

Introduction

If you want to know something about the attributes of the soils that occur in an area of interest, what do you need?

At a minimum, you need:

1. Tabular soil data for that area of interest.
2. A way of determining which soil map units coincide with that area of interest.

Although the primary focus of this document is ways of determining which classes of digital soil data, tabular and spatial or tabular only, are available for an area of interest, let's briefly discuss the issue of determining which soil map units coincide with an area of interest.

In order to determine the attributes of the soil at a point on the ground, you must determine the soil map unit that coincides with that point, and to do this you must have access to the appropriate soil map. A soil map is a tessellated coverage of soil map units. Within a "soil survey area", a soil map unit is uniquely identified by its corresponding map unit symbol. This map unit symbol is what provides the link to the corresponding soil tabular data.

So what are some of the options for determining which soil map units coincide with an area of interest?

1. You can obtain a hard copy soil map for that area of interest and hopefully locate yourself using the orthophoto background. Such maps are available in a published soil survey manuscript, providing that a published soil survey manuscript exists and is still available for your area of interest. To inquire about the possibility of acquiring such a publication, or acquiring a reprint of a map in such a publication, contact the appropriate NRCS State Soil Scientist. Contact information for all NRCS State Soil Scientists is available on the web at the following address:

<http://soildatamart.nrcs.usda.gov/Contacts.aspx>.

2. You can obtain the digital soil spatial data for that area of interest and use the capabilities of a GIS to locate yourself, providing that digital soil spatial data exists for your entire area of interest.
3. You can use capabilities of the Web Soil Survey application to locate yourself, define an area of interest and determine which soil map units coincide with that area of interest, providing that digital soil spatial data exists for your entire area of interest.

So how can you determine whether or not digital soil tabular data or spatial data is available for your area of interest? Those options are discussed in the following section.

Ways of Determining What Soil Data is Available for an Area of Interest

Use the Soil Data Availability Status Map

<http://soildatamart.nrcs.usda.gov/statusmap.aspx>

The soil data availability status map indicates which classes of digital soil data, tabular and spatial or tabular only, are available for an area of interest. The soil data availability status map is currently available either as a graphic or as a GIS layer.

For any given point on the status map, the soil data availability status will be one of the following:

1. No digital soil data is currently available.

This corresponds to white areas on the map graphic, or records where `sastatcode / sastatname = 0 / "Unpublished"`, respectively, in the GIS layer's feature attribute table.

2. Only tabular digital soil data is currently available.

This corresponds to lighter green areas on the map graphic, or records where `sastatcode / sastatname = 1 / "Tabular Only in Soil Data Mart"`, respectively, in the GIS layer's feature attribute table.

3. Both tabular and spatial digital soil data are currently available.

This corresponds to darker green areas on the map graphic, or records where `sastatcode / sastatname = 2 / "SSURGO 2.1 in Soil Data Mart"`, respectively, in the GIS layer's feature attribute table.

The data for such a soil survey area may or may not be complete. If the data is complete, the entire survey area will be the same darker green color. Such a survey area may include regions for which mapping is not yet complete. This may occur for survey areas of progressive mapping where spatial and tabular data are disseminated before mapping is complete. Incomplete areas within a survey area for which both tabular and spatial data are currently available will be white.

Digital soil data availability status is recorded by soil survey area. A soil survey area is an administrative region for which a soil survey has either been conducted, is in process or is pending, or is some other region by which digital soil data is packaged and delivered. For example, some smaller states package all of their data together, even though it was originally mapped as a number of individual soil survey areas. In the end, the boundaries in this layer correspond to soil survey area boundaries, however a soil survey area is defined.

At first glance someone might assume that the boundaries in a soil data availability status map correspond to county boundaries. In many cases a soil survey area and a county do share the same boundary, but this tends to be less and less true moving from east to west across the United States.

The Natural Resources Conservation Service has primary responsibility for soil survey on private land. Other Federal agencies have primary responsibility for soil survey on public land. Because NRCS often cooperates with other Federal agencies that are responsible for soil survey on public land, our database contains soil survey information for a mixture of private land and some, but not all, public land.

White spaces on the soil data availability status map, or records in the GIS layer's feature attribute table where `sastatcode / sastatname = 0 / "Unpublished"`, respectively, may represent any of the following:

1. A soil survey area for which no digital data is yet available.
2. Public land for which a soil survey may or may not have been conducted. For areas for which a soil survey has been conducted, that information is not currently available in our database.
3. A large body of water.

Our database includes soil survey data for the following geographic regions:

1. All 50 U.S. states.
2. Puerto Rico and the Virgin Islands
3. American Samoa, Guam and a number of other islands in the Pacific Ocean that use to be referred to as "trust territories".

Soil Data Availability Status Map Graphic

The graphic version of the soil data availability status map is available in two formats, PDF or JPG. The PDF version offers limited zoom capabilities.

It can be difficult to locate your area of interest on the map graphic. Because this map includes the conterminous 48 states, Alaska, Hawaii, Puerto Rico and the Virgin Islands, Guam and a number of islands in the Pacific Ocean that use to be referred to as “trust territories”, the map scale is extremely small. It isn’t possible to accurately locate a small area of interest on such a map. The map graphic includes state and soil survey area boundaries, but no county boundaries, except in cases where a soil survey area boundary and a county boundary happen to coincide. Apart from state and soil survey area boundaries, the map graphic does not include any other reference layers that would help you orient yourself.

Soil Data Availability Status Map GIS Layer

The digital version of the soil data availability status map is currently only available in Shapefile format and in geographic coordinates. The name of the corresponding download file will always be “soilsa_a_nrcs.zip”.

In order to locate your area of interest, you will likely need to import additional reference layers including, but not necessarily limited to, country boundaries and background orthophotography.

When you view the entire extent of this layer, everything will appear very small to begin with due to the fact that this layer spans from Puerto Rico and the Virgin Islands to Guam and other islands in the Pacific Ocean.

Attributes associated with the digital soil data availability status map include the following:

AREASYMBOL: A five character symbol that uniquely identifies a soil survey area, e.g. “CO626”. This first two letters indicate the state or territory that has administrative responsibilities for the corresponding soil survey area, and the last three digits distinguish between survey areas administered by the same state or territory.

AREANAME: The name of the corresponding soil survey area, e.g. “Pueblo Area, Colorado, Parts of Pueblo and Custer Counties”.

SASTATCODE / SASTATNAME: The publication status code / name for the corresponding soil survey area. This must always be one of the following:

Survey Area Publication Status Code (SASTATCODE)	Survey Area Publication Status Name (SASTATNAME)	Definition
0	Unpublished	No digital spatial or tabular data is currently available.
1	Tabular Only in Soil Data	Tabular digital data is

	Mart	available from the Soil Data Mart. No spatial digital data is currently available.
2	SSURGO 2.1 in Soil Data Mart	Tabular and spatial digital data are available from the Soil Data Mart.

MSSTATCODE / MSSTATNAME: The manuscript status code / name for the corresponding soil survey area. A soil survey manuscript is the traditional bound soil survey area publication. A digital version of this manuscript is available for some soil survey areas. Soil survey manuscripts cannot currently be downloaded, but they can be viewed using the Web Soil Survey application.

Manuscript Status Code (MSSTATCODE)	Manuscript Status Name (MSSTATNAME)
0	No Manuscript Available
1	Manuscript without Maps Available
2	Manuscript with Maps Available

MAPREGION: The region in which a soil survey area occurs. This value is used in constructing a soil data availability status map graphic.

Map Region Code (MAPREGION)	Definition
1	Conterminous 48 States
2	Alaska
3	Hawaii
4	Puerto Rico and the Virgin Islands
5	Pacific Basin

SAVNUM: The version number of the corresponding soil survey area. A soil survey area's version number is updated when any of the following events occur:

1. The tabular data for the corresponding soil survey area was updated.
2. The spatial data for the corresponding soil survey area was updated.
3. The metadata for the corresponding soil survey area was updated.
4. The manuscript for the corresponding soil survey area was updated.

The soil data availability status map data does not record which of these events triggered the last version increment.

SAVDATE: The date when the corresponding soil survey area version was established.

ISCOMPLETE: A Boolean value that indicates if the data for a survey area for which both spatial and tabular data are available, is complete. The data for such a survey area is considered to be incomplete when there is one or more map unit polygons where the corresponding map unit symbol is "NOTCOM" (not complete). This notation is used in areas of progressive mapping where spatial and tabular data are disseminated before mapping is complete.

A GIS layer's attribute table can be viewed from within ArcMap by right clicking on the appropriate layer name (soilsa_a_nrcs, if you haven't changed the default name) and selecting "Open Attribute Table" from the context menu.

Loading the Tabular Data Associated with the Status Map GIS Layer into a Microsoft Access Database

To load the tabular data associated with the status map GIS layer into a Microsoft Access database, do the following:

1. Download and unzip the status map GIS layer zip file, "soilsa_a_nrcs.zip".
2. Copy "soilsa_a_nrcs.dbf" to "sastatus.dbf". Microsoft Access won't import a DBF file unless the non-extension portion of the file name contains eight or fewer characters.

Be sure to make a copy of "soilsa_a_nrcs.dbf" rather than just renaming it, if you also intend to import this data into a GIS.

3. Create and/or open a Microsoft Access database.
4. From the File menu, select Get External Data: Import.
5. In the Import dialog form that comes up, for "Files of Type:", select "dBASE IV (*.dbf)".
6. Using the Import dialog form, navigate to the directory containing "sastatus.dbf", select that file and then click "Import".

Since this data includes the survey area version number and version establishment date for all published soil survey areas, this data can be used to determine if data you have downloaded is up to date. In a SSURGO template database, survey area version number and establishment date reside in table "sacatalog". In the raw ASCII files, this information resides in the third and fourth fields of the first line in file "sacatlog.txt". Fields in this file are separated by the vertical bar or pipe character, "|".

Use the Capabilities of Web Soil Survey

<http://websoilsurvey.nrcs.usda.gov>

The Web Soil Survey application offers the most definitive way of determining which classes of digital soil data, tabular and spatial or tabular only, are available for a relatively small area of interest. Web Soil Survey allows you to navigate to and define an area of interest by a variety of mechanisms. Once you have specified an area of interest, for each soil survey area that shares a geographic coincidence with that area of interest, the Web Soil Survey application will indicate which classes of digital soil data are available for each of those survey areas.

In addition, for the extent of your area of interest for which digital soil spatial data exists, Web Soil Survey offers an online soil map with an orthophoto background that indicates which soil map units coincide with that area of interest, and the total extent of each of those soil map units in that area of interest.

At the time that this was written, an area of interest delineated by an ad hoc polygon was limited to a maximum 10,000 acres, or you could specify an entire soil survey area as your area of interest. The Web Soil Survey development staff is working to increase the maximum allowable number of acres for an area of interest delineated by an ad hoc polygon.

Navigate the Soil Data Mart

<http://soildatamart.nrcs.usda.gov>

If you know the county or counties that coincide with your area of interest, you can determine which classes of soil data, tabular and spatial or tabular only, are available for at least part of those counties by navigating the Soil Data Mart website.

For each county of interest, do the following:

1. On the Soil Data Mart's home page, click the button labeled "Select State".
2. On the Select State page, select the row of the state in which the county of interest resides, and then click the button labeled "Select County".
3. On the Select County page, find the county of interest and look at the number in the column labeled "Available Survey Areas". If that value is zero, no digital soil data is available for any part of that county. If that value is greater than zero, select that county's row and then click the button labeled "Select Survey Area".

4. The Select Survey Area page now shows all survey areas that share some geographic coincidence with that county. The last column in the grid shows which classes of soil data are available for the corresponding survey area. The available data column will always contain either “Tabular and Spatial” or “Tabular Only”. “Spatial Only” is never an option because a survey area cannot be posted to the Soil Data Mart unless tabular data is available for that survey area.

The fact that one or more survey areas share some geographic coincidence with a county doesn't guarantee that digital soil data is available for the entire county. There may be other survey areas that coincide with that county for which digital soil data is not yet available. Portions of that county may include public land for which digital soil data is not yet available or may never be available in the Soil Data Mart.