

## Soils Tips for NRCS Soil Data Mart download and data use

You can get county-level soils data (SSURGO) from the National Resources Conservation Service at <http://www.nrcs.usda.gov/products/datasets/ssurgo/>. Before you do this, take time to read the information on the NRCS site about the data and soils information in general. Also be aware that getting the data may take a few days - you submit a request, and a notification will be sent to you when it is ready for download. Also note that you will need Microsoft Access for using the tabular data.

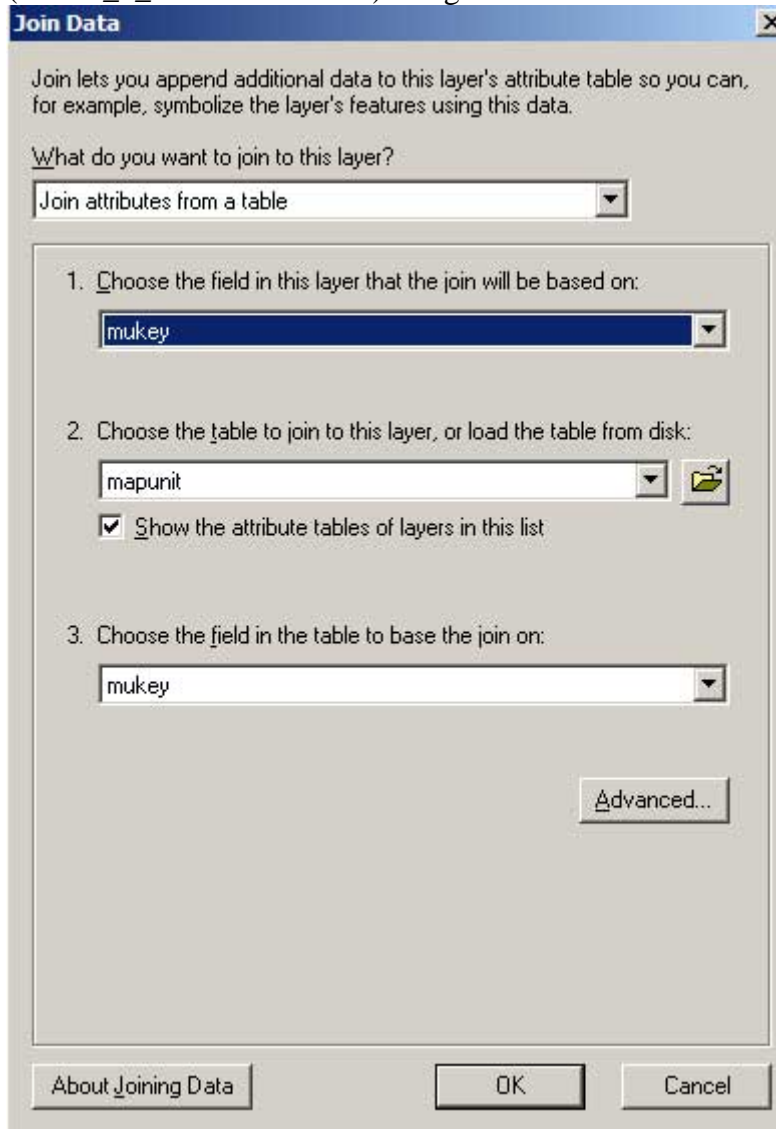
When you are ready to download, go to the **Soil Data Mart** site and follow the directions (**Select a State**, etc.). You should request the option for both tabular and spatial data, which will include a MS Access soils database template. When you get the to request submittal form, be sure to enter your e-mail address. They will notify you when the file is ready for download. It will be a zipped file.

When you receive the zipped data, unzip it. There should be folders for Tabular data, Spatial data, and the Access database folder (soildb\_US\_2002.zip), as well as metadata and some instructions. Unzip the soildb\_US\_2002.zip as well.

1. Open the soils Access database template by double-clicking on it (**soildb\_US\_2002.mdb**) – this will start Microsoft Access - if you receive warnings about opening unsafe expressions, say No to blocking and open the data set)
2. Once Access opens, you should immediately see in *import* form. This will import the tabular data into the MS Access template. It will ask you to enter a directory path (folder path) for the tabular data – type in the folder path for the tabular data folder (or copy and paste from the folder window (e.g., C:\Documents and Settings\bparme01\My Documents\GIS\_materials\GIS\_data\soils\_NRCS\soil\_ma017\tabular ) and click OK. If you do not see this form, click on **Forms** on the left side of the Microsoft Access database window, and then look in the window and double-click the form called *IMPORT*. The import process takes a few minutes – don't do anything until it has finished (check status in lower left corner of the Access program window).
3. In Access, a **Soils Report** form will appear once the import process has finished – this report form allows you to generate soils reports for selected (or all) soils concerning various aspects of the soils. Explore this tool a bit before moving on to ArcGIS.
4. Once you have imported the data to Microsoft Access and looked at the Soils Report form **close** the data base and **quit** out of Access.
5. Under the spatial data folder, there are several shape files. The soils polygons of interest to you are the map unit polygons - this layer is named "soilmu\_a\_..." followed by the state abbreviation and county FIPS code (e.g., *soilmu\_a\_tx453*).
6. Start **ArcMap** and add the **soilmu\_a...** shape to ArcMap.

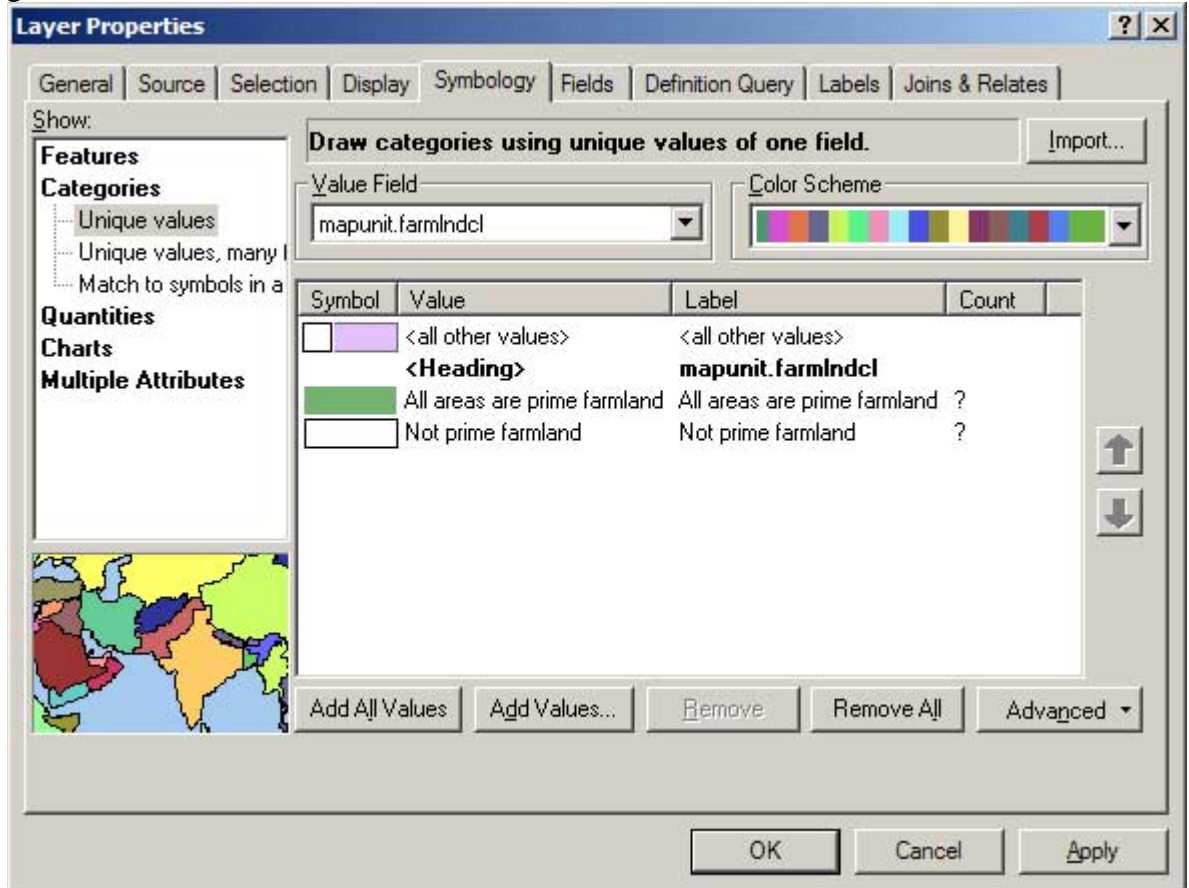
7. Open the **soilmu\_a...** attribute table to see what fields it contains. Note there is a field called *musym* that is an abbreviation for the map unit, and there is a field called *mukey* that is a code for the map unit. A map unit is a polygon area that has an associated set of soils and soil characteristics. The *musym* field is an abbreviation that refers to the soil association, and the *mukey* is a code for that same association. These fields can then be joined or related to other tables in the soils database to provide more information.
8. In **ArcMap** click **Add** again and this time go to the Access database, click on the **soildb\_US\_2002.mdb** - you will see a long list of files available. Find the *MAPUNIT* file and add this file to your ArcMap data frame. Open the *MAPUNIT* table to see what it contains. You will see fuller descriptions of the soil association, including name. Among the other attributes are indications of whether that map unit is considered prime farmland.
9. You can join the *MAPUNIT* table to the soil map unit polygons to see and map information in a single layer. To make this join, right-click on the **soilmu\_a...** GIS layer and choose **Joins and Relates - Join...**
10. Fill out the dialog box as you see in the graphic below and click OK - you are joining the *MAPUNIT* table to the soils map units polygon GIS data layer

(*soilmu\_a\_tx453* in this case) using their shared attribute field, *mukey*:



11. Now look at the soils polygons attribute table again and you will see all the attribute fields from both tables.

12. Try mapping prime farmland for your county - see the graphic below for guidance:



13. Note that if you click on NOT PRIME FARMLAND to highlight it in the Symbology dialog box and remove that from the map, you can get a nice map of prime farmland soils in your county - see this [Travis County example](#)
14. If you like, you can create a permanent shape file with all the data joined by right-clicking on the soils polygon layer (e.g., *soilmu\_a\_tx453*) and choosing Data - Export - this will create a new shape file so remember to specify a location and name for your new file.