# Accessing an External Soil Database (NYI)

8

-

The Access External Soil Database functions allow you to either import data contained in an external template soil database, or attach to the tables in an external template soil database. The main reason you might want to import from an external soil database is that you have downloaded an updated template database, and now you want to import the soil survey data that resides in the older template database you had been using.

There are fewer reasons to attach to the tables in another template soil database. When you attach to the soil tables in another template soil database, the existing soil tables in this template database are first dropped and then replaced with references to the soil tables in the external template database. We originally provided the attach capability as a way for a person to be able to generate FSA-CRP data (See the section titled "FSA-CRP Data Generation" for more information.) without having to bring their existing soil survey area data into the updated template database. There may be other scenarios where attaching is favored over importing, but in general, importing is likely preferable. Note however that, with a couple of exceptions discussed in the section about "import and attach caveats", most functions that run against local tables also work with attached tables.

Attaching to soil data tables in an external template database, or importing data from an external template database, is accomplished by running the macro named "Access External Soil Database". This macro displays a form with one data entry blank, and three buttons: Import, Attach and Cancel. In the blank, you enter the fully qualified pathname of the external template database you wish to access, e.g. "D:\soils\data\soils\_ne079.sqlite". After entering the external template database pathname, click the appropriate button.

The Import button attempts to import ALL soil data that resides in the external template database.

The Attach button attempts to attach to the soil data tables that reside in the external template database.

The Cancel button simply closes the form without attempting to import or attach.

When importing from or attaching to the tables in an external template database, the following checks are always made. If any of these checks fail, the import or attach process is aborted.

1. The external database format (corresponding SQLite version) must be compatible with that of the local database. The local database is the database where you are running the import or attach process. For example, an Access 97 database cannot import data from an Access 2002 database.

2. The external template database must contain the soil data tables.

3. The soil data tables in the external template database must be local to that database, i.e. they cannot be attached tables themselves.

Below are some caveats pertaining to the Import and Attach functions.

You can import data from an external template database into a database that currently contains soil data, but you will be warned that you should probably be importing into a copy of your original, since the import process can fail. If you attempt to do this, you are given a warning, and an option to either proceed or cancel.

You cannot import data from an external template database into a template database whose tables are currently attached tables, as opposed to local tables. You can however import data from ASCII files into a database whose tables are currently attached tables.

If an import operation is not successful, your local database may be left with only partial data for the survey or surveys that were being imported. Any surveys for which only partial data was imported should be dropped from the local database by running the macro named "Drop Soil Survey Area". This is why it's a good idea to know what surveys reside in your database, prior to an import operation. This is also why if you are importing into a database that already contains soil data, you should import into a copy of that database, rather than the original.

You cannot import from the database that you are currently using.

A SSURGO template database can typically import from any earlier version SSURGO template database, but a SSURGO template database cannot import from a later version SSURGO template database.

When you attempt to attach to soil data tables in an external template database, your local database must not currently contain any soil data. The reason for this is that in order to attach to tables in an external database, your local tables must be dropped. As a safety feature, local tables are never dropped, unless they are currently empty. If you want to delete data from a local database, use the macro named "Drop Soil Survey Area".

You cannot use the macro named "Drop Soil Survey Area" to drop soil survey areas from the soil data tables in an attached database. This is disabled as a safety feature.

If an attach operation is not successful, your local database will be left without any soil data tables. Since we require that your local database be empty prior to any attempt to attach to an external template database, no real harm will have been done. The worst that can happen is that you may have to go get another copy of the template database to replace the one that was just "destroyed".

After any successful OR FAILED attempt to attach to the soil data tables in an external template database, you can then immediately attempt to attach to the soil data tables in a different external template database. After a failed attempt to attach to the soil data tables in an external template database, the only function that is still available is the capability to attach to the soil data tables in an external template database. Most other macros and forms will now fail because one or more required tables are now missing from the local database.

You cannot attach to the database that you are currently using.

A SSURGO template database can only attach to another SSURGO template database of the same SSURGO version.

Note: some interesting history with ideas that we might want to implement in the future.

# Base Metadata Version

15

2

Base Metadata Version, for a given combination of SSURGO Version and Import Data Model Version, indicates the version of the metadata in a SSURGO Template database, at the time that SSURGO Template database was released.

The structural metadata in a SSURGO Template database includes the metadata for all tables that are part of the SSURGO standard, as well as the metadata for selected tables that are not part of the SSURGO standard.

This metadata resides in the following tables in a SSURGO Template database:

mdstatdommas – Metadata pertaining to all domains referenced by the columns of selected tables in a SSURGO Template database.

mdstatdomdet – Metadata pertaining to the members of all domains referenced by the columns of selected tables in a SSURGO Template database.

mdstattabs – Metadata pertaining to selected tables in a SSURGO Template database.

mdstattabcols – Metadata pertaining to the columns in selected tables in a SSURGO Template database.

mdstatidxmas – Metadata pertaining to the primary keys, unique constraints and indexes associated with selected tables in a SSURGO Template database.

mdstatidxdet – Metadata pertaining to the columns included in the primary keys, unique constraints and indexes associated with selected tables in a SSURGO Template database.

mdstatrshipmas – Metadata pertaining to the relationships between selected tables in a SSURGO Template database.

mdstatrshipdet – Metadata pertaining to the columns on which selected tables in a SSURGO Template database are related.

When data is imported into a SSURGO Template database, metadata is not updated unless the Metadata Version of the data being imported is greater than the Base Metadata Version of that SSURGO Template database.

For a given combination of SSURGO Version and Import Data Model Version, the corresponding Base Metadata Version may be incremented over time.

Whenever SSURGO Version or Import Data Model Version changes, Base Metadata Version should be reset to 1.

Note: Changed from '1' to '2' because of the addition of daglevel column to mdstattabs table.

# Contacting Support

1

-

Questions about this database should be directed to the Soils Hotline. The Soils Hotline, which resides at the National Soil Survey Center in Lincoln Nebraska, is typically staffed from 8:00 AM to 4:30 PM Central Time.

(402) 437-5378 – Steve Speidel

(402) 437-5379 – Tammy Cheever

e-mail: [soilshotline@usda.gov](mailto:soilshotline@usda.gov)

Updated soilshotline e-mail address

# Deleting/Updating Data (NYI)

7

-

All data for one or more soil survey areas can be deleted by running the macro named "Drop Soil Survey Area". The Drop Soil Survey Area form displays all soil survey areas that currently reside in the database. To delete all data for one or more soil survey areas, select the soil survey area, or areas, whose data you wish to drop, and then click the button labeled "Drop". Multiple contiguous (contiguous in the form's selection list) soil survey areas can be selected using <Shift>Click, or by clicking and dragging. Multiple noncontiguous soil survey areas can be selected using <Ctrl>Click.

The main reason for dropping data for a soil survey area is the case where your database currently contains data for a particular soil survey area, and you want to update that data from a newer export. The import process is not currently capable of performing an update, so any existing data for a particular soil survey area must be deleted before updated data for that same soil survey area can be imported.

The Drop Soil Survey Area process does not reclaim the space occupied by the deleted data, and if data is dropped and reloaded enough times, the size of the SQLite database may become an issue. Of course an existing database can always be compacted by selecting "Compact Database" from the Tools menu in DB Browser.

Note: Assuming that tables are constructed using the 'ON DELETE CASCADE' option, a properly designed query can be run to drop all tabular and spatial data for a specified soil survey area. Please note that currently the sdvattribute table does not have a mechanism for dropping records that belong only to that survey area.

# Exporting Data (NYI)

9

-

From time to time the national SSURGO template database is updated. Existing errors are fixed and new capabilities and reports are added. The changes associated with each version of the SSURGO template database are documented in the system report titled "Template Database Change History".

There may come a time when you want to replace your current SSURGO database with an updated version. You may want to transfer your existing SSURGO data from your current database to the updated database. This can be accomplished in two different ways. One way is to export data from your current template database and then import that data into the updated template database. The other way is to use the updated template database to import data directly from your current template database. This second method is discussed in detail in the section titled "Accessing an External Soil Database". The remainder of this section discusses exporting data from an existing template database.

To export data from you current SSURGO database, open your SQLite database in DB Browser, select the Macros tab and then run the macro named "Export". After the export form is displayed, enter the full path of the directory into which the data should be exported. The directory into which you export your SSURGO data should not contain any data from a previous SSURGO export. If it does, and you then import from that directory, the import may fail due to encountering partial data from that previous SSURGO export.

At the current time, the export process does not let you select the soil survey areas to be exported. The current export process always exports all soil survey areas that currently reside in the database. If you want to export only selected soil survey areas, make a copy of you current database, and then from the database copy, drop the survey areas you don't want to export and then export. See the section titled "Deleting/Updating Data" for more information on dropping soil survey area data.

The export process produces a set of ASCII delimited files in the SSURGO version format of the database from which data is being exported. This export process does not zip up the individual ASCII delimited files into a single zip file. Once an export has been produced, that data can then be imported into a different template database by running the Import macro in that database. See the section titled "Importing Data" for more information about the import process.

Note: I think this functionality is a very low priority, but that may change in the future. This narrative does not address the spatial data. I would assume that a more viable solution would be to use 'attached database' methods.

# File version.txt

4

2.3.1

Any soil data exported from Web Soil Survey includes a file named "version.txt". The contents of this file is used to determine if the data a user is about to import into a SSURGO Template database is compatible with that database, and whether or not any accompanying metadata should be imported.

File "version.txt" contains a single line in the form number.number.number.

The first number is the SSURGO Version. See section "SSURGO Version" in this same report for additional information.

The second number is the Import Data Model Version. See section "Import Data Model Version" in this same report for addition information.

The third number is the Metadata Version. See section "Base Metadata Version" in this same report for additional information.

Every version of a SSURGO Template database where the SSURGO Template database version is greater than or equal to 36 "knows" what SSURGO Version and Import Data Model Version it is compatible with.

No data will be imported unless both the SSURGO Version and the Import Data Model Version in file "version.txt" match what is expected.

Metadata will not be imported unless the Metadata Version in file version.txt is greater than the Base Metadata Version of the SSURGO Template database in question. This prevents obsolete metadata from being imported.

For those of you responsible for creating and/or updating SSURGO Template databases, ExpectedSSURGOVersion, ExpectedImportDataModelVersion and BaseMetadataVersion are defined in the Declarations section of Module "Import Procedures".

# FSA-CRP Data Generation

10

-

FSA-CRP data generation produces a file that includes some of the information that the Farm Service Agency uses in determining if a piece of land is eligible for inclusion in the Conservation Reserve Program. The FSA-CRP data generation functions always process ALL data that currently resides in the template database. In other words, there is no capability to generate FSA-CRP data for some subset of the data in your database.

In the template database, there are two macros associated with this process:

FSA-CRP – Create Data

FSA-CRP – Create Data and Export

Macro "FSA-CRP – Create Data" generates results and writes the results to the table named "FSA-CRP Data", but does not export the contents of that table. There is no user interaction after this macro is invoked.

Macro "FSA-CRP – Create Data and Export" generates results, writes the results to the table named "SYSTEM – FSA-CRP Data", and automatically exports the contents of that table to a file named "fsacrp.txt". After this macro is invoked, a form is displayed where you must specify the desired output directory. There is no option to specify the output file name. If you want a different output file name, you must rename the file after it is created.

Each output record represents a map unit that occurs in a particular county. The attribute values correspond to the dominant component of that map unit, based on percent composition. If there is a tie for dominant component, the component with the lowest key value (cokey) is arbitrarily selected.

The process of determining what county or counties a map unit occurs in is a multi-part process. If a map unit in a survey area has at least one county record in the Map Unit Area Overlap table (muaoverlap), a record is output for each county corresponding to that map unit.

If a map unit has no county record in the Map Unit Area Overlap table, but the corresponding survey area has at least one county record in the Legend Area Overlap table (laoverlap), a record is output for that map unit for each county corresponding to that survey area.

If a survey area has no corresponding county record in the Legend Area Overlap table, a record is output for that map unit for each record that the corresponding survey area has in the Survey Area-County Geographic Coincidence table (SYSTEM – Survey Area-County Geographic Coincidence).

If a map unit has no county record in the Map Unit Area Overlap table, and the corresponding survey area has no county record in the Legend Area Overlap table, and the corresponding survey area has no record in the Survey Area-County Geographic Coincidence table, NO record for that map unit is output. If this occurs for any map unit, a warning dialog is displayed at the end of the data generation process. Map units for which no corresponding county could be determined are logged in the file named "SYSTEM – FSA-CRP – Warnings and Rejects". If this occurs, this situation should be resolved before you forward your output to the proper recipients. A quick way to fix this problem is to add the appropriate record or records to the Survey Area-County Geographic Coincidence table. You should add one record for each county that coincides with the survey area in question. Before doing this you should probably consult with whoever provided you with the soil data that you are using.

It is also possible that no dominant component for a map unit can be determined. If this occurs for any map unit, a warning dialog is displayed at the end of the data generation process. Map units for which no dominant component can be determined are also logged to the table named "SYSTEM – FSA-CRP – Warnings and Rejects". As long as a corresponding county can be determined, such a map unit is output, but the values of all FSA-CRP criteria attributes will be null. Again, if this occurs, you should probably check with the person who provided you with the soil data that you are using, before you forward your output to the proper recipients.

The FSA-CRP data generation process can act on data that resides in the current template database (i.e. local tables), or it can act on data that resides in an external template database (i.e. attached tables). The reason for this is that we wanted to provide a new template that includes the FSA-CRP data generation functions, but we didn't want to force data providers to have to re-download data and provide new soil databases.

This means that you can obtain a new version of the template that contains the new FSA-CRP data generation functions, and use that template to attach to your existing soil database in order to create the FSA-CRP data. In order to run the FSA-CRP data generation functions against an attached database, you must first run the macro named "Access External Soil Database" to attach to the soil tables in the external template database. See the section titled "Access External Soil Database" in the report titled "How to Understand and Use this Database", for more information.

This brief overview does not discuss the derivation of any of the FSA-CRP criteria attributes. If you want more details about the actual derivation of these attributes, please contact the Soils Hotline at the National Soil Survey Center in Lincoln NE. See the section titled "Contacting Support" in the report titled "How to Understand and Use this Database".

# General Information

2

-

This database was developed in order to facilitate the delivery and use of soil survey data for USDA Natural Resources Conservation Service end-users and cooperators. This database may be used stand-alone or in conjunction with the Soil Data Viewer application. The underlying data structure corresponds to the SSURGO version identified in the report named "How to Understand and Use this Database". Although a SSURGO product typically represents both the tabular and spatial aspects of a correlated and published soil survey area, this database may also be used to deliver tabular data for a soil survey area where mapping or updating is still in progress.

# Generating Reports

5

-

This database contains an interface for generating a variety of reports. Reports are divided into two categories, "Soil Reports" and "System Reports". Soil reports present information about a selected soil survey area. System reports describe the functionality and structure of this template database. At this time, no descriptions of the individual soil reports are available. Descriptions of some of the system reports can be found in the section titled "SSURGO Metadata Reports".

In order to generate soil reports, select the tab labeled "Forms" and then open the form named "Soil Reports". In order to generate system reports, select the tab labeled "Forms" and then open the form named "System Reports". Note that the Soil Reports form has a button for opening the System Reports form, and vice versa. Both forms may be open at the same time.

In order to generate most soil reports, you must first select one or more map units to be included in the report. If your database contains data for more than one soil survey area, you may first have to select the appropriate soil survey area before selecting map units. The current soil report interface restricts you to selecting one or more map units for a single soil survey area at a time. The only soil reports that don't require you to fist select one or more map units are the Survey Area Metadata and Survey Area Interpretation Descriptions reports.

After you have selected the map units you wish to include in the report, select the soil report you wish to generate. If the report you selected does not require any parameters, the button on the lower left of the form will have the caption "Generate Report". Clicking "Generate Report" will display the currently selected report in the "preview window". If the report you selected requires parameters, the button on the lower left of the form will have the caption "Select Parameters". Clicking "Select Parameters" will bring up another form, from which you can make your parameter selections. After making your parameter selection, click the button on the parameter form that is labeled "Generate Report".

Once a report has come up in the preview window, you can browse through the report in the preview window, or actually print the report from the preview window. When you are finished browsing or printing the report, you can close the preview window by either clicking the "X" at the top right of the window or by clicking the menu item at the top of the screen labeled "Close".

The System Reports form operates the same as the Soil Reports form except you do not select map units before generating a system report.

All report interface forms may be closed by clicking the button labeled "Exit".

Generating a soil report (as opposed to a system report) by selecting the tab labeled "Reports" and then opening a specific report should be avoided. While this won't break anything per se, the report that is displayed, if any, will be based on map unit selections that were made at some point in the past. If the report requires additional parameters, the report will be based on parameter selections that were also made at some point in the past.

# Import Data Model Version

3

-

Import Data Model Version, for a given SSURGO Version, corresponds to the data model of all of the data that can potentially be imported into a SSURGO Template database.

A data model defines a collection of tables, columns, unique constraints, and the relationships between the tables in that collection. The Import Data Model Version encompasses all tables in a SSURGO Template database that are part of the corresponding SSURGO standard, as well as a number of tables in a SSURGO Template database that are not part of the corresponding SSURGO standard.

Import Data Model Version, in conjunction with SSURGO Version is used to determine if the data a user is about to import into a SSURGO Template database is compatible with that database. If either the SSURGO Version or the Import Data Model Version in file "version.txt" doesn't match what is expected, that data cannot be imported. This prevents data that is not in the proper format from being imported into a SSURGO Template database.

For a given SSURGO Version, the corresponding Import Data Model Version may be incremented over time.

Whenever SSURGO Version changes, Import Data Model Version should be reset to 1.

# Importing Data

3

-

Soil data downloaded from Web Soil Survey has to be unzipped before it can be used. The location to which that data is unzipped doesn't really matter. If your system has a zip utility already installed, a zip file can typically be unzipped simply by double clicking on it. Soil Data Mart zip files are created using WinZip, but any compatible compression utility can be used to unzip an export file.

Exports are packaged by soil survey area, and the soil survey area symbol is embedded in the zipped export file name. A soil survey area symbol is composed of a two letter state FIPS code followed by a three digit number that distinguishes one soil survey area in a state from another. For example, the zipped export file for Cherry County, Nebraska would be named "soil\_ne031.zip".

After unzipping a file named soil\_ne031.zip, in the directory to which you unzipped the file, you are left with a directory/file hierarchy similar to what is shown below. A top level directory corresponding to the soil survey area is created in order to separate exports that are unzipped to the same directory.

\soil\_ne031

\spatial

\tabular (contains the soil tabular data ASCII delimited files)

readme.txt

soil\_metadata\_ne031.txt

soil\_metadata\_ne031.xml

soildb\_US\_2002.zip (a zipped MS Access SSURGO template database)

The last file is only present if you chose to include a SSURGO template database with your download. The name of this file may vary depending on the state for which you requested a download, and depending on the Microsoft Access version you requested.

The soil tabular data cannot be easily used without importing it into a Microsoft Access database.

If you requested a Microsoft Access SSURGO template database, the file containing that SSURGO template database must now also be unzipped before it can be used. If your export request did not include a SSURGO template database, you can always download one from:

http://websoilsurvey.nrcs.usda.gov

In order to use a SSURGO template database, an appropriate version of Microsoft Access must be installed on your PC. In general, the version of Microsoft Access on your PC must be equal to or newer than the version of the SSURGO template database.

Unzipping soildb\_US\_2002.zip results in a file named soildb\_US\_2002.mdb. This unzipped file is a Microsoft Access database. Again, the location to which the SSURGO template database is unzipped doesn't really matter.

To import data into the Microsoft Access database, you must first open the database by double clicking the database file name. When you first open that database, and it is empty, the Import form is automatically displayed. If the Import form is not automatically displayed when you open the database, select the Forms tab of the Database window and open the form named "Import".

In the blank on the Import form, enter the fully qualified path name of the directory containing the soil tabular data ASCII delimited files whose contents are to be imported, .e.g.

d:\temp\soil\_ne031\tabular

After entering the directory pathname, click "OK" to initiate the import process. When the import has completed, the Import form will automatically be closed, and the Soil Reports form will be automatically opened.

If any problem occurs during the import process, a dialog box noting the problem will be displayed.

Data from more than one export may be imported into this database. Each export has to be imported independently. A subsequent import cannot contain any data for a soil survey area that already resides in this database, since the current import process is strictly an "add" operation as opposed to a more sophisticated "add/update" operation. If you attempt to process an export that contains data for a soil survey area that already resides in this database, that import operation will fail. If you want to update a soil survey area that already resides in a database, you must first drop the existing copy of that soil survey area. For more information on dropping the data for an existing soil survey area from a database, please see the section titled "Deleting/Updating Data".

MS Access, despite being the incredibly nifty desktop database it is, should not be confused with a genuine high-end database management system. You may continue to import soil survey data until the maximum allowable size of an MS Access database is reached (Access 97 - 1 Gigabyte, Access 2000/2002/2003 - 2 Gigabytes). Of course the larger the MS Access database, the more that performance will degrade. Performance goes completely south long before maximum database size is reached.

As of template database version 29, it is now possible to import spot feature descriptions. Spot feature descriptions are imported into table "featdesc". Spot features are considered to be part of the spatial data and are therefore not automatically imported with the tabular data. Even when spatial data is available, spot feature descriptions may not exist.

To import spot feature descriptions, open the form named "Import Feature Descriptions". In the blank on that form, enter the fully qualified path name of the file containing the spot feature descriptions to be imported. For a download from the Soil Data Mart, spot feature descriptions, when available, reside in a file in the subdirectory named "spatial". The prefix of the spot feature description file name will be either "soilst\_t" (Shapefile format) or "ssf\_t" (ArcInfo Coverage or ArcInfo Interchange format), depending on the format in which the spatial data was exported. The corresponding soil survey area symbol is also embedded in this file's name. For example, if spot feature descriptions for Cherry County, Nebraska existed, and if the spatial data was requested to be in Shapefile format, the spot feature descriptions would be contained in …\soil\_ne031\spatial\soilsf\_t\_ne031.txt.

# Metadata Change History

16

-

2.3.1 – 09/10/2012

Note that this date reflects when work on template version 36 was completed, not when this template version was actually released. At the time this was written, it looked like template version 36 and Web Soil Survey 3.0 would be simultaneously released sometime in the first quarter of 2013. Template version 36 is required for exports from Web Soil Survey 3.0, due to changes to table "sdvattribute".

Item: Table "sdvattribute" was updated due to changes to the aggregation engine that used to generate thematic soil maps in Windows Client Soil Data Viewer and Web Soil Survey. While table "sdvattribute" isn't actually part of the SSURGO standard per se, the metadata for this and the other SDV related tables are included with in the metadata tables that reside in a SSURGO Template database.

2.2.6 – 07/13/2012

Item: Synchronized with NASIS data dictionary 6.2.7. There were some domain changes and additions.

Item: The logical data type of the attribute associated with each of the following

columns was changed from Boolean to Choice, since "N/A" is now a third option.

The physcial data type of the following columns remains Text(3).

component.flhe

component.flphe

component.fltemik2use

component.fltriumph2use

2.2.5 – 04/12/2011

Item: Synchronized with NASIS data dictionary 6.1.12. There were some domain changes and additions.

2.2.4 – 03/12/2010

Item: Synchronized with NASIS data dictionary 6.0.22. There were some domain changes and additions.

2.2.3 – 11/13/2007

Item: Synchronized with NASIS data dictionary 5.4.0. There were some domain changes and additions.

2.2.2 - 09/01/2006

Item: Synchronized with NASIS data dictionary 5.3.2. There were some domain changes and additions.

2.2.1 - 10/11/2005

Item: For survey area data committed to the Soil Data Warehouse prior to July 11, 2005, columns component.geomdesc and cogeomordesc.geomfname contained geomorphic feature names in singular form. For survey area data committed to the Soil Data Warehouse on or after July 11, 2005, these columns now contain geomorphic feature names in plural form. The definition of column cogeomordesc.geomfname was updated to reflect this change. The definition of column component.geomdesc didn't specifically mention geomorphic feature names being in singular form, so that definition was not updated.

Item: Soil Data Viewer related tables "month", "sdvalgorithm", "sdvattribute", "sdvfolder" and "sdvfolderattribute" were added.

Item: For data in shape file format, point feature class data (point spot features and point map units) is now provided in single point format rather than in multipoint format.

Item: Synchronized with NASIS data dictionary 5.3.1. There were some domain changes and additions.

Item: The field size of a number of SSURGO metadata table attributes was increased.

2.1.1 - 10/03/2003

Item: For the survey area boundary feature class, column "ssaid" was renamed to "areasymbol". Column "areasymbol" was added to all other feature classes.

Item: For the spot feature line and spot feature point feature classes, column "musym" was renamed to "featsym".

Item: Survey area spatial data is now explicitly versioned. A spatial version number column was added to all feature classes.

Item: Survey area data now potentially includes two new feature classes, point map units and line map units. For any particular survey area, these feature classes are optional.

Item: The delivery format of the feature description ASCII export file (featdesc.txt), is no longer Prelude format (a format associated with SSURGO version 1.0). The format of this file is now the same as the format used for general tabular data files - ASCII, pipe field delimited and double quote text delimited.

Item: Table "featdesc" was added. Feature description data was available in previous SSURGO versions, but there was no corresponding database table. While feature description data is considered to be part of the spatial data, the feature description data does not include any ESRI geometry column, i.e. the feature description data is not a feature class. Data for this table is not automatically imported when other tabular data is imported. Data for this table must be explicitly imported in a separate process.

Item: Tables "sacatalog" and "sainterp" were added. These tables supersede tables "distmd", "distlegendmd" and "distinterpmd". Tables "distmd", "distlegendmd" and "distinterpmd" were left in the template database for backwards compatibility with SSURGO 2.0 exports, and SSURGO 2.1 exports include data for these tables. These tables will likely be dropped in the next major SSURGO version.

Item: Survey area tabular data is now explicitly versioned. The tabular version number and corresponding date reside in table "sacatalog".

Item: Synchronized with NASIS data dictionary 5.2.4. There were some domain changes and additions.

Item: Columns mapunit.mustatus and muaggatt.mustatus were changed from not null to nullable.

Item: The following columns are still part of the SSURGO standard, but their contents will always be set to null. These columns will likely be dropped in the next major SSURGO version:

legend.ssastatus

legend.legendsuituse

legend.legendcertstat

mapunit.mustatus

mapunit.mucertstat

muaggatt.mustatus

Item: Within a soil survey area, map unit symbol must now be unique.

Item: The field size of columns mdstattabcols.colphyname and mdstatidxdet.colphyname was changed from 16 to 18.

2.0.3 - 04/23/2002

Item: Resynchronized with NASIS data dictionary 5.1.3. There were some domain changes and additions.

Item: The fuzzy logic result values (interpll, interplr, interphr and interphh) in table cointerp were changed from not null to nullable.

Item: The field size of coecoclass.ecoclasstypename was changed from 254 to 60.

Item: The field size of coecoclass.ecoclassid was changed from 248 to 30.

Item: The data type of coforprod.fprod and coforprodo.fprod was changed from integer to smallfloat, and its precision was set to 2.

2.0.2 - 09/12/2001

Item: Resynchronized with NASIS data dictionary 5.0.17. There were some domain changes and additions, and some attribute descriptions were updated.

2.0.1 - Approximately 01/01/2001

Initial release of version 2.0 of the SSURGO standard.

# Soil Data Versioning

11

-

Prior to establishment of the Soil Data Warehouse, soil data was loosely versioned, at best. Version was reflected either in a SSURGO archive date, in a NASIS SSURGO export's corresponding distribution generation date, or possibly in the soil survey area's corresponding export certification date. Export certification date was not even a required field.

With the establishment of the Soil Data Warehouse, soil data is now explicitly and formally versioned. Version information is now tracked for the following entities:

Soil Survey Area

Soil Survey Area Tabular Data

Soil Survey Area Spatial Data

The Soil Data Warehouse recognizes that fact that, at the present, survey area tabular data is maintained and managed independent of its corresponding spatial data.

The Soil Data Warehouse provides the capability to distribute soil survey area tabular data that has no spatial data counterpart. This is sometimes done for survey areas where mapping or updating is still in progress. The distribution of soil survey area spatial data without a tabular data counterpart is not permitted.

When data for a soil survey area is checked into the Soil Data Warehouse, and both tabular and spatial data are available, every map unit in the spatial data must have a counterpart in the tabular data. A map unit is the tabular data is not required to have a spatial counterpart. This permits both tabular and spatial data to be released before the survey area map is complete.

For a survey area for which both spatial and tabular data exist, as long as the set of map unit has not changed, a new spatial version can be created without creating a new tabular version, and vice versa. In general, tabular data for a soil survey area is updated more frequently than the corresponding spatial data.

Whenever a new tabular data version for a soil survey area is created, a new overall survey area version is created.

Whenever a new spatial data version for a soil survey area is created, a new overall survey area version is created.

A version (survey area or tabular data or spatial data) is characterized by two attributes:

Version Number – A sequential integer number.

Version Established Date – The date and time when a particular version was established.

For example:

06/30/2003 – Tabular data for survey area CO644 is added to the warehouse. There is no corresponding spatial data available yet. No data for this survey area existed in the warehouse before this date.

Current Survey Area Version: 1

Current Survey Area Version Established Date: 06/30/2003

Current Tabular Data Version: 1

Current Tabular Data Version Established Date: 06/30/2003

Current Spatial Data Version: none

Current Spatial Data Version Established Date: none

09/15/2003 – Spatial data for survey area CO644 is added to the warehouse. The corresponding tabular data is not updated. The underlying set of map units for survey area CO644 has not changed.

Current Survey Area Version: 2

Current Survey Area Version Established Date: 09/15/2003

Current Tabular Data Version: 1

Current Tabular Data Version Established Date: 06/30/2003

Current Spatial Data Version: 1

Current Spatial Data Version Established Date: 09/15/2003

03/09/2004 – Tabular data for survey area CO644 is updated in the warehouse. The corresponding spatial data is not updated. The underlying set of map units for survey area CO644 has not changed.

Current Survey Area Version: 3

Current Survey Area Version Established Date: 03/09/2004

Current Tabular Data Version: 2

Current Tabular Data Version Established Date: 03/09/2004

Current Spatial Data Version: 1

Current Spatial Data Version Established Date: 09/15/2003

The older retired versions for survey area CO644 are still available in the Soil Data Warehouse.

How do you know the version of the data you are using, and how do you know if you have the most current version?

For each survey area currently in the database, survey area version and tabular data version is available in the table named "sacatalog". Also, every soil report displays the survey area version of the data in that report, in the page footer of each page in the report.

In order to determine if you have the most current version of data for a soil survey area, you have to first access Web Soil Survey using your web browser:

http://websoilsurvey.nrcs.usda.gov

Select the tab labeled "Download Soils Data", open section "Soil Survey Area (SSURGO), select the state or territory in question, and scroll, if necessary, to find the soil survey area in question.

# SSURGO Metadata Reports

6

-

The SSURGO metadata is independent of what soil survey data currently resides in the database. The SSURGO metadata not only describes those tables that are considered to be part of the SSURGO standard, it also describes the tables used to drive the Soil Data Viewer application. This database contains many tables that are not part of the SSURGO standard and are not described in the SSURGO metadata.

Below is a brief description of each SSURGO metadata report.

Note that these reports are accessed via the System Reports form, rather than the Soil Reports form.

SSURGO Metadata – Tables

This report provides a narrative description of each table in the SSURGO standard.

SSURGO Metadata - Table Columns

This report lists the columns of each table in the SSURGO standard. This is the source for column name, logical data type, field size, precision, minimum, maximum and associated domain name, if any.

SSURGO Metadata - Table Column Descriptions

This report provides a narrative description of every column in every table in the SSURGO standard.

SSURGO Metadata - Indexes

This report documents all unique and duplicate indexes defined for tables in the SSURGO standard. What unique constraints (unique indexes) are defined is of primary interest. In the SSURGO standard, relatively few business oriented unique constraints are defined. Most of the unique constraints represent non-business oriented unique constraints (i.e. surrogate keys).

SSURGO Metadata – Relationships

This report documents all relationships between tables in the SSURGO standard. This information is important for understanding the relationship between various soil attributes and entities. This information is needed in order to be able to effectively query the database. This is the same type of information that is typically available in a physical data model diagram.

SSURGO Metadata – Domains

This report documents all domains associated with columns of tables in the SSURGO standard. If a column is associated with a domain, that relationship will be documented in the report titled "SSURGO Metadata – Table Columns". A particular column may be associated with one and only one domain, but a particular domain may be associated with more than one column. This report displays all possible members of a domain. For some domain members, an additional narrative description is sometimes available.

# SSURGO Version

13

3.0

SSURGO Version identifies the general organization of the soil data that are considered to be part of the SSURGO standard. The SSURGO standard encompasses which soil attributes, domains and tables are defined, as well as the relationships between those tables. The SSURGO standard encompasses both tabular and spatial data.

Only a subset of the tables in a SSURGO Template database are part of the SSURGO standard. For example, the tables in a SSURGO Template database that are used to drive external applications are not considered to be part of the SSURGO standard.

To date, there have been three SSURGO versions:

SSURGO 3

In this version of SSURGO, released in early 2022, the database platform was moved from MS Access to SQLite. The structure of the tabular data continued to reflect the structure of the National Soil Information System Database (NASIS). The structure of the spatial data was still that of SSURGO 1.0. Spatial data is now imported into the database from the distribution ESRI Shape File format. The SSURGO tabular data continues to be be imported as in previous versions.

SSURGO 2

In this version of SSURGO, released in early 2001, the structure of the tabular data reflected the structure of the National Soil Information System Database (NASIS). The structure of the spatial data was still that of SSURGO 1.0. The SSURGO tabular data could now be loaded into an MS Access SSURGO template database. Spatial data was now available in ArcView Shape File format.

SSURGO 1

In the original version of SSURGO, the structure of the tabular data reflected the structure of the State Soil Survey Database (SSSD), the predecessor of NASIS (National Soil Information System). There was no corresponding MS Access SSURGO template database. Spatial data was available as an Arc/Info Coverage, as an Arc/Info Export File or in Modified Digital Line Graph 3 format. Coordinate system/projection was fixed.

Whenever a new SSURGO Version is released, both Import Data Model Version and Base Metadata Version should be reset to 1.

# Template Database Change History

17

-

36 – 09/10/2012

Note that this date reflects when work on template version 36 was completed, not when this template version was actually released. At the time this was written, it looked like template version 36 and Web Soil Survey 3.0 would be simultaneously released sometime in the first quarter of 2013. Template version 36 is required for exports from Web Soil Survey 3.0.

Item: The import process was updated to automatically import special feature descriptions, when available.

Item: The main import process was updated to now verify that the data about to be imported is compatible with the SSURGO Template database into which that data is about to be imported. In addition, a number of minor improvements to the main import process were also made.

Item: The main import process was updated to now conditionally import the SSURGO metadata that is provided with every SSURGO export. This metadata is now conditionally imported as part of the same process that imports the data for a survey area.

Item: Tables "sdvattribute" and "SYSTEM – sdvattribute" were updated to reflect changes to parameters for what we refer to as the "aggregation engine". The aggregation engine is the part of Soil Data Viewer that, for a soil property or soil interpretation, derives a value to represent the map unit as a whole from that map unit's constituent components.

Item: Import specification "Sdvattribute Import Specification" was updated to reflect changes to tables "sdvattribute" and "System – sdvattribute".

Item: The following queries were updated to reflect changes to tables "sdvattribute" and "System – sdvattribute":

SDV – sdvattribute – Append

SDV – sdvattribute – New Records

SDV – sdvattribute – Update

SDV – sdvattribute – Updated Records

35 – 07/13/2012

Item: The template database was synchronized with NASIS data dictionary 6.2.7. A number of additions and updates were made to existing domains. The embedded data in the static metadata tables in a SSURGO template database was updated. The corresponding SSURGO Static Metadata Version was updated to 2.2.6. The "SSURGO Metadata Change History" section of report "How to Understand and Use this Database" was updated.

34 – 04/12/2011

Item: The template database was synchronized with NASIS data dictionary 6.1.12. A number of additions and updates were made to existing domains. The embedded data in the static metadata tables in a SSURGO template database was updated. The corresponding SSURGO Static Metadata Version was updated to 2.2.5. The "SSURGO Metadata Change History" section of report "How to Understand and Use this Database" was updated.

33 - 10/17/2006

Item: The template database was synchronized with NASIS data dictionary 5.3.2. A number of additions and updates were made to existing domains. The embedded data in the static metadata tables in a SSURGO template database was updated. The corresponding SSURGO Static Metadata Version was updated to 2.2.2. The "SSURGO Metadata Change History" section of report "How to Understand and Use this Database" was updated.

Item: Report "Brief Map Unit Description" was renamed "Map Unit Description (Brief)".

Item: Report "Map Unit Description (Brief, Generated)" was added.

Item: Since the forestry soil interpretations were updated to be able to return "Not rated", like all other soil interpretations, since the last template database version, the same interp report templates and rating class name/rating value formatting logic is now used for all soil interpretation reports. Prior to this change, the overall rating for miscellaneous area components in a forestry soil interpretation report was automatically set to "Not rated". All interp report and subreport templates whose name ended with " - Old" were dropped. The function named "FormattedInterpReasonOld" in the module named "Report Functions" was dropped.

Item: The function named "FormattedInterpReason" in the module named "Report Functions" was updated to use the same logic that is currently used in NASIS soil interpretation reports, in order to display consistent results for the same data in both NASIS and a SSURGO template database. A similar change was recently made in the Soil Data Mart.

Item: Descriptions were added for the following reports:

Acreage and Proportionate Extent of the Soils

Acreage and Proportionate Extent of the Soils by County

Component Legend

Component Text

Map Unit Description (Brief)

Map Unit Legend

Map Unit Text

RUSLE2 Related Attributes

Selected Soil Interpretations

Selected Survey Area Interpretation Descriptions

Survey Area Data Summary

Item: Function GetInterpReasons() was added. This function returns a comma delimited list of the reasons for the corresponding overall interpretation result. How many reasons should be included in the list is a parameter.

Item: The font size of the narrative text in the following reports was changed from 8 point to 10 point:

Component Text

Map Unit Description (Brief)

Map Unit Description (Brief, Generated)

Map Unit Text

Item: The template database change history was updated.

32 - 10/11/2005

06/12/2006 Item: The unique constraint on column resultcolumnname was dropped for tables "sdvattribute" and "SYSTEM - sdvattribute". We had dropped this constraint in the information system used to input and manage SDV rules, but had forgotten to also drop this constraint in the SSURGO template database.

Item: The contents of tables "SYSTEM - Geomorphic Feature Type" and "SYSTEM - Geomorphic Feature" were updated on 07/27/2005.

Item: The following sections in report "How to Understand and Use this Database" were updated:

General Information

Accessing an External Soil Database

Exporting Data

Soil Data Versioning

SSURGO Version

SSURGO Metadata Change History

Contacting Support

Item: The SSURGO version was changed to 2.2, and the SSURGO metadata version was changed to 2.2.1. SSURGO version 2.2 now includes five new Soil Data Viewer related tables: "month", "sdvalgorithm", "sdvattribute", "sdvfolder" and "sdvfolderattribute". Soil Data Viewer related data will now be included in a SSURGO 2.2 export. The following functions have been updated to account for this change:

Import from ASCII delimited files.

Export to ASCII delimited files.

Import from the tables in an external SSURGO template database.

Attach to the tables in an external SSURGO template database.

Item: The version check made before importing data from ASCII files was modified to allow the import of any data in SSURGO 2.x format. This means that the major version number is effectively redefined to mean that the only difference between subsequent subversions of the same major version is that data for additional tables may be provided.

Item: The function to create data for WinPst was altered to set the high water table flag (water table depth to top less than or equal to two feet) only for apparent water tables. Previously it was setting this flag for both perched and apparent water tables.

Item: The following slew of report and report parameter related changes were made:

Report "Wind Erosion Prediction System Related Attributes" was added.

In the older paradigm interpretation reports, the phrase "Not Rated" was changed to "Not rated".

For both Rangeland Productivity reports, the Range Production column headings and units are now centered rather than right justified.

In report "Rangeland Productivity and Plant Composition", the line gap in the legend control break heading was closed.

Any disclaimer about a report including only major components now appears in the report's header text rather than in the report's page footer.

Report "Nontechnical Descriptions" was renamed to "Brief Map Unit Description". Other aspects of this report and its related parameter form were updated in order to be consistent.

Report "Prime and other Important Farmlands" was renamed to "Prime and Other Important Farmlands".

The phrase "(includes Land Capability Classification)" was added to the end of the report name (but not the report title) of all crop yield reports.

All existing report narrative descriptions (aka "prewritten materials") were updated.

All report titles were moved back to the page header section of the report. For some reports with variable length titles that could require more than one line, the report title had been moved to the legend group header. When a person requested to include the description in such a report, no report title appeared on any of the pages containing the report description.

The Hydric Soils report was modified to always include the corresponding report description, regardless of whether or not the user requested it. The report footer, which contains the report description, was also changed to start on a new page. The part of the report description containing the hydric criteria codes always needed to be visible anyway.

The form title for all report parameter forms was shortened to something like "Select whatever". I hadn't noticed that most of the previous form titles were being severely truncated.

In all report header text, the phrase "The table shows only the top five limitations for any given soil." was changed to "The columns that identify the rating class and limiting features show no more than five limitations for any given soil.".

In report "Water Features", column heading "Month" was changed to "Months" and column heading "Surface depth" was changed to "Surface water depth".

In report "Source of Sand and Gravel", all instances of column heading "Rating class and limiting features" were changed to "Rating class".

In report "Windbreaks and Environmental Plantings", the phrase "on the soil" was added to the end of the existing report header text.

In report "Engineering Properties", in the USDA Texture column, every texture phrase following the first is now in lower case.

In report "Taxonomic Classification of the Soils" the report header text now includes the phrase about taxadjuncts only when the corresponding report include one or more taxadjuncts.

In report "Rangeland Productivity and Plant Composition", all instances of unit of measure abbreviation "Lb/Ac" were changed to "Lb/ac".

In report "Brief Map Unit Description" a text category group header section was added. In reports "Component Text" and "Map Unit Text", a text kind/text category group header section was added. This was done so that the text kind and category information would be repeated across a page break that occurs in the middle of a text entry.

In the report parameter form for selecting soil interpretations, the source query was changed to no longer include "class" type soil interpretations. Such an interpretation should never appear in a traditional soil interpretation report.

For any report that requires one or more map units to be selected prior to report generation, when such a report requires that additional parameters be selected at run time, that list of parameters will now be constrained by which map units are currently selected. This change affects the following reports:

All 3 component crop yield reports.

All 3 map unit crop yield reports.

Component Text

Map Unit Text

Brief Map Unit Description

The list of crop parameters for a crop yield report is now sensitive to whether the corresponding report includes only irrigated yields, includes only nonirrigated yields or includes both irrigated and nonirrigated yields.

Reports now assume that the source of all data is the Soil Data Mart. All reports and report parameter forms were updated to no longer depend on any of the now obsolete distribution metadata tables. The following reports, which were based on data in the now obsolete distribution metadata tables, were dropped:

Dynamic Metadata - Import Information

Dynamic Metadata - Soil Interpretation Descriptions

Report page footers now display survey area version and date rather than tabular data version and date.

The entire scheme for what property "keep together" should be set to, for report sections and groups, was rethought and implemented. Certain reports were going into infinite loops because the "keep together" property for the group that included the detail section would be set to "with first detail" and the "keep together" property for the detail section would be set to "yes". The infinite loop occurred when a report encountered data where the detail section for a given record didn't fit on a single page. As far as I'm concerned, this is an Access bug. The "keep together" property for a detail section is now set to "yes" only for a few special cases where there is a reason that we don't want the detail section to split across a page, and in each of these cases we know that the detail section will always fit on page.

31 - 08/27/2004

Item: Reports containing soil component level information, with the exception of the Hydric Soils report, now have the option to either include or exclude minor components. Note that this option is displayed for all soil reports, regardless of whether or not the option pertains to the report that is currently selected. Report page footers now indicate when minor components have been excluded from a report.

Note: In general, main report queries and subqueries and subreport queries and subqueries include the logic for including/excluding minor components. I had to remove this logic from the interp rating subquries and interp reason subqueries because performance was severely impacted. Having this logic in the main report query is generally sufficient. I had thought that having the same logic in subqueries would improve performance in general. The problem appears to arise when other conditions exist in the subquery, where each of those conditions has to be duplicated due to the "or" logic required for including/excluding minor components.

Item: Column "surface runoff" was added to the Water Features report. The report end notes were updated to reflect this change.

Item: Soil report names in the list of available soil reports are now sorted alphabetically. Column [System - Soil Reports].[Report Sequence] was left in the database but is no longer used. This column is no longer required, and its corresponding unique constraint was dropped.

Item: The "Importing Data" section of report "How to Understand and Use this Database" was updated. The instructions displayed in forms "Import" and "Import Feature Descriptions" were modified.

Item: The Prime Farmland report was modified and is now known as the Prime and other Important Farmlands report. In addition to map units representing various kinds of prime farmland, this report now also includes map units whose farmland classification is either "unique farmland", "farmland of statewide importance" or "farmland of local importance". Report formatting and sorting were changed.

Item: For all soil reports, main report names were changed to be consistent with the report names displayed in the soil reports dropdown list. For all soil reports, also changed reports so that the caption in the report viewer window is consistent with either the name displayed in the soil reports dropdown list, or is consistent with the report title specified by the user at run time (for those few reports whose title can be specified by the user), regardless of what the corresponding MS Access report is currently named. The report viewer window, by default, displays the MS Access report name, and the MS Access report names had gotten pretty out of sync with the names displayed in the soil reports dropdown list.

Item: All soil reports (but not system reports) were modified to always retrieve their title and header text (all or base header text) from the "SYSTEM - Soil Reports" table. Related function nomenclature and use was standardized. Functions "GetInterpReportHeaderText" and "GetInterpReportTitle" were superseded by "GetDefaultReportHeaderText" and "GetDefaultReportTitle", respectively, but were left in the database for backwards compatibility in case any state customized databases reference them.

Item: The existing constraint on mustatus (map unit status) was removed from the query that provides the input data to the FSA-CRP data generation process ("FSA-CRP - Input"). Since for SSURGO 2.1, mustatus is now always null, this constraint effectively resulted in no input records whatsoever. Paul Finnell says that the FSA-CRP data generation process is still used to derive certain attributes that are used in contexts other than FSA-CRP.

Item: A number of report names, report titles and report descriptions were updated. The order in which reports are displayed in the report choice list was modified.

Items: The agricultural waste management interpretations that were distributed between two reports are now distributed between three reports.

Item: An updated Hydric Soils report was added back.

Item: Report "Selected Soil Interpretations" was modified so that a user now has complete control over the order in which the selected interpretations occur from left to right. The user can no longer optionally specify the header text for this report.

Item: Report "Survey Area Interpretation Descriptions" was replaced by report "Selected Survey Area Interpretation Descriptions". Obviously the new report now longer has to include descriptions for all interpretations that were included for a survey area.

Item: For reports with variable length titles, the report title was moved from the page header section to the legend group header section. I had not realized that the page header section could not grow, and some of the new longer report titles were being truncated. This change was made to the following reports:

Component Text

Mapunit Text

Selected Soil Interpretations

Template Interpretation Report - 2 Interpretations

Template Interpretation Report - 2 Interpretations - Old

Template Interpretation Report - 3 Interpretations

Template Interpretation Report - 3 Interpretations - Old

Item. The SSURGO metadata change history was updated. The text associated with SSURGO metadata version 2.1.1 was updated to more accurately describe the changes that occurred at that time. Please see the section titled "SSURGO Metadata Change History" in the report named "How to Understand and Use this Database" for details.

Item: Function "GetLandforms" was modified to only return landforms where the corresponding value of "rvindicator" is "Yes", in order to be consistent with how the updated Hydric Soils report in NASIS is designed.

Item: Function "GetHydricCriteria" was modified to no longer return Boolean values indicating if saturation, flooding or ponding criteria were met. This function now returns a variant rather than a string.

30 - 02/05/2004

Item: In the Engineering Properties report, both the Unified and AASHTO columns were displaying the Unified classification. This problem has been fixed. The actual error was in report "Subreport - Table H - Engineering Properties".

29 - 12/02/2003

Starting with this version I've decided to drop the prefix "1." from the template database version because I can't explain what the prefix corresponds to. It seemed like a good idea at the time.

Version 29 of the template database is the first version of the template database designed to accommodate exports from the new Soil Data Mart. Exports from the Soil Data Mart are in SSURGO version 2.1 format. The difference between the SSURGO 2.0 format and the SSURGO 2.1 format is documented in the section titled "SSURGO Metadata Change History" in the report titled "How to Understand and Use this Database".

Exports from the Soil Data Mart CANNOT be imported into any template database version prior to version 29. However, ANY pre-Soil Data Mart SSURGO 2.0 export can be imported into this template database version.

Item: The template database change history has been removed from the report titled "SYSTEM - Template Database Information". The template database change history is now available in a SYSTEM report titled "SYSTEM - Template Database Change History".

Item: The import, export and drop soil survey area processes were updated to deal with the changes introduced in SSURGO 2.1.

Item: The process that imports data from an external database and the process that attaches to the tables in an external database were updated to deal with the changes introduced in SSURGO 2.1. A SSURGO 2.1 database can import data from either a SSURGO 2.0 or a SSURGO 2.1 database, as long as the two database formats are compatible. A SSURGO 2.1 database can only attach to the tables in another SSURGO 2.1 database, and again, only when the two database formats are compatible.

These import and attach processes were also modified to now verify:

1. The external database format is compatible with the local database format. (i.e. Jet Engine version is compatible.)

2. The external database contains soil data tables.

3. The soil data tables in the external database are local to that database.

Item: I had written a function named "LegendTableExists" but never actually used it. I replaced every instance where the code to determine if the legend tables exists was duplicated with a reference to this function. I also added two new functions, "LegendTableEmpty" and "LegendTableAttached". These functions are used in the processes for importing data from, and attaching to the tables in, an external soil database.

Item: The SSURGO 2.1 standard includes two new dynamic metadata tables, sacatalog and sainterp. The existing dynamic metadata tables, distmd, distlegendmd and distinterpmd will eventually be dropped from the SSURGO standard, but these tables have been left in the template database for the time being for the purpose of backwards compatibility with the Soil Data Viewer application.

For pre-Soil Data Mart exports, to review dynamic metadata, the existing SYSTEM reports "Dynamic Metadata - Import Information" and "Dynamic Metadata - Soil Interpretation Descriptions" should still be used.

For post-Soil Data Mart exports, to review dynamic metadata, the new SOIL reports "Survey Area Metadata" and "Survey Area Interpretation Descriptions" should be used.

I decided that dynamic metadata reports should be considered soil reports rather than system reports, but I left the old dynamic metadata reports as system reports, since that is where users are used to finding them. Since the new dynamic metadata reports do not require the selection of one or more map units, I added the capability to distinguish between soil reports that do and do not require selected map units. This resulted in the addition of column "Map Unit Selection Required" to table "System - Soil Reports", and the addition of a new table named "System - Selected Legend Key".

Item: This version of the template database accommodates both SSURGO 2.0 and 2.1 exports. For survey areas exported in SSURGO 2.1 format, soil report page footers now display tabular data version number and tabular data version established date. For survey areas exported in SSURGO 2.0 format, soil report page footers display tabular data NASIS export date, which is equivalent to the value of distribution generation date from the distribution metadata table.

Item: SSURGO version number was dropped from the footers of the two older dynamic metadata reports.

Item: The attribute "relationship name" is no longer displayed in report "Static Tabular Metadata - Relationships".

Item: Reports "MANU - Table A. Acres" and "MANU - Table A1. Acres by County (2 or 3 counties)" no longer excludes map units whose status is "additional", since map unit status is now null in SSURGO 2.1 exports.

Item: Updated the contents of tables "SYSTEM - Geomorphic Feature Type" and "SYSTEM - Geomorphic Feature" on 10/03/2003.

Item: Report parameter form "Report Parameters - Soil Interpretations" was updated to obtain the default report title and disclaimer text from the corresponding report record in table "SYSTEM - Soil Reports", rather than being hard-coded. To accomplish this, two new functions were added, "GetDefaultReportTitle()" and "GetDefaultDisclaimerText()".

Report parameter forms "Report Parameters - Component Text Kinds & Categories" and "Report Parameters - Mapunit Text Kinds & Categories" were also updated to obtain the default report title from the corresponding report record in table "SYSTEM - Soil Reports", rather than being hard-coded.

Item: In all reports having either a map unit or component group header, for the corresponding group header, attribute "Keep Together" was set to "With First Detail". This should reduce the stray group headers from appearing quite so much.

Item: The Selected Soil Interpretation reports now indicate which interpretations are "limitations", and which are "suitabilities", by indicating with asterisks following the interpretation name in the page header. The meaning of the asterisk or asterisks is defined in the header text on the first page of the report. A corresponding description appears in the report header only when a corresponding interpretation of that kind is selected for inclusion. So for numbers in the value column, people will now know when closer to 1 is more limiting, and when closer to 0 is more limiting.

Item: The following Template Database Information report sections were renamed as follows:

"SSURGO Static Metadata Version" was renamed to "SSURGO Metadata Version".

"Static Metadata Change History" was renamed to "SSURGO Metadata Change History".

"Metadata" was renamed to "SSURGO Metadata Reports".

"Template Version" was renamed to "Template Database Version".

"Database Security" was renamed to "Template Database Security/Customization".

The sections in the Template Database Information report were reordered.

Almost every section in the Template Database Information report was updated.

Item: Added new section titled "Soil Data Versioning" to the system report titled "SYSTEM - Template Database Information".

Item: The following reports were renamed as follows:

"Static Tabular Metadata - Domains" was renamed to "SSURGO Metadata - Domains"

"Static Tabular Metadata - Indexes" was renamed to "SSURGO Metadata - Indexes".

"Static Tabular Metadata - Relationships" was renamed to "SSURGO Metadata - Relationships".

"Static Tabular Metadata - Table Column Descriptions" was renamed to "SSURGO Metadata - Table Column Descriptions".

"Static Tabular Metadata - Table Columns" was renamed to "SSURGO Metadata - Table Columns".

"Static Tabular Metadata - Tables" was renamed to "SSURGO Metadata - Tables".

Item: The RUSLE Related Attributes report was modified to display Kf rather than Kw.

Item: The capability to import soil spot feature descriptions was added. Feature descriptions are not imported with the tabular data. Even though the feature descriptions are tabular in nature, they are actually a part of the spatial data associated with a survey area.

New Macro: Import Feature Descriptions

New Form: Import Feature Descriptions

New Function: import\_feature\_desciptions

Item: Incorporated as many as possible of the changes that the NSSC editors requested be made to the Soil Data Mart reports, to the template DB soil reports, in order to make the soil reports in the template DB as consistent as possible with the reports in the Soil Data Mart. The requested changes are too numerous to be listed here. Most of these changes are listed in the SSURGO Template Database Customization Guide.

Item: Soil reports in the template DB no longer display total pages in report page footers due to the delay this causes before the initial page of the report is displayed.

Item: For soil reports that have corresponding narrative description, that description can now be optionally included at the end of the report. A report's corresponding descriptions is stored in "SYSTEM - Soil Reports.Report Documentation". In the Soil Reports form, the button used to include this text is titled "Include Report Description". This enhancement required the addition of a report footer and an On Open event procedure to all soil reports. This enhancement also required changes to the code associated with the Soil Reports form. A new global variable (blnIncludeReportDescription) and several new functions (GetReportDescription, IncludeReportDescription) were added to the module named "Report Functions".

Item: Report "SYSTEM - Template Database Change History" was renamed to "Template Database Change History". Report "SYSTEM - Template Database Information" was renamed to "How to Understand and Use this Database". Text directing new users to the report titled "How to Understand and Use this Database" was added to the Import and Soil Reports forms.

1.28 - 3/27/2003

Item: The logic for formatting ponding frequency class in report "MANU - Table K1 - Water Features" was changed from "=IIf(IsNull([pondfreqcl]),"None",[pondfreqcl])" to "=IIf(IsNull([pondfreqcl]) And IsNull([ponddurcl]),"None",IIf(IsNull([pondfreqcl]) And Not IsNull([ponddurcl]),"---",[pondfreqcl]))". The previous version of this change was incorrect, and when a user generated report Table K1. - Water Features, they were mistakenly prompted for parameters (the misspelled column names).

1.27 - 03/11/2003

Item: The original function designed for joining tabular data to spatial data, getmukey(musym), was not working as intended, and has been fixed. This function is referenced in query "Sample Soil Polygon Attribute Table Update Query". Note that we provide two different examples of how to perform the function of joining tabular and spatial data. The alternative example shown in query "Sample Soil Polygon Attribute Table Alternate Update Query" still works as expected.

Item: The logic for formatting ponding frequency class in report "MANU - Table K1 - Water Features" was changed from "=IIf(IsNull([pondfreqcl]),"None",[pondfreqcl])" to "=IIf(IsNull([pondfreqcl]) And IsNull([pnddurcl]),"None",IIf(IsNull([pndfreqcl]) And Not IsNull([pnddurcl]),"---",[pondfreqcl]))".

1.26 - 11/13/2002

Item: In report "SYSTEM - Template Database Information, updated section "SSURGO Static Metadata Version" and added new section "Static Metadata Change History".

Item: The FSA-CRP data generation function was fixed so that any "order by" on a value returned by function "RV" is handled as a numeric sort rather than a character sort.

Item: The following entries were added to table "SYSTEM - Survey Area-County Geographic Coincidence":

STCOID STSSAID

TX141 TX624

TX495 TX615

1.25 - 10/31/2002

Item: Fixed error in function that generates FSA-CRP data. When slope length USLE is populated, value wasn't being converted from meters to feet before looking up LS topographic factor.

1.24 - 10/22/2002

Item: Added a new report named "MANU - Table WMS-1. Water Management w/fuzzy rating".

Item: The reports included in this database no longer modify the case of soil survey area, county or parish, map unit or component names. The National Soil Survey Center has completed a cleanup of standard soil survey area and county or parish names. Calculations have been added to NASIS to assist users in establishing map unit and component names in appropriate case. Therefore, we now assume that soil survey area, country or parish, map unit and component names are already in the case desired by the data steward. The existing case of soil survey area, county or parish, map unit and component names is also maintained in the user interface. And last, but not least, the reports included in this database no longer modify the case of taxonomic classification or plant common names, in order to be consistent with the corresponding reports in NASIS.

Item: Added FSA-CRP (Farm Service Agency - Conservation Reserve Program) data generation facilities. For more information on this capability, please see the section titled "FSA-CRP Data Generation" in the report titled "System - Template Database Information". The following permanent database objects were added:

Table: SYSTEM - FSA-CRP Data

Table: SYSTEM - FSA-CRP - Warnings and Rejects

Table: SYSTEM - Long Leaf Pine Counties

Table: SYSTEM - Palouse Soil Survey Areas

Table: SYSTEM - Survey Area-County Geographic Coincidence

Query: FSA-CRP - Input

Form: FSA-CRP - Create Data and Export

Macro: FSA-CRP - Create Data

Macro: FSA-CRP - Create Data and Export

Module: FSA-CRP Functions (numerous new functions)

Item: The form and macro named "Win-Pst - Export" were renamed to "Win-Pst - Create Data and Export", in order to emphasize that Win-Pst data is regenerated as part of this process.

Item: Added the ability to either import data from an external Access soil database, or attach to the soil data tables in an external Access soil database. For more information on these capabilities, please see the section titled "Accessing an External Soil Database" in the report titled "System - Template Database Information". The following permanent database objects were added:

Form: Access External Soil Database

Macro: Access External Soil Database

Module: Access External Soil Database Functions (numerous new functions)

Item: The original method we recommended for updating the MUKEY column of a soil polygon attribute table sometimes fails for larger soil survey areas. We haven't been able to figure out why this query fails to complete in some cases. We have included another sample query that uses an alternate method of updating the MUKEY column of a soil polygon attribute table. The name of this query is "Sample Soil Polygon Attribute Table Alternate Update Query".

Item: The National Soil Survey Center in Lincoln NE has decided that, for the time being, national forestry interpretations are not going to be updated to take advantage of the new interpretation generation paradigm that was discussed for template version 1.21. Therefore all national forestry interpretation reports have been changed back to the older style, where interpretation results for components that represent miscellaneous areas are automatically suppressed.

Item: The scrip that runs when the database is opened was modified to determine whether or not map units and/or interpretation results need to be sorted. Up to this point, this sorting was done anytime that data was imported via the import form, which until now was the only way that data could be loaded into this database. The soil data mart that is under development will export data directly from the data mart database into the Access SSURGO template database. Such a process bypasses the existing import processing, and as a result the data imported directly from the data mart is not sorted. Data that has not been sorted doesn't show up in the report interface. So when the user opens a database that has been populated directly from the data mart, the soil reports user interface is empty.

The modified startup script now determines if tables that store the mapunit and interpretation sort results contain the correct number of records. If they do not, data is then automatically resorted. Since sort results are permanently saved, subsequent opening of a database that had previously been resorted, should not result in another sort. In addition to the changes described above, I decided to add a macro named "Sort Mapunits and Interpretation Results". A user can run the macro to force map units and interpretation results to be resorted. There really shouldn't be any reason that a user would need to do this, but I added the macro, just in case. This is a relatively benign process that shouldn't ever cause a problem. The only consequence of needlessly running this macro is slightly increasing the size of the database each time this macro is run.

Item: Fixed the Hydric Soils List report so that it no longer fails when it encounters null hydric criteria.

Item: We discovered that the Drop Soil Survey Area function fails for larger soil survey areas, due to a lack of system resources. To fix this problem, data for a survey area is now deleted in multiple steps rather than in one fell swoop.

1.23 - 07/26/2002

Item: Changed error logging to write to a file named "ssurgodberr.txt: located in the same directory as the current SSURGO template Access database. Previous versions of the template logged errors to a file named "nasiserr.txt" in the root directory of the C drive. This change was made because 1) future CCE (Common Computing Environment) configurations are much more restrictive in regards to which directories are writable and 2) in the past I didn't know how to determine the directory in which the current Access database resides.

Item: Corrected a logic error in the WinPst data generation function. A soil with a water table where an initial non-wet layer is followed by one or more wet layers, followed by a non-wet layer, was not being classified as a perched water table. Prior to fixing this error, the only case in which a water table was classified as perched was when the first soil moisture layer encountered was wet, and a subsequent lower layer was non-wet.

1.22 - 05/31/2002

Item: Fixed reports C1 (Range Production) and C2 (Range Production & Plants w/o Forest Understory) to display ecological site names whose ultimate origin is the Ecological Site table in NASIS. This change should have been made in the previous template version, corresponding to the release of NASIS 5.1.

1.21 - 05/20/2002

Item: Modified function "GetLandforms" and report "Hydric Soils List" in order to improve performance of this report. The NameCase conversion of the landform string is now performed within the GetLandforms function rather than within the landforms control of the Hydric Soils List report. Not sure why this makes such a difference, but it does.

Item: The spelling of "Gypsum" was corrected in the heading of report "Table J2. - Chemical Properties of the Soils".

Item: The soil interpretation staff at the NSSC in Lincoln NE has decided to make some fundamental changes to what interpretation results can be generated in the face of insufficient data. This change was in response to the issue that under the old paradigm, an interpretation always returned non-null fuzzy values, regardless of how much data was missing or not populated. Under the new paradigm, an interpretation can be written to return a null fuzzy value in the face of insufficient data, which is then interpreted as "Not Rated". The actual phrase used to connote "Not Rated" can vary from interpretation to interpretation.

In previous versions of the SSURGO template database, the interpretation rating class for components whose kind was "miscellaneous area" was automatically set to "Not Rated", and no reasons were reported for "miscellaneous area" components. Now, the interpretation rating class is always reported as is, regardless of component kind, and reasons are not displayed only when the main rating class is "Not Rated" (i.e. the value of cointerp.interphr is Null).

The interpretation paradigm related changes resulted in changes to the following database objects:

cointerp (Table) (interpll, interplr, interphr and interphh can now be null)

Subreport - Interp Reasons - Interp 1 (Query)

Subreport - Interp Reasons - Interp 2 (Query)

Subreport - Interp Reasons - Interp 3 (Query)

Subreport - Interp Reasons - Interp 1 (Report)

Subreport - Interp Reasons - Interp 2 (Report)

Subreport - Interp Reasons - Interp 3 (Report)

FormattedInterpReason (Function)

Template Interpretation Report - 1 Interpretation (Report)

Template Interpretation Report - 2 Interpretations (Report)

Template Interpretation Report - 3 Interpretations (Report)

Selected Soil Interpretations (Report)

Item: The Component Text and Mapunit Text reports were modified so that mapunit name doesn't appear by itself on a page without at least part of the corresponding narrative text.

Item: All interpretation reports were modified in order to improve performance. An interpretation report for an entire soil survey now completes in a reasonable amount of time. This enhancement resulted in changes to the following database objects:

Soil Reports (Form)

Subreport - Interp Reasons - Interp 1 (Query)

Subreport - Interp Reasons - Interp 2 (Query)

Subreport - Interp Reasons - Interp 3 (Query)

Subreport - Interp Reasons - Interp 1 (Report)

Subreport - Interp Reasons - Interp 2 (Report)

Subreport - Interp Reasons - Interp 3 (Report)

Template Interpretation Report - 1 Interpretation (Report)

Template Interpretation Report - 2 Interpretations (Report)

Template Interpretation Report - 3 Interpretations (Report)

Selected Soil Interpretations (Report)

Item: Report "Selected Soil Interpretations" was split into 3 reports, a 1 interpretation version, a 2 interpretation version and a 3 interpretation version.

Item: Included local phase name as part of the component name for report "Component Text". This was an oversight to begin with. Every report that prints component name includes the local phase name as part of the component name.

Item: Whenever component name/local phase name is printed, local phase name is now printed "as is". Up to this point, the NameCase function was applied to both component name and local phase name.

Item: Added a new report named "RUSLE Related Attributes".

Item: Added the capability to drop the data for one or more soil survey areas from the database. This function may be invoked either by running the macro titled "Drop Soil Survey Area" or by opening the form named "Drop Soil Survey Area".

One case where this capability may be of value is when a database currently contains data for more than one soil survey area, and the data for only one of those soil survey areas needs to be updated. The import process is not currently capable of performing an update, so any existing data for a particular soil survey area must be deleted before updated data for that same soil survey area can be imported.

If all of the data in a particular database needs to be updated, it may be easier to simply download a current copy of the blank template database, and then re-import all required data. The Drop Soil Survey Area process does not reclaim the space occupied by the deleted data, and if data is dropped and reloaded enough times, the size of the database may become an issue. Of course an existing database can always be compacted by selecting "Database Utilities: Compact Database" from the Tools menu in MS Access.

Item: A new "System - Template Database Information" report section titled "Deleting/Updating Data" was added.

Item: The template database was synchronized with NASIS data dictionary 5.1.3. The corresponding SSURGO Static Metadata Version was updated to 2.0.3.

There were additions and changes to a number of domains.

A handful of table and attribute descriptions were corrected or improved.

The following columns may now be null:

cointerp.interpll

cointerp.interplr

cointerp.interphr

cointerp.interphh

The data type of the following columns was changed from Integer to Single:

coforprod.fprod\_l

coforprod.fprod\_r

coforprod.fprod\_h

coforprodo.fprod\_l

coforprodo.fprod\_r

coforprodo.fprod\_h

The field size of the following columns was changed:

coecoclass.ecoclasstypename: from 254 to 60

coecoclass.ecoclassid: from 248 to 30

Item: Updated the contents of tables "SYSTEM - Geomorphic Feature Type" and "SYSTEM - Geomorphic Feature" on 04/23/2002.

1.20 - 01/09/2002 - Added 2 new reports: "Component Text" and "Mapunit Text". Each report allows the user to select one or more text kind/text category combinations to be included in the report. As is the case for all runtime report parameters, available choices are restricted to those that exist for the current soil survey area.

Added 2 new tables: "SYSTEM - Geomorphic Feature Type" and "SYSTEM - Geomorphic Feature". Prior to now, the complete geomorphic feature metadata was not available in the SSURGO template database.

Added new function "PluralGeomorphicFeatureName(Geomorphic\_Feature\_Type\_Name, Singular\_Geomorphic\_Feature\_Name). This function returns the plural form of a geomorphic feature name.

Changed the export function to not present any options other than directory location. The export function now produces only SSURGO standard exports of all data that currently resides in the template database. Note that all data that could previously be exported can still be exported, but there is no longer an option to produce exports where text fields are not delimited with double quotes. The reasons for doing this are:

1. We currently have no known requirement to export data in any other format other than SSURGO format.

2. We believe that the primary purpose of the export function will be to export data in a field office for the purpose of then importing that data back into an updated version of the template database. We see no reason to provide options that might: a) confuse users or b) produce an export that cannot be re-imported back into a SSURGO template database or c) produce an import that does not contain all required SSURGO data.

The "System - Template Database Information" report section titled "Importing Data" was updated.

A new "System - Template Database Information" report section titled "Exporting Data" was added.

1.19 - 11/29/2001 - Modified function WinPst\_Create\_Data to not abort on null water table depths to top. In reverse engineering water table information, only records were RV water table depth to top is not null are considered, and RV water table depth to top is now substituted when either water table depth to top low or water table depth to top high is null.

Modified all main forms to display template version in the form title bar. This was done to make the template version more prominent and easier to find during support calls.

Numerous changes were made to help make customizing the SSURGO template database easier. Interpretation reports were modified to be completely table driven. This required modifications to the design of tables "SYSTEM - Soil Reports" and "SYSTEM - Soil Reports - Interpretations". A number of new functions were added to retrieve values from these two tables at report generation time. Other modifications were made to the existing contents of table "SYSTEM - Soil Reports" in order to make existing entries consistent with SSURGO template database customization guidelines.

1.18 - 10/15/2001 - Made the following minor metadata corrections, not all of which even pertain to SSURGO per se:

Description for attribute "initial\_cooperator\_acres\_goal" was updated.

Description for attribute "update\_cooperator\_acres" was updated.

Description for domain "soil\_survey\_area\_status" choice "maintenance" was updated.

Status of domain "taxonomic\_subgroup" choice "lithic-ruptic-entic hapludults" was changed from "obsolete" to "current".

1.17 - 09/19/2001 - Updated SSURGO metadata reports to include metadata version number. Added new function GetSSURGOStaticMetadataVersion.

1.16 - 09/12/2001 - Resynchronized with NASIS data dictionary 5.0.17. SSURGO data dictionary version is now 2.0.2. There were some domain changes and additions, and some attribute descriptions were updated.

1.15 - 07/16/2001 - Corrected an error in function WinPst\_Create\_Data. Changed all format specifications of "#.#" to "0.0". With the previous format specification, water table depths of zero were being converted to "." rather than "0.0".

1.14 - 07/10/2001 - As of NASIS 5.0, plant scientific name is no longer a required field, due to the inclusion of "plants" such as "other annual forbs", etc. This change was mistakenly not implemented in the SSURGO template database. Plant scientific name was made nullable in the following tables:

cocanopycover - Component Canopy Cover

coeplants - Component Existing Plants

coforprod - Component Forest Productivity

copwindbreak - Component Potential Windbreak

cotreestomng - Component Trees to Manage

1.13 - 06/15/2001 - Added Win-Pst data generation facilities. The following permanent database objects were added:

Table: SYSTEM - Win-Pst Data

Query: Win-Pst - Input

Form: Win-Pst Export

Macro: Win-Pst - Create Data

Macro: Win-Pst - Export

Function: Win-Pst Functions.WinPst\_Create\_Data

Function: Win-Pst Functions.WinPst\_Export

1.12 - 05/22/2001 - Report "Hydric Soils List" was added.

Report "Soil Component Legend" was renamed "Component Legend" and reformatted to be more consistent with other reports.

The display order of the non-manuscript reports in the Soil Reports form "Select Report" combo box list was changed.

The closing and reopening of form "Soil Reports" when importing data was changed to occur only after data has been successfully imported.

1.11 - 04/25/2001 - Report "MANU - Table A1 - Acres by County (2 or 3 counties)" was modified to always append a state alpha FIPS code to the county name. Situations exist where a soil survey crosses a state boundary and includes two counties with the same name. To implement this change, new function "GetCountyOrParishState" was added.

The function "NameCase" was modified to also capitalize any letter following a dash.

Form "Soil Reports" was modified such that when a user selects a report that requires parameters, the caption of button cmdGenerateReport is changed to "Select Parameters". The value of "SYSTEM - Template Database Information.Item Narrative", where "SYSTEM - Template Database Information.Item Name" = "Generating Reports", was updated to reflect this change.

1.10 - 04/18/2001 - Fixed problem with report MANU - Table K1 - Water Features where water table information was not printing for months that had no flooding or ponding. This fix required a change to query "Subreport - Table K1 - Water Features - Subquery" such that the selection criteria for selecting "Subreport - Table K1 - Water Features - Water Table - Months.month" was independent of all other selection criteria.

New report "Soil Component Legend" was added.

1.9 - 04/10/2001 - Changed startup and import procedures as follows:

On startup, if database is empty, the Import form is displayed.

On startup, if database is not empty, the Soil Reports form is displayed.

(The autoexec macro now calls new function StartUp, rather than always opening the

Soil Reports form.)

The Import main function now closes the Soil Reports form before the import process begins, and then reopens the Soil Reports form after the import process has completed. This means that the Soil Reports form now always reflects the current contents of the database, immediately after an import.

1.8 - 03/15/2001 - Made the following modifications to improve performance of soil interpretation related reports:

Established primary key for table "SYSTEM - Selected Mapunit Keys".

Established duplicate index on column "depthseq" for table "SYSTEM - Interp Depth Sequence".

Established duplicate index on column "mrulename" for table "cointerp".

Established duplicate index on column "ruledepth" for table "cointerp".

Modified design of the following queries:

"Subreport - Interp Reasons - Interp 1"

"Subreport - Interp Reasons - Interp 2"

"Subreport - Interp Reasons - Interp 3"

1.7 - 03/12/2001 - Because SSURGO Version 2 downloads need to be generated prior to the conversion of the Component Potential Ecosystem table, the SSURGO Version 2 export was reset to export from the Component Potential Ecosystem table rather than from the Component Ecological Site and Component Other Vegetative Classification tables. Due to this change, the criteria for "ecoclasstypename" in query "Subreport - Rangeland Productivity - Eco Site - Subquery" was changed from "NRCS Rangeland Site" to "Range site".

1.6 - 03/08/2001 - All references to SSURGO 2000 were changed to SSURGO version 2. Import main routine was modified to expect "SSURGOV2" in file version.txt. The functions "permanent\_database\_create\_main" and "permanent\_database\_drop\_main" were removed from module "Mains and Miscellaneous" in order to avoid compile error messages when converting database between Access versions.

1.5 - 02/20/2001 - In MUSymCompare changed integer1 and integer2 from "Integer" to "Long", since numeric map unit symbols may exceed 32768.

1.4 - 02/05/2001 - Modified database to sort data immediately after importing rather than

when the Soil Reports form is opened.

1.3 - 02/01/2001 - Resynchronized with NASIS data dictionary version 5.0.15.

1.2 - 01/29/2001 - Column label for muaggatt.flodfreqmax changed from "Flooding Frequence - Maximum" to "Flooding Frequency - Maximum".

1.1 - 01/17/2001 - Modified interpretation reason subreport queries and subreports and added a new function (FormattedInterpretationReason) so that interpretation reason fuzzy values will be properly formatted on reports.

# Template Database Security/Customization (NR)

18

-

This database has not been secured in any way. Therefore there is no security to prevent the deletion or modification of any existing database object (table, query, form, report, macro or module). Because so many database objects are referenced from multiple locations, deleting or modifying an existing database object may result in the unanticipated disabling of certain database objects or functions.

If you want to alter or customize this database, we suggest that you do so by always creating new database objects. Of course you can always make a copy of an existing object, and give it a different name, in order to modify an existing database object. A document is available that describes recommended practices when customizing this database. This document has been checked into:

CoLab > NRCS-Soils-DB-CC > Documents > SSURGO > SSURGO Template Database Customization Guide

Please contact the Soils Hotline at soilshotline@.usda.gov to request a copy.

Before you commit to making a lot of customizations, please keep in mind that this SSURGO template database is frequently updated and enhanced. See the system report titled "Template Database Change History" for the gory details. If you want to keep relatively current with the latest version of the template database, you will be responsible for reapplying your customizations to new versions of the template database.

# Template Database Version

12

36

The template database version is the overall version of ALL tables, queries, forms, reports, macros and modules in the underlying MS Access template database. Although there is always a new template database version when something changes in the SSURGO standard, the template database version can also change when nothing in the SSURGO standard has changed. In fact, the template database version changes much more frequently than the SSURGO version does.

This MS Access template database is just one of a number of possible alternatives for delivering SSURGO data. This database implementation is not part of the SSURGO standard, per se.

When corrections or enhancements are made to this database, the template database version is always updated. The system report "Template Database Change History" records the changes associated with a particular template database version.