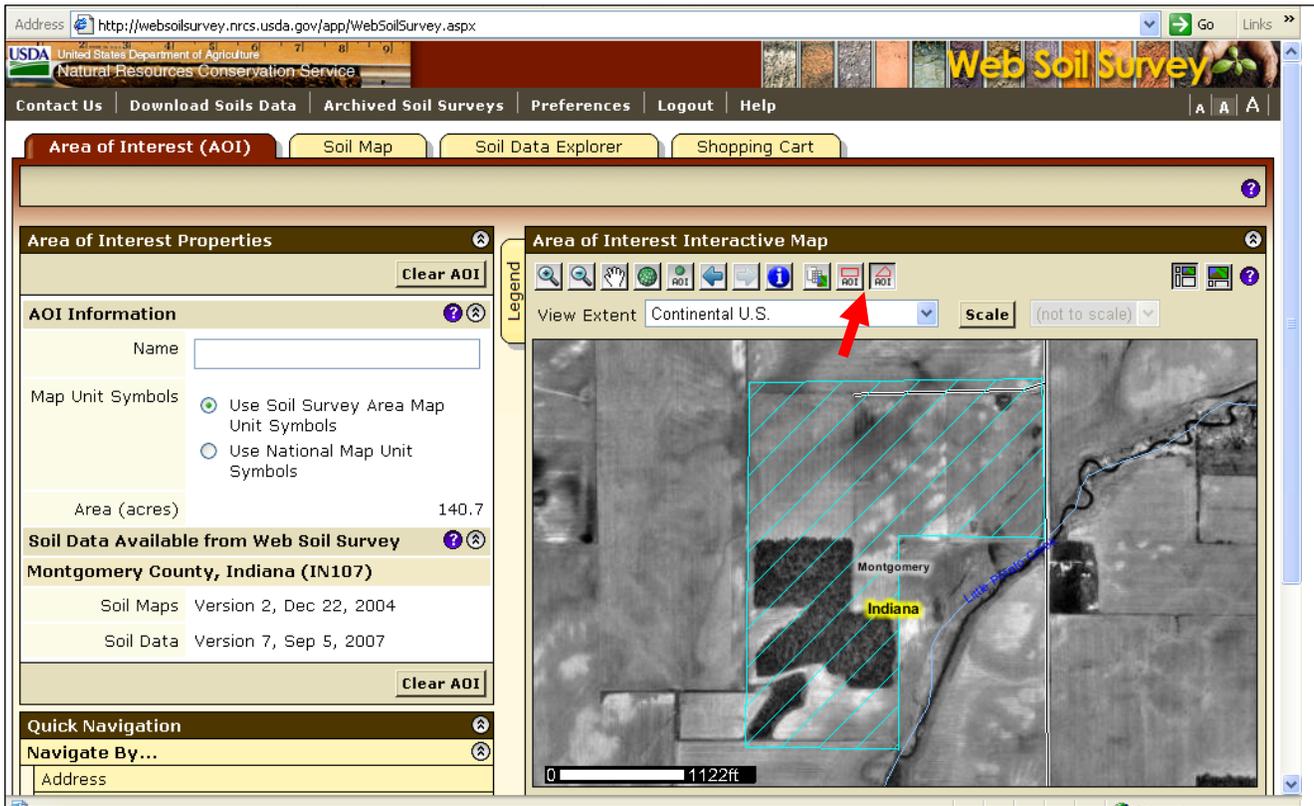


Figure 1. Selecting the area of interest in Web Soil Survey (red arrow points to AOI icons).

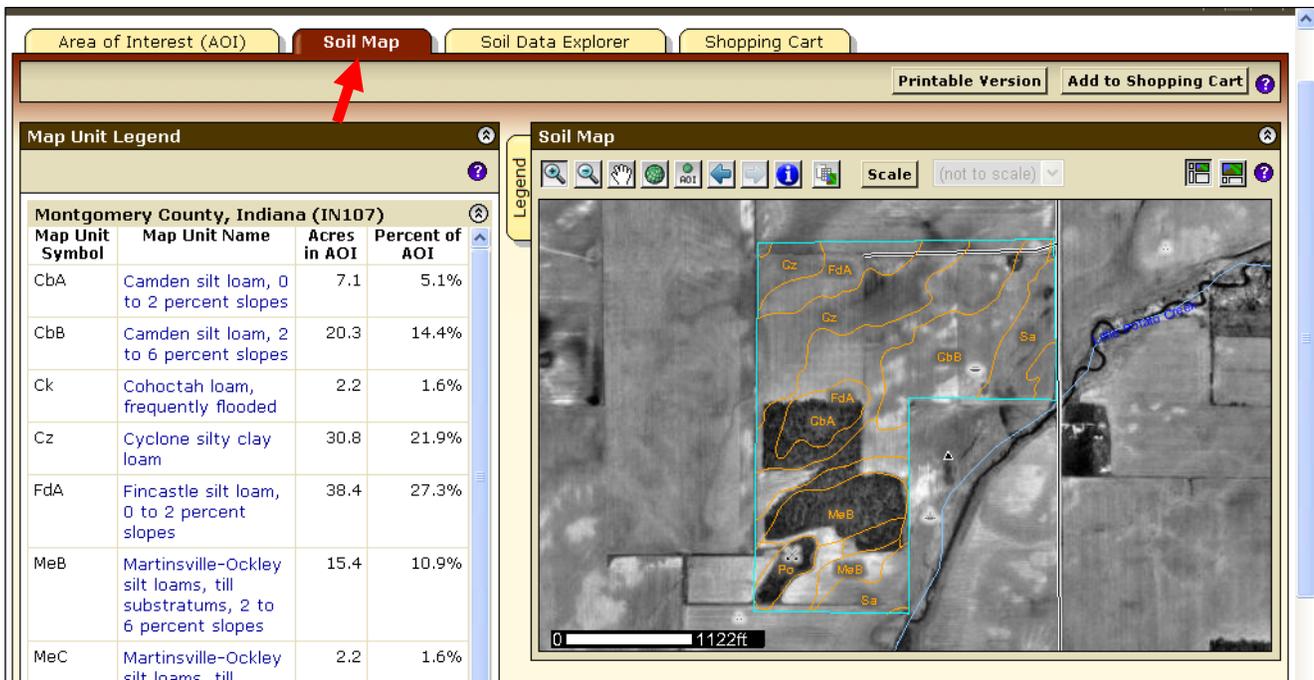


Figure 2. Viewing soil series information for the area of interest.



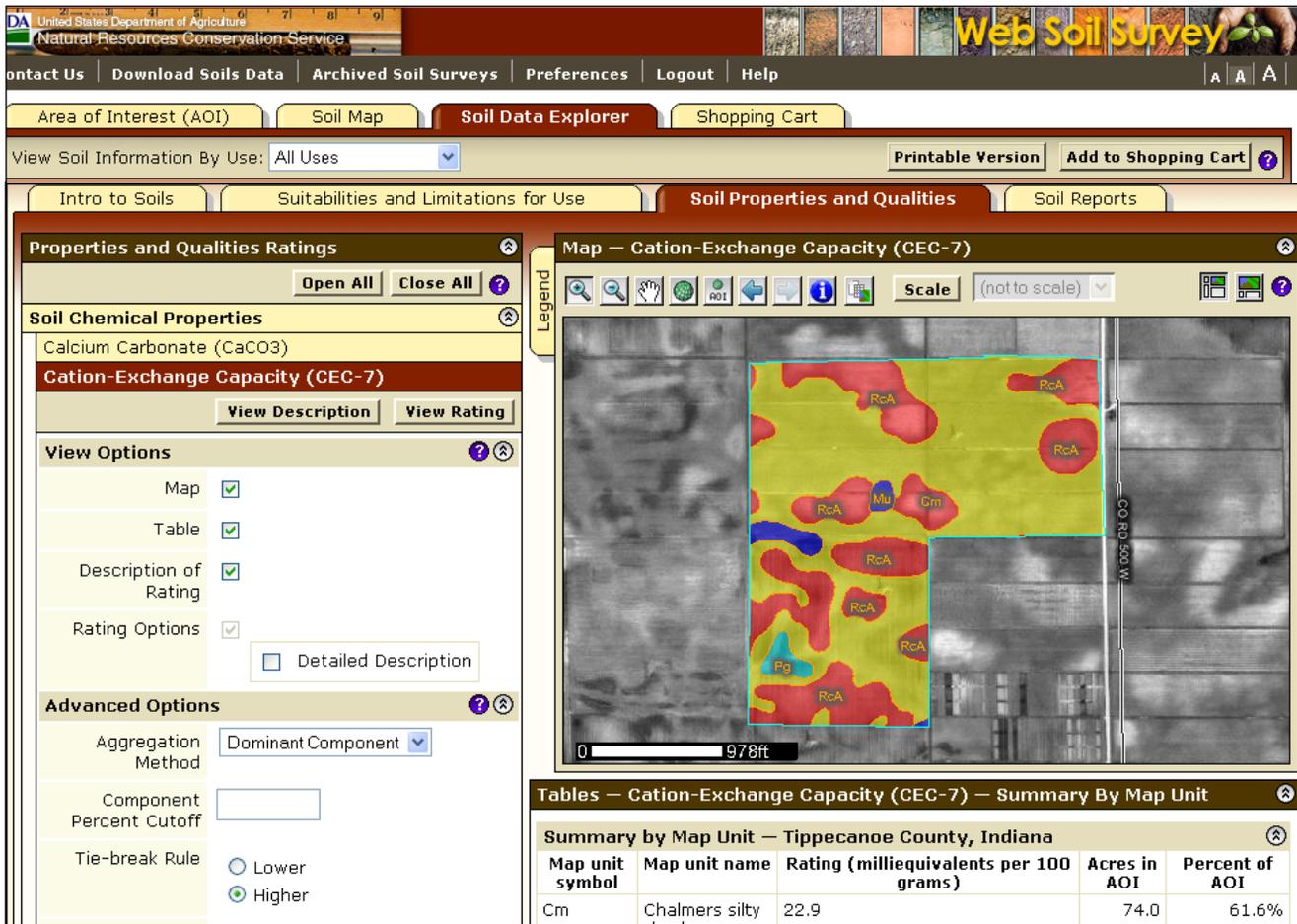


Figure 3. Soil properties can be visualized when working under the Soil Data Explorer tab.

The Soil Data Explorer tab gives information about the land use suitability and limitations. The first sub-tab under **Soil Data Explorer** is **Intro to Soils**, and among other items this contains a dictionary of soil terms that may be useful. The second tab is **Suitabilities and Limitations for Use**, which provides a text-based description and maps of the properties and limitations for various uses. The next tab to the right is **Soil Properties and Qualities** and includes information about soil chemical properties, soil erosion factors, soil physical properties, and soil quality (Figure 3). **View Rating** provides a visual map with the associated tables. The last tab to the right is **Soil Reports** and allows you to select the particular land use issue and develop a map and report. Soil reports are listed by category and allow you to select a soil feature or land use issue to develop a complete report in a printable version. Currently map products from the Web Soil Survey are delivered in Adobe Acrobat (.pdf) format, but within the year, maps and reports will be available in a GIS format, adding greatly to their utility for a number of applications.



Soil Survey Limitations

While the soil survey is clearly a valuable and sometimes indispensable tool, it does have certain limitations that should be noted. For example, soil map units may have inclusions of up to two acres that do not fit within the use and limitations for the series that is labeled. This is due to the scale at which the maps were created. Onsite soil examination and testing are therefore necessary to determine soil suitability for intensive use of small areas. The other limitation is that soil mapping is a continual process—as soil survey reports age, some parts may continue to accurately reflect existing soil conditions, while other parts may lose their utility. Again, depending on the date of the survey, onsite soil examination and testing may be required. For a list of Indiana Registered Soil Scientists (IRSS) who conduct intensive soil surveys go to the IRSS webpage: <http://www.isco.purdue.edu/irss/>

Summary

The relatively low investment of time required to review a soil survey is more than offset by the benefits of using the right soil for the right purpose or understanding its the possible soil limitations. Providing an on-line database of soils information has increased the utility of soils information for site-specific management.

