

PEDON PC 3.02

USER'S

Guide

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1.0 GENERAL INFORMATION

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1.1 System Overview

Pedon PC is a stand-alone Microsoft Access database application. It is a client database application that contains a front end Graphical User Interface and a link to a back end database.

Pedon PC provides a user-customizable interface for entering soil survey point data. The actual pedon_pc.mdb database file is considered a Microsoft Access database, but only contains administrative table data and links to the actual database that holds the user-entered data. This user-entered data resides in a database file called pedon.mdb. Site, pedon and transect data can be entered and managed by using Pedon PC. Periodically, a filtered set of records can be exported into an empty pedon.mdb file and uploaded to NASIS using existing procedures that are currently in place to handle uploads.

Pedon PC has an intuitive and easy-to-use, Graphical User Interface (GUI) based on forms. Pedon PC contains two main data entry forms: the PC Data Entry Form and the Tablet Data Entry Form. They both use the exact same database, but present the data differently. The PC Data Entry Form contains all input fields on one form, while the Tablet Data Entry Form contains six tabs for site, pedon and pedon horizon input fields. Both forms may be used on a laptop, desktop PC or Tablet PC. One scenario is to use the Tablet Form in the field and then use the PC Form in the office.

Because the Pedon PC back-end database (pedon.mdb) is based on the same table structure as NASIS, it can be easily uploaded. Also, data from NASIS can be exported into an ASCII text file for importation into Pedon PC. A list of Pedon PC benefits are as follows:

1. Pedon PC is locally customizable.

- On-screen data entry forms can be customized to mimic field forms.
- Forms can be developed by the local user with local choice lists and defaults.

2. Pedon uploads to NASIS can be limited to a selected set.

- Pedon PC allows the user to maintain a full dataset locally but still choose which records to export based on the User Site ID or the User Pedon ID.

3. Pedon PC data entry forms reduce key strokes.

- By reducing unused fields, establishing defaults, having auto-complete choice-list editing, and auto-populating fields from a GPS unit, the user of Pedon PC can quickly process many pedon records.

4. Pedon PC can be used to auto-populate pedon fields using a GPS and link to site photographs.

- Site records are created for each new waypoint uploaded from a GPS. Uploaded fields (user site id, date, elevation, utm easting, utm northing, utm zone, datum and describer name) are automatically populated. This reduces data entry time and errors.
- Photos can be linked to site data and are displayed on the PC Data Entry Form.

5. Take advantage of the querying and reporting capabilities of MS Access.

- Having the data in a local Access database greatly expands the degree to which soil attributes and properties can be analyzed and used in developing and validating mapping concepts – making data driven approaches much more feasible.
- Data driven approaches to mapping soils through the analysis of point data will increase the confidence of soil scientists in their mapping concepts and increase the total quality of soil survey products.

1.2 Points of Contact

1.2.1 Information

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1.3 Acronyms, Abbreviations, Definitions

Abbreviation	Meaning
NASIS	National Soil Information System
NRCS	Natural Resources Conservation Service
NGDC	National Geospatial Development Center
WinPedon	Windows Pedon
OSD	Official Soil Series Descriptions
USDA	United States Department of Agriculture
COTS	Commercial Off The Shelf
MS	Microsoft
PC	Personal Computer
GUI	Graphical User Interface
MDB	Microsoft DataBase (native Access file)

Terms Used	Meaning
Back-end	The Microsoft Access database; holds all data
Front-end	The User Interface; where you enter data

Files	Meaning
pedon.mdb	The back-end data that goes to NASIS
pedon_pc.mdb	The front-end user interface
templatedb.mdb	The SSURGO data

2.0 SYSTEM SUMMARY

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2.1 System Configuration

Pedon PC is a front end interface for entering data into an underlying back end Microsoft Access database called pedon.mdb. It is only this pedon.mdb file that is uploaded to NASIS. Because Pedon PC is an Access mdb file and not an application file, it retains the full functionality of an Access database.

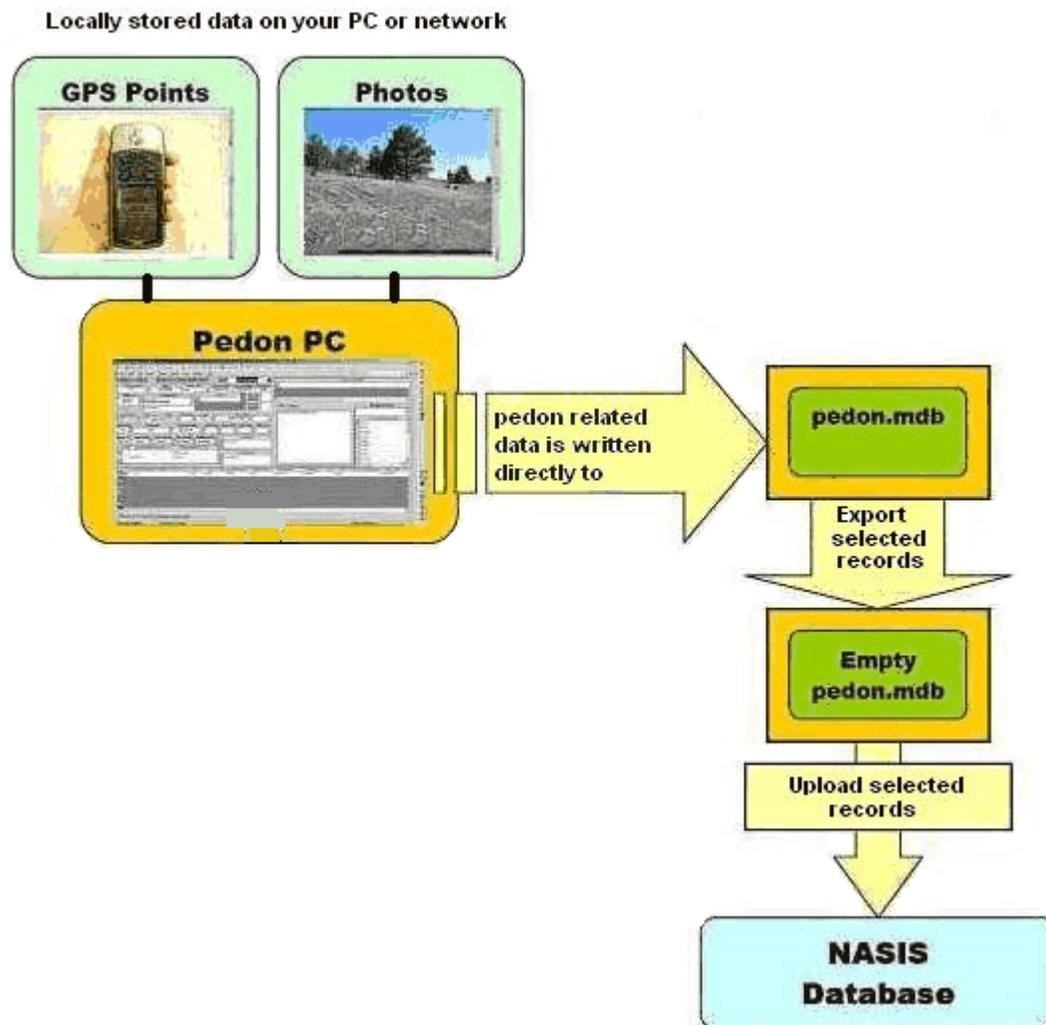


Diagram One. Local GPS points and photo data can be linked to local tables in Pedon PC. Pedon data can be periodically exported to an empty pedon.mdb file for upload to NASIS. Only pedon related data is exported into NASIS. The photographs and hyperlinks are **not** uploaded to NASIS since it is currently a tabular, transactional database.

2.2 Data Flows

Pedon PC Database Model

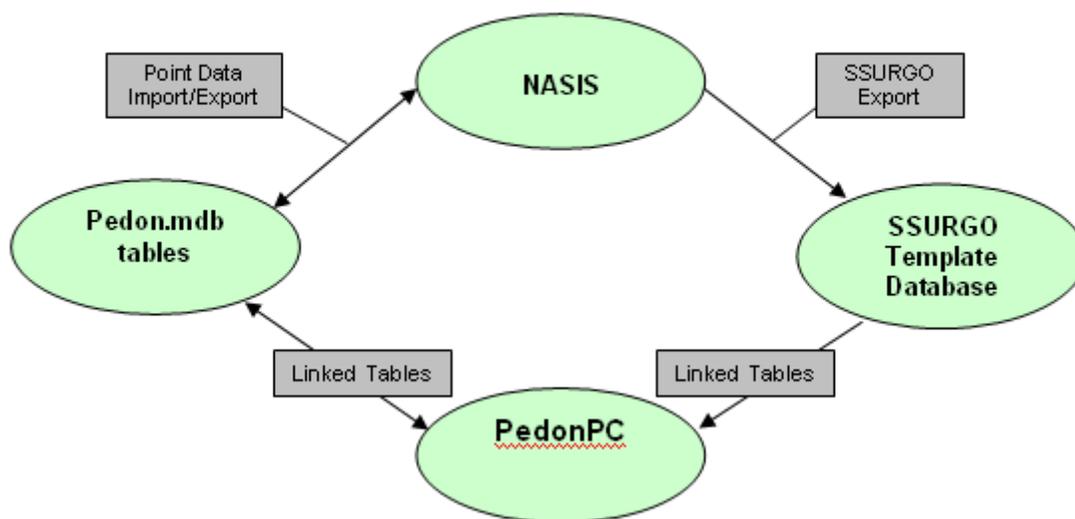


Diagram Two. The Pedon PC Database model shows how the database is linked to various data sources important to soil survey. The pedon subset of NASIS is called “pedon.mdb” and contains site, transect, pedon, pedon horizon and associated child tables. The tables in “pedon.mdb” (the back-end database file) are linked to “pedon_pc.mdb” (the program file). Some tables in “templatedb.mdb” (the SSURGO template database file) are linked to the “pedon_pc.mdb” file.

The Pedon PC database directly manipulates the tables in the editable, back-end pedon database. This was done for the following reasons.

1. To eliminate user changes to the database structure from within the pedon.mdb file. The properties of the linked tables cannot be altered.
2. To allow the user to define the selected set to be exported to a blank pedon.mdb.
3. To allow easy versioning of the Pedon PC database. By directly editing the pedon.mdb, the front end Pedon PC database is now much more easily changed or updated, and then re-issued.
4. Reduce database size by storing only unique fields.
5. Create local data entry forms.

Pedon PC enters data into one, back-end pedon database named pedon.mdb. Choice lists that are derived from the NASIS domain tables cannot be expanded. However, they can be shortened by hiding choices that are not locally relevant. By navigating to the tabbed “Edit Choice Lists” form, choices can be shown or hidden for the different choice lists referenced by the database. The five choice list tabs are Standard, Local, Geomorphic Features, Local Plant Lists and Area Overlap.

Local Pedon PC tables are the dd_db_local, photo_link, metadata_domain_local, and metadata_domain_detail_local tables. The metadata tables supply the choice lists for locally important fields like describer, field sheet, soil phases, geologic formation, and land physiographic names. They are edited and customized locally by the user.

Hyperlinks to online Official Series Descriptions (OSDs) are automatically built on the data entry forms based on the pedon table “Soil Name as Sampled” field. If a valid soil name (series) has been entered, the user can access the OSD for that series by double clicking on the field. Also, double clicking on the pedon table “Subgroup” field will bring up the OSD query webpage. The pedon table is located on the PC Form, Tablet Form and Transect form.

While the conformity of linking to the underlying pedon.mdb tables gives the Pedon PC database the relationships and table structure needed to synchronize with NASIS, the flexibility of the database lies in the ability of the user to control the interface. Pedon PC users can customize their data entry form by hiding fields and showing only fields that are locally relevant. Default values and limited choice lists can be established for each field within the form. Sets of data can be periodically exported to an empty pedon.mdb database and uploaded to NASIS. Procedures are in place at the national level to accept uploads using Pedon PC’s back-end pedon.mdb file.

Form data-entry is arguably the most useful function of an Access database. You can edit data one record at a time and customize the interface to appear as a field form. Keep in mind the data relationships when working on the forms. One site can have many pedons, one pedon can have many horizons and one horizon can have many colors. These relationships are an integral part of a relational database and a firm understanding of them is essential for customizing forms or creating queries.

2.3 Folder Structure

Currently, the default parent folder in which all files are placed is called “pedon” and resides on the C letter-designated hard drive (i.e. C:\pedon). The pedon database filename is “pedon.mdb”, and the Pedon PC database file is named “pedon_pc.mdb”.

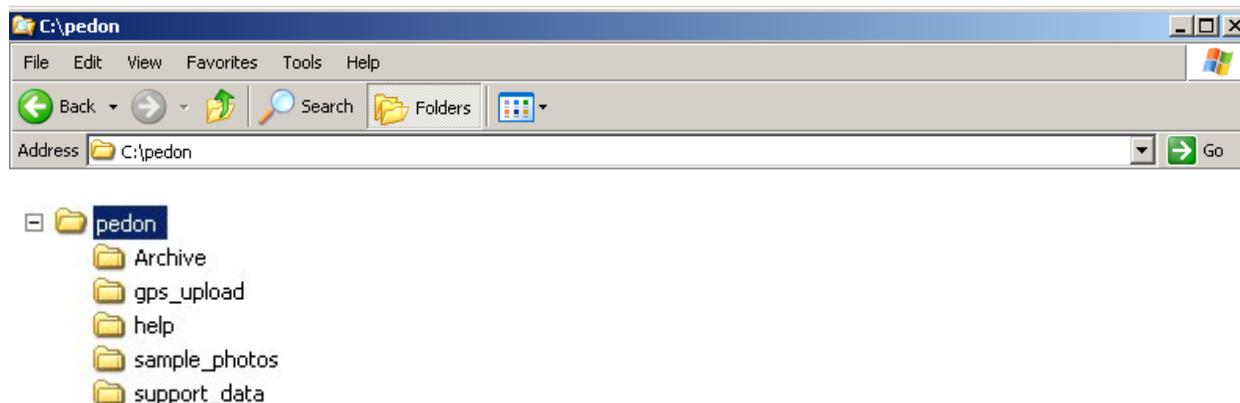


Figure 1. The default folder structure is shown above.

Flexibility has been added to the Pedon PC so the user can rename files and change their locations after initially setting up the Pedon PC. You may rename or relocate the Microsoft Access files pedon_pc.mdb, pedon.mdb and templatedb.mdb. The pedon_pc.mdb file is known as the Pedon PC program, the pedon.mdb file is known as the backend database file and the templatedb.mdb file is known as the SSURGO file. The file that is sent to NASIS containing pedon data is the pedon.mdb file.

The default folder structure can be changed using the setup form which is accessed from the Setup Menu (**Main Menu >> Setup Menu >> Setup**).

Setup

Note: The current locations and names of the files are shown. Only change the datasources or filenames as needed. If the pedon or SSURGO Access files (mdb extension) are changed then you must Relink in order for the change to take place.

The current location and name for the pedon database is shown below. Press the "Browse..." button and select a different database location and name, if necessary. The default location and name is C:\pedon\pedon.mdb. This database is required for the Pedon PC program.

Browse... C:\pedon\pedon.mdb

The current location and name for the SSURGO database is shown below. Press the "Browse..." button and select a different database location and name, if necessary. The default location and name is C:\pedon\templatedb.mdb. This database is not required but is recommended.

Browse... C:\pedon\templatedb.mdb

If you have changed the location of the pedon database or the location of the SSURGO database, press the "Relink Manager" button to update the links to the tables.

Relink Manager

The current location and name for the MN Garmin application is shown below. Press the "Browse..." button to change the location and name, if necessary. The default location and name is C:\Program Files\dnrgarmin\dnrgarmin.exe. This file is required for the GPS import function.

Browse... C:\Program Files\dnrgarmin\dnrgarmin.exe

The current location and name of your Internet Browser is shown below. Press the "Browse..." button to change the location and name of your Internet Browser, if necessary. The default location and name is C:\Program Files\Internet Explorer\iexplore.exe. This file is used to display the results in a browser on the Pedon Description Report Form.

Browse... C:\Program Files\Internet Explorer\iexplore.exe

Press the "Save and Exit" button to save your changes or press the "Discard and Exit" button to cancel your path changes.

Save and Exit: Discard and Exit:

Figure 2. The Setup Form from which data sources and program locations may be changed.

After launching the Setup Form notice you may change the name and location of your data sources (pedon.mdb and templatedb.mdb) in steps 1 and 2. If you change the pedon.mdb or templatedb.mdb file locations or names you must relink the tables to the Pedon PC program by pressing the “Relink Manager” button in step 3. Steps 4 and 5 are not necessary for the backend data source management and are used for changing your default Garmin location and your default Internet browser from Microsoft Internet Explorer. Step 6 is necessary to save your changes (Save and Exit).

2.4 User Security Access Levels

No security exists for the Pedon PC database application. No User ID or password is necessary in order to launch the Pedon PC database application. A user simply needs to launch the database file pedon_pc.mdb which subsequently opens Microsoft Access.

3.0 Getting Started

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3.1 System Requirements

The Pedon PC application requires the following:

1. Microsoft Windows operating system (XP, XP Tablet Edition)
2. Microsoft Office 2003: Access 2003
3. Pentium 4 or higher CPU
4. At least 512 MB RAM
5. Desktop, Laptop or Tablet PC

3.2 Setup

Assumptions

These setup steps assume the user has Internet access, a functional web browser and NASIS access.

Summary of steps

1. Download the pedon_pc.mdb file from <http://soils.usda.gov/technical/nasis/downloads/index.html> and place in C:\pedon
2. Download an empty pedon.mdb file from <http://soils.usda.gov/technical/nasis/downloads/index.html> and place in C:\pedon
3. Download a SSURGO template database and data from <http://soildatamart.nrcs.usda.gov/>, unzip the SSURGO template database and the SSURGO Data, place in C:\pedon and rename the file to “templatedb.mdb”. Import the SSURGO data .txt files into the templatedb.mdb.
4. Download applicable Windows Pedon support data from the NASIS download page: <http://soils.usda.gov/technical/nasis/downloads/index.html>
5. Tailor the area, areatype, localplant, geomorfeat and geomorfeatype tables to your specific local needs using Microsoft Access delete functionality
6. Using Pedon PC, update support data (**Main Menu >> Setup Menu >> Update Support Data**)
7. Using Pedon PC, new users should Customize Choice Lists (**Main Menu >> Setup Menu >> Customize Choice Lists**) and previous users should Import Choice List From Database (**Main Menu >> Setup Menu >> Import Choice List from Database**)

Setup Steps – Pedon PC writes and edits data directly to a standard “pedon.mdb” file. With the very first use of Pedon PC, the user starts out with an empty “pedon.mdb” file that contains no data. As the user works with Pedon PC, he/she will enter data and it will be saved to the “pedon.mdb” file. In this document all files are placed in the C:\pedon folder. This default location may be changed through the Setup Menu.

1. Download the pedon_pc.mdb file and place in C:\pedon

- a. From your web browser go to the URL <http://soils.usda.gov/technical/nasis/downloads/index.html>
- b. Under Pedon PC, click on the link [Download Pedon PC 3.02](#) , and save the zip file “pedon_pc.zip” to your computer.
- c. Create the folder “pedon” on your C drive, if needed.
- d. Unzip the file “pedon_pc.zip” and save the extracted file “pedon_pc.mdb” to C:\pedon. The full path should be C:\pedon\pedon_pc.mdb.

2. Download an empty pedon.mdb file and place in C:\pedon

- a. From your web browser go to the URL <http://soils.usda.gov/technical/nasis/downloads/index.html>
- b. Under Windows Pedon, click on the link [Download New/Empty Windows Pedon Database](#) , and save the zip file “newpedondatabase.zip” to your computer.
- c. Create the folder “pedon” on your C drive, if needed.
- d. Unzip the file “newpedondatabase.zip” and save the extracted file “pedon.mdb” to C:\pedon. The full path should be C:\pedon\pedon.mdb. This is the default location. As you enter data using Pedon PC, the C:\pedon\pedon.mdb file will contain all your data.

So far, the following files should be in the C:\pedon folder: pedon.mdb and pedon_pc.mdb

Note: This next step is not essential and Pedon PC will operate without the templatedb.mdb file. This file is used for filling in drop down choice lists to avoid spelling errors.

3. Download a SSURGO dataset and empty template database, place in C:\pedon and rename it to templatedb.mdb

- a. From your web browser go to the Soil Data Mart at <http://soildatamart.nrcs.usda.gov/>
- b. Follow the Soil Data Mart instructions for your survey area (geographical location) and download the SSURGO dataset and appropriate template database file. This step will need to be repeated for each soil survey area you are working with.
- c. Create the folder “pedon” on your C drive, if needed.
- d. Place the SSURGO template database file in C:\pedon. Rename this file to “templatedb.mdb”. Unzip the SSURGO download and import the tables into the templatedb.mdb. The full path should be C:\pedon\ templatedb.mdb. This is the default location and may be changed through the Setup Menu.

So far, the following files should be in the C:\pedon folder: pedon.mdb, pedon_pc.mdb and templatedb.mdb.

Note: It is not required to download a SSURGO template database file every time a new Pedon PC version is released. You may use the same one you have been using with previous releases. You would follow this step if you wanted to start with a new templatedb.mdb database.

4. Download Windows Pedon support data

Note: The same support datasets work with Windows Pedon and Pedon PC.

- a. Create the folder "support_data" under C:\pedon. The full path should be C:\pedon\support_data.
- b. From your web browser, go to the URL:
<http://soils.usda.gov/technical/nasis/downloads/index.html>
- c. [Download National \(Pangaea\) Geographic Area Lookup Data](#) (A zip file containing the area.txt and areatype.txt files)
- d. [Download Geomorphic Feature Lookup Data](#) (A zip file containing the geomorf.txt and geomorft.txt files)
- e. [Download Windows Pedon Domains](#) (A zip file containing the wpdomdet.txt and wpdommas.txt files. Ignore the wpmdver.txt file because it contains the Windows Pedon version number and this is not needed for this program.)
- f. All files are in zip file format. Extract the .txt files to C:\pedon\support_data.
- g. Download your local plant list file by MO from the NASIS web site (MO = Major Land Resource Area Office). An example for MO13 is:
[Download MO13 \(West Virginia\) Local Plant Lookup Data](#)

-- OR --

From the NASIS application, download a local plant report in ASCII file format from **Options >> Standard Reports >> NSSC Data >> Choose the report (WINPEDON – Export MO -__ (__) Local Plants)** where MLRA Office is the office that is appropriate for your location.

The following files should be in the C:\pedon\support_data folder:

- area.txt
- areatype.txt
- geomorf.txt
- geomorft.txt
- locplnt.txt
- wpdomdet.txt
- wpdommas.txt

The filenames of the support text files should never be renamed or changed. At this point, all data needed to run Pedon PC has been downloaded and unzipped. The

directories C:\pedon and C:\pedon\support_data have been created and contain all the necessary database and support files.

Note: It is not required to download all of the support files every time a new Pedon PC version is released. However, in September 2006 and November 2007 changes in the NASIS domains were made, and changes will likely occur with each successive NASIS release. Pedon PC users should verify they are using the latest domain choice lists. The support datasets listed above are periodically updated. The Windows Pedon Domains are updated with each release of NASIS. Others can be updated in NASIS at any time. Therefore, it is important that you periodically refresh these files in Pedon PC by downloading new copies.

5. Tailor the area, areatype, localplant, geomorfeat and geomorfeatype tables to your specific local needs

The pedon.mdb file is where all your data is stored. The pedon_pc.mdb file contains a link to pedon.mdb. This means any table in the pedon.mdb file can be linked from within the pedon_pc.mdb file. For example, the area table only exists in the pedon.mdb database, and you can see this by opening the pedon.mdb database. This table can also be seen and modified by opening the pedon_pc.mdb file because there is a link back to the pedon.mdb file. The area table is not part of the pedon_pc.mdb file and only exists as a link.

The local plant table is called “localplant”, the area tables are called “area” and “areatype”, and the geomorphic tables are called “geomorfeat” and “geomorfeatype”. These tables are used with the local Pedon PC tables localplant_showhide, localarea_showhide and geomorfeat_showhide respectively.

- a. These modifications can be done by launching pedon_pc.mdb or pedon.mdb. For these steps, we will launch Pedon PC. Open the Pedon PC application (see the “Launching Pedon PC” section) and open the main database window screen. This screen will have a heading in the title bar similar to “pedon_pc:Database (Access 2000 file format)”.
- b. View all the tables by Navigating to **Objects >> Tables**. From here, you can see the tables you need to open and modify.
- c. Open the table in question, e.g. the area table. The area table is probably the table you want to modify as it contains over 65,000 records. You should delete records you will never use. Answer yes to the Access confirmation question, if needed. Although this is listed as a “permanent” operation, you may download another copy of pedon.mdb and use that to start over again or copy and paste records from one pedon.mdb file to another. For example, if you accidentally delete too many records in any table, simply download another pedon.mdb file. Place this database file in a different folder, open the table you need within it, and copy and paste the table records from this newly downloaded pedon.mdb file into your current pedon.mdb file with the missing table records.

- d. Repeat the step above for the remaining tables: areatype, localplant, geomorfeat and geomorfeatype, if needed.

6. Update support data using Pedon PC

Open the Pedon PC application (see the “Launching Pedon PC” section) and Navigate to **Main Menu >> Setup Menu >> Update Support Data**

Update all of the following:

- Geographic Areas (area.txt and areatype.txt)
- Geomorphic Features (geomorf.txt and geomorft.txt)
- Local Plants (locplnt.txt)
- General Choice Lists (wpdomdet.txt and wpdommas.txt)

The Update Support Data screen enables the user to import support data text files you downloaded from the NASIS website into the Pedon PC program. Choose one of the four possible domains in the “Domain” radio choice box. Next, choose the Data File Location by manually entering the directory where the files reside or click on the Browse button. The Browse button allows the user to choose a directory that contains the file to import into the Pedon PC. The final step is to click on the OK button. Do this for all four support data types. Note that the metadata domains have been updated at Pedon PC version 3.01 (November 2007) to match the latest NASIS download. After all support data is imported, press the “Compact And Repair Database” link to ensure database efficiency.

7. Customize Choice Lists using Pedon PC (for New Users and for users of Pedon PC versions prior to 3.01)

The Update Support Data process defaults all choice list values to “show”, so you may want to change some of the choice list values to not show or be “hidden”. To do so, open the Pedon PC application (see the “Launching Pedon PC” section) and Navigate to **Main Menu >> Setup Menu >> Customize Choice Lists**

Update all of the choice lists contained within the following tabs as needed: Local, Standard, Geomorphic Features, Local Plant List and Area Overlap. Please see the “Customize Choice Lists” section for more details.

The metadata domains have been changed twice for release versions 3.0 and 3.01. This means all users with Pedon PC versions prior to 3.01 should customize their choice lists as if they were a new user. Because of the domain changes, past versions are not compatible and users should not use the “Import Choice List From Database” feature to import choices from any version prior to 3.01. Users may, however, use this feature for subsequent 3.01 versions. For example a user can use the “Import Choice

List From Database” feature with 3.02 from 3.01, or if they have different versions of 3.01.

Note: Version 3.02 is compatible with version 3.01.

-- OR --

Import Choice List From Database using Pedon PC (Previous Users)

Upon a new Pedon PC release, users are required to setup their show/hide options again. A feature that enables a user to do this one time and then import those choices over to the new Pedon PC version is called “Import Choice List from Database”. This will update all the Pedon PC Show/Hide tables, such as localarea_showhide, localplant_showhide, geomorfeat_showhide, metadata_domain_detail_showhide and metadata_domain_detail_local.

For example, if a user sets up all the show/hide options in the five show/hide tables in version 3.01, he/she can use this feature to import those choices *into a newer* version, say version 3.02. To do so, open the Pedon PC application (see the “Launching Pedon PC” section) and Navigate to **Main Menu >> Setup Menu >> Import Choice List from Database**

Important: *The metadata domains have been updated to match the latest NASIS domains, so do **not** import from versions prior to Pedon PC version 3.01 into any version that is 3.01 or greater. For example, you should not import choice lists from version 3.0 into version 3.01, or from version 3.0 into version 3.02.*

Note: You can import choice lists from version 3.01 into version 3.02.

Please see the “Import Choice List from Database” section for more details.

Compatibility Chart

From Version	To Version	Compatible?	Comments
3.01	3.02	Yes	Import Choice List From Database can be used
3.0	3.01	No	Import Choice List From Database cannot be used
3.0	3.02	No	Import Choice List From Database cannot be used

3.3 Databases, Tables and Relationships

There are a total of three Microsoft Access database files within the Pedon PC application. They are pedon_pc.mdb, pedon.mdb and templatedb.mdb. The pedon_pc.mdb contains its own local database tables and links to the other two

databases, pedon.mdb and templatedb.mdb. This means some tables within the pedon_pc.mdb file are actually native to pedon.mdb while others are native to templatedb.mdb.

Pedon PC comes pre-loaded with records for some tables. There are five Pedon PC show/hide tables (located only in pedon_pc.mdb), and consist of localarea_showhide, localplant_showhide, geomorfeat_showhide, metadata_domain_detail_showhide and metadata_domain_detail_local. Of these five tables, three of them (localarea_showhide, localplant_showhide and geomorfeat_showhide) start out empty. These empty show/hide tables will be filled as part of the “Update Support Data” process.

The pedon tables that correspond with these show/hide tables are the following: area, areatype, geomorfeat, geomorfeatype, localplant, metadata_domain_local, metadata_domain, and metadata_domain_detail tables.

The relationships between the tables are as follows:

area and areatype tables:

 localarea_showhide table

localplant table:

 localplant_showhide table

geomorfeat and geomorfeatype tables:

 geomorfeat_showhide table

metadata_domain_local table:

 metadata_domain_detail_local table

metadata_domain and metadata_domain_detail tables:

 metadata_domain_detail_showhide table

The “Update Support Data” process can be used to update all these tables except for the metadata_domain_local and metadata_domain_detail_local tables. However, the “Import Choice List From Database” process can be used to update all five show/hide tables.

Since many databases can be linked to pedon_pc.mdb (currently it is two), how can one tell what tables belong to what database? The answer is the Access “Linked Table Manager”. To get to this manager, navigate to **Tools >> Database Utilities >> Linked Table Manager**. You will receive a list of linked tables in pedon_pc.mdb. For the most part, you will see the tables linked to C:\pedon\pedon.mdb (the back-end database). However, for the “component”, “legend” and “mapunit” tables, you will see that they are linked to C:\pedon\templatedb.mdb (the SSURGO template database). For now, templatedb.mdb is needed so the drop down choice list can be populated for the

“pedon” table field “Soil Name As Sampled” (Soil Series). This pedon drop down field is located on the PC Form, Tablet Form and Transect Form. If no SSURGO data is available or the templatedb.mdb file cannot be found, the drop down choice list will be empty and the user will need to manually type in the “Soil Name As Sampled” data.

A visual indication of a linked table in Pedon PC is a “left arrow” icon next to the table name in the main database window form under **Objects >> Tables**. Local Pedon PC tables do not have an arrow next to them. For example, the “area” table has an arrow next to it because it is located in the back-end pedon.mdb database, but the “localplant_showhide” table does not have an arrow next to it because it is part of the pedon_pc.mdb database. The “component” and “legend” tables have arrows next to them because they are tables that exist in the SSURGO database “templatedb.mdb”. Also note that any table without an arrow will never be uploaded to NASIS, as it is unique to this local pedon_pc.mdb database.

3.4 Setup Problems

It is possible that you may receive an error message because a text file is too large to import into Pedon PC. One example of this is the area.txt file. After extracting the zip file from NASIS, the area.txt file has approximately 66,000 rows. This may cause a problem with the program and it may truncate some rows so that the file can be imported properly. A screen shot of the Update Support Data screen is shown below.

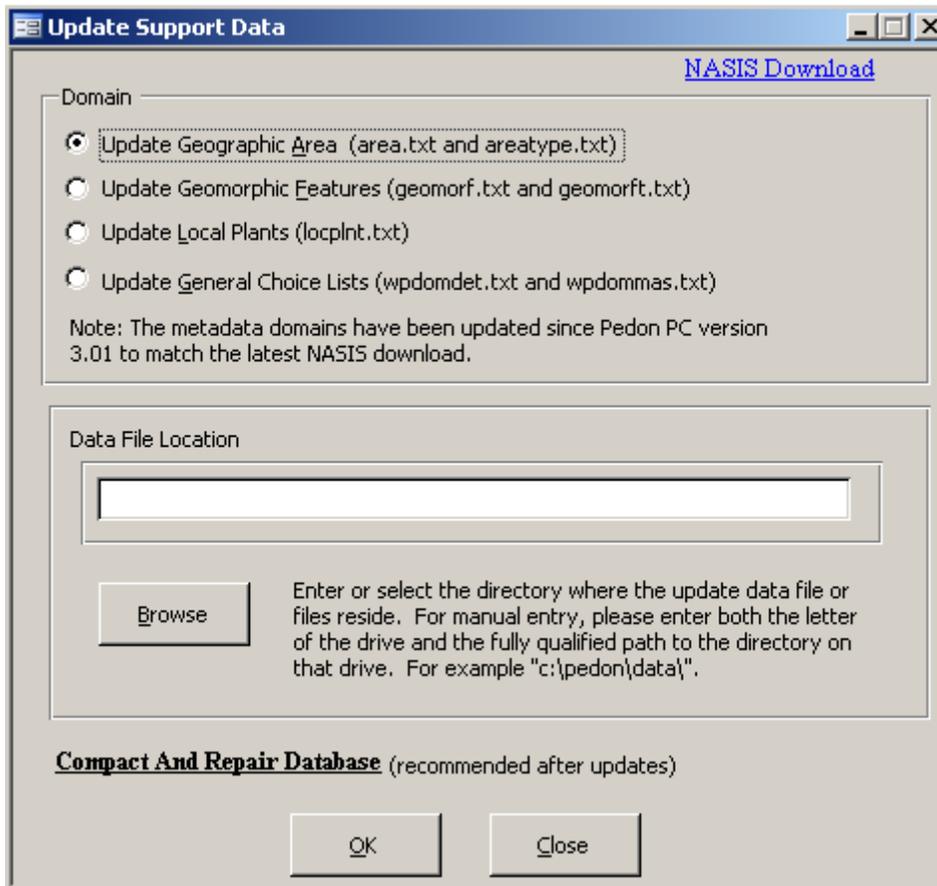


Figure 3. From the Update Support Data form a user can update domains.

The error message displayed is “An error occurred during the apply area table update process. Please contact technical support.”

If you already know the rows you need to delete simply double click on the file “area.txt” and in the Notepad program delete the rows you wish to remove. Then save the file.

Another possible solution is to open the area.txt file in Microsoft Excel, delete the rows you do not need, and then repeat the update support data steps in Pedon PC. Note that Microsoft Excel has a 65,535 row limit. Some ways around this problem are to delete sufficient rows using NotePad and then use Excel or split the area information across multiple text files.

The screens that follow display the Import process in Excel for the area.txt file. The delimiter used is the PIPE symbol (“|”) which is the symbol of the vertical line above the backslash key (“\”) on your keyboard. Also, quotes are used as a text separator.

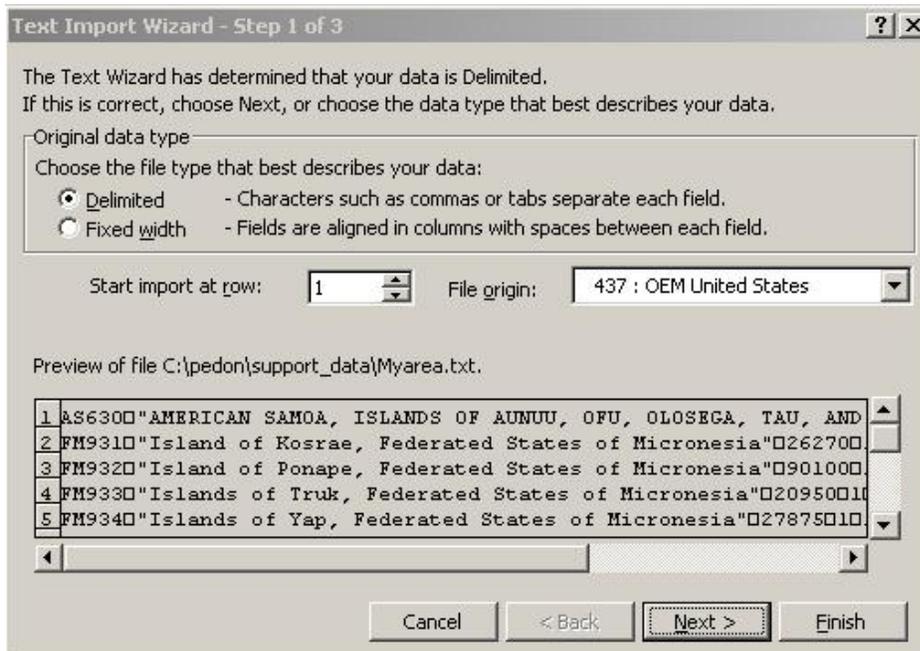


Figure 4. In step one of the Text Import Wizard, choose Delimited, Start import at row 1 and File origin is 437 : OEM United States.

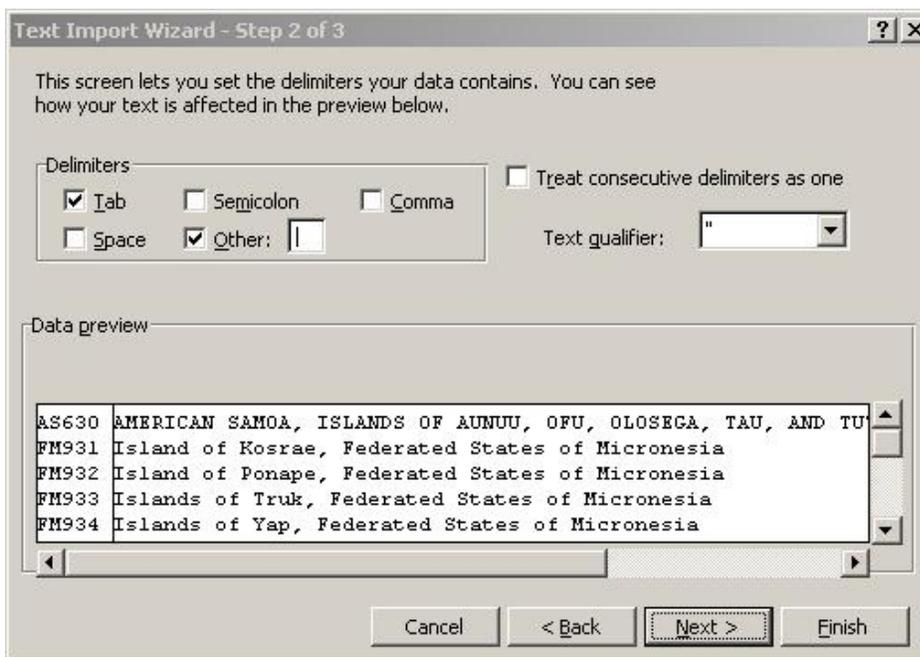


Figure 5. In step two of the Text Import Wizard, choose Other and then enter the PIPE symbol as the delimiter text, and then for Text qualifier make sure it is the quote character: “.

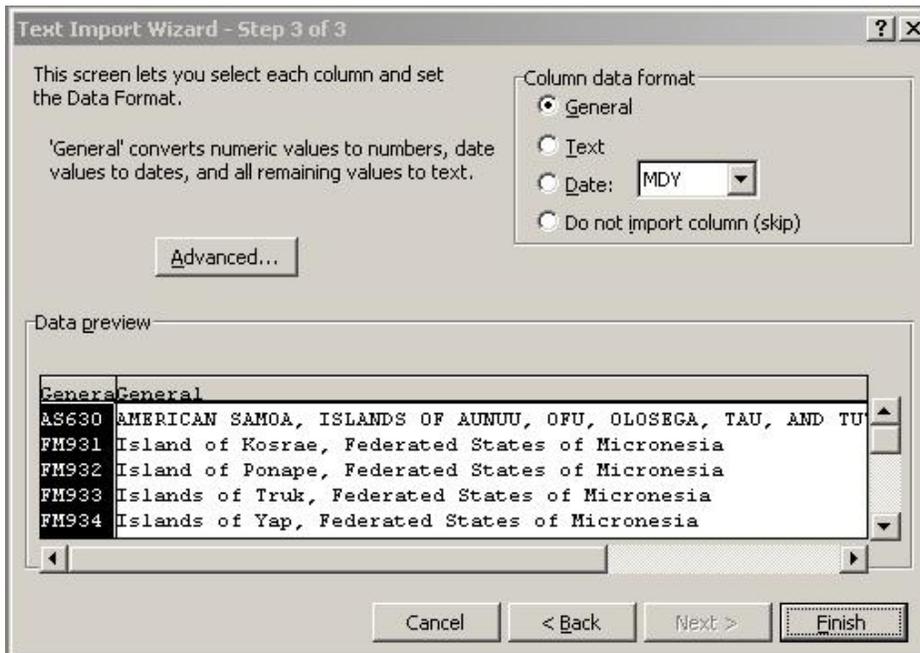


Figure 6. In step three of the Text Import Wizard, simply click the Finish button.

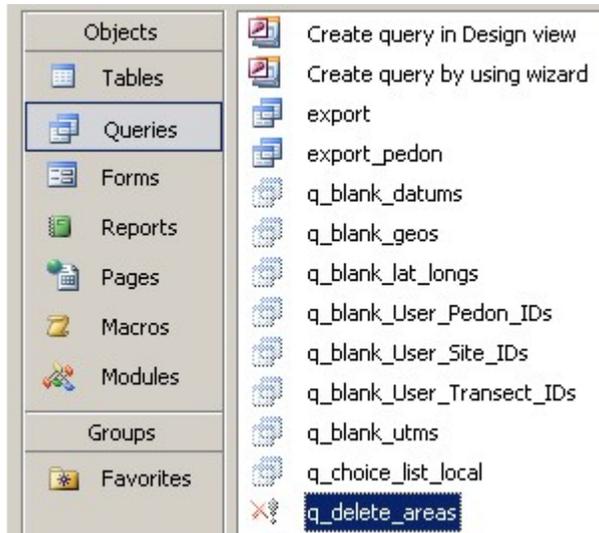
	A	B	C	D	E	F
1	AS630	AMERICAN SAMOA, ISLANDS OF AUNUU, OFU, OLOSEGA, TAU, AND TUTUILA	48768	1	1	1
2	FM931	Island of Kosrae, Federated States of Micronesia	26270	1	1	2
3	FM932	Island of Ponape, Federated States of Micronesia	90100	1	1	3
4	FM933	Islands of Truk, Federated States of Micronesia	20950	1	1	4
5	FM934	Islands of Yap, Federated States of Micronesia	27875	1	1	5
6	GU640	TERRITORY OF GUAM	135680	1	1	6
7	MH936	Islands of Airik, Arno, Majuro, Mili and Taroa, Republic of the Marshall Islands	3881	1	1	7
8	MP645	Islands of Aguijan, Rota, Saipan and Tinian, Commonwealth of the Northern Mariana Islands	77787	1	1	8
9	PW935	ISLANDS OF PALAU, REPUBLIC OF PALAU	108305	1	1	9
10	IA001	Adair County, Iowa	364600	1	1	10
11	IA003	Adams County, Iowa	272700	1	1	11
12	IA005	Allamakee County, Iowa	422200	1	1	12
13	IA007	Appanoose County, Iowa	329500	1	1	13
14	IA009	Audubon County, Iowa	284400	1	1	14
15	IA011	Benton County, Iowa	459800	1	1	15
16	IA013	Black Hawk County, Iowa	366600	1	1	16
17	IA015	Boone County, Iowa	367200	1	1	17
18	IA017	Bremer County, Iowa	281100	1	1	18

Figure 7. You should receive six columns for the area.txt file. Use the built-in Excel Sort functionality to sort a column. Then simply select the rows you do not need and delete them to shorten this list. This will make the file smaller.

The previous tips discussed using Notepad, Excel and Access in order to shorten the number of areas, but is there another way to delete unwanted rows in the area table? The answer is yes and deals with running an Access query. Suppose we have an area table with 65,998 rows and are only interested in areas within the state of Texas. Consider the following query:

```
DELETE * FROM area WHERE InStr(1,area.areaname,"Texas",1) = 0
```

This query exists in the Pedon PC database as “q_delete_areas”.



Below is the result of performing this delete operation on the area table. Notice we now have 4,568 area records and are all “Texas” related areas.

area : Table				
Rec ID	Seq	Area Symbol	Area Name	
53631		31102-D8	7 L Ranch, Texas	
53632		33100-A5	A B C Creek, Texas	
53633		29099-G3	A Bar A Ranch, Texas	
53634		31097-H1	Abbott, Texas	
53635		35101-D4	Abell, Texas	
53636		33101-G8	Abernathy SW, Texas	
53637		33101-G7	Abernathy, Texas	
53638		32099-D6	Abilene East, Texas	
53639		32099-D7	Abilene West, Texas	
53640		32096-G1	Ables Springs, Texas	
53641		35100-A4	Abra, Texas	
53642		31105-C8	Acala, Texas	
53643		32099-F4	Acampo, Texas	

Record: 1 of 4568

You may choose this option to filter the area table down to your local survey area. Simply replace the word “Texas” in the query “q_delete_areas” to an appropriate one for your area, save the query and then double click on the query name to run it. Below is the query with the highlighted text you should change.

```
DELETE * FROM area WHERE InStr(1,area.areaname,"Texas",1) = 0
```

Once the query has finished running, re-open the area table to make sure it contains the proper areas. If too many areas have been removed, please perform the “Update Support Data” process (Geographic Area) to repopulate the area table.

A SELECT query can be run before the deletion to display what areas will be deleted. The syntax of this query is shown below. Notice the only difference is the SELECT syntax at the beginning of the SQL statement. This query is named “q_show_deleted_areas”. Replace the word “Texas” with your soil area.

```
SELECT * FROM area WHERE InStr(1,area.areaname,"Texas",1) = 0
```

3.5 Microsoft Access Problems

When an error occurs in Access such as a validation error, the Microsoft Access program has its own built-in error screens. An example is when a user types in the wrong data type in a table field or types in a number outside a defined range. These kinds of errors produce error screens that may prevent the user from continuing to enter data. In these cases, the user has to simply press the ESC key to cancel out of the data entry operation. The ESC key may have to be pressed consecutive times to back out or “undo” data that was just entered. This will allow the user to continue in his/her current Access session and not have to exit the entire Access application and then re-launch it.

Below are some helpful keyboard shortcuts. A complete list is in Appendix B.

To do this	Press
To open the Zoom box to conveniently enter expressions and other text in small input areas	SHIFT+F2
Undo the changes you have made to the current field	ESC
Undo the changes you have made to the current record	ESC ESC (press ESC twice)
To quit Microsoft Access, close a dialog box, or close a property sheet	ALT+F4
To open a combo box	F4 or ALT+DOWN ARROW
To toggle forward between views when in a table, query, form, report, page, or view. If there are additional views available, successive keystrokes will move to the next available view.	CTRL+RIGHT ARROW or CTRL+COMMA (,)

3.6 Pedon PC Input Form Customization

Pedon PC can be customized to fulfill a soil survey area's particular needs. An example is the PLSS (Public Land Survey System). These data items don't apply to some states because they do not have this system. To clean up the form for local customizations, you are free to delete controls on a form you will never use.

A step-by-step example is shown below.

- The file to be changed is called "pedon_pc.mdb". Double click it to start the application.
- Navigate and decide which controls you wish to delete. In this case we are deleting some PLSS controls on the "Site (Part 2)" tab of the Tablet form. The Tablet form is also known as "f_site_tablet" and the PC form is also known as "f_site". In both cases the letter 'f' stands for "form". In the main "pedon_pc: Database (Access 2000 file format)" database window, you can find these forms under the **Objects >> Forms** tab.
- For this example, go into design mode for the Tablet form by using the View menu up top in Access (**View >> Design View**).
- Select the desired tab (in this example it is the "Site (Part 2)" tab) and then select the controls you wish to delete by highlighting them. Highlight a control by pressing and holding down the Shift key on your keyboard and selecting the control on the form using the left button on your mouse. This is done simultaneously, so it is SHIFT + LEFT MOUSE BUTTON. Highlight consecutive controls by pressing and holding down the Shift key while selecting consecutive controls with your left mouse button.
- A control is any graphic you see on the screen: a text box, a label, a drop down list box or Combo box, a Group box and so on.
- Press the Delete key on your keyboard to delete a control or a group of controls.
- Move the rest of the controls up by selecting them and dragging them to the desired position using the HAND icon.
- After all your deletions, save the "pedon_pc.mdb" file by using the File menu up top in Access (**File >> Save**).

Warning: Never change the pedon.mdb file as this is the backend database file that holds all the data you enter.

3.7 Inherent Limitations

Pedon PC uses the “pedon.mdb” Microsoft Access database file for its back end. This file is also known as the “Windows Pedon database file”. Most tables in Windows Pedon 1.0 were, for most intents and purposes, identical to their counterparts in NASIS, as least at the time Windows Pedon 1.0 was released. The one exception to this rule was the Site Mapunit Overlap table. In NASIS, this table references the legend and mapunit tables. In Windows Pedon, it was decided that it was not feasible to provide a lookup table for legends and mapunits. In Windows Pedon, the Site Mapunit Overlap table records a mapunit symbol as a text field (the field is named “musym”, has a Text data type and the maximum length is 6 characters), and doesn’t record anything about the corresponding legend. In both NASIS and Windows Pedon, the corresponding soil survey area is implied by the parent Site Area Overlap record, but if there is more than one legend for that soil survey area, the legend to which the Windows Pedon mapunit symbol corresponds cannot be determined. The Site table is the parent of the Site Area Overlap table and the Site Area Overlap table is the parent of the Site Mapunit Overlap table (**site >> siteaoverlap >> sitemuoverlap**).

Despite this limitation, when Windows Pedon data is uploaded to NASIS, for Site Mapunit Overlap records, the upload process attempts to create a legitimate Site Mapunit Overlap record in NASIS. In order to be able to do this, the following conditions must be met:

1. For the area specified in the Site Area Overlap (siteaoverlap) table, there must be one and only one corresponding legend. In the siteaoverlap table, there is a field called “areaiidref” that references the Area table, and a field called “areatypeiidref” that references the Area Type table.
2. If there is one and only one corresponding legend, that legend must include one and only one mapunit with the specified symbol.

The second restriction exists because the Site Mapunit Overlap (sitemuoverlap) table, in both NASIS and Windows Pedon, does not record the status of the corresponding mapunit. In NASIS, within a particular legend, the combination of mapunit symbol and mapunit status must be unique. Therefore, for a legend, the same mapunit symbol may occur more than once. If we encounter more than one mapunit with a given symbol, we don’t know which instance the user intended to reference.

When Site Mapunit Overlap records in Pedon PC are uploaded, some records may be able to be converted to legitimate Site Mapunit Overlap records in NASIS, and some may not. Site Mapunit Overlap records that cannot be legitimately converted are subsequently converted to a Site Text record.

4.0 Using The System

4.0 USING THE SYSTEM

4.1 Launching Pedon PC

The Pedon PC application can be launched in three ways:

1. From Microsoft Access (see Figure 8 below)
 - a. Open Microsoft Access (For example, **Start>>All Programs>>Microsoft Office>>Microsoft Office Access 2003**)
 - b. Choose **File>>Open** from the Menu bar up top
 - c. Choose the pedon_pc.mdb database file (default location is at C:\pedon)
2. From Windows Explorer/My Computer
 - a. Navigate Windows Explorer or My Computer to the location of the pedon_pc.mdb database file
 - b. Double-click the file to launch Microsoft Access
3. Via shortcut on your Desktop or Start Menu
 - a. Navigate to the pedon_pc.mdb database file as in 2.a. above
 - b. Right click on the file and select "Create Shortcut". This places a shortcut to this file in the same folder.
 - c. Click and drag the shortcut to your Desktop or to the Start Menu.
 - d. Right click on the shortcut and then select "Rename".
 - e. Type in PedonPC.
 - f. Start the Pedon PC application by double-clicking the shortcut.

Currently, the default parent folder in which all files must be placed is called "pedon" and resides on the C letter-designated hard drive (i.e. C:\pedon). The default Pedon database filename is currently "pedon.mdb", and the default Pedon PC database filename is currently "pedon_pc.mdb".

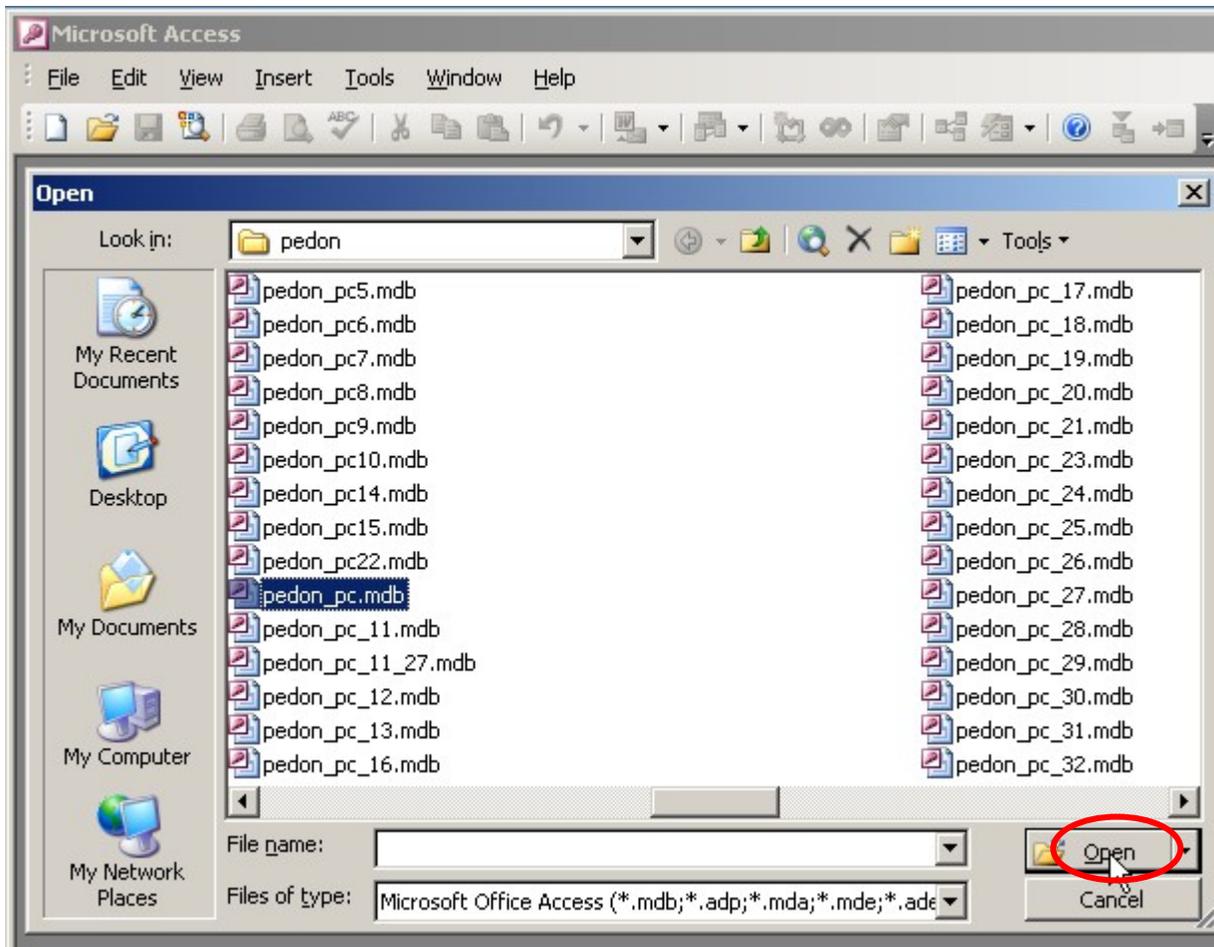


Figure 8. Starting the Pedon PC database application via Microsoft Access.

4.2 Change Microsoft Access Options

In Microsoft Access, navigate to the **Tools >> Options >> Edit/Find** tab. Make sure the box next to **Confirm >> Action Queries** is empty (not checked). Many of the functions in this database use action queries to perform their commands. This step keeps Access from notifying you every time an action query runs.

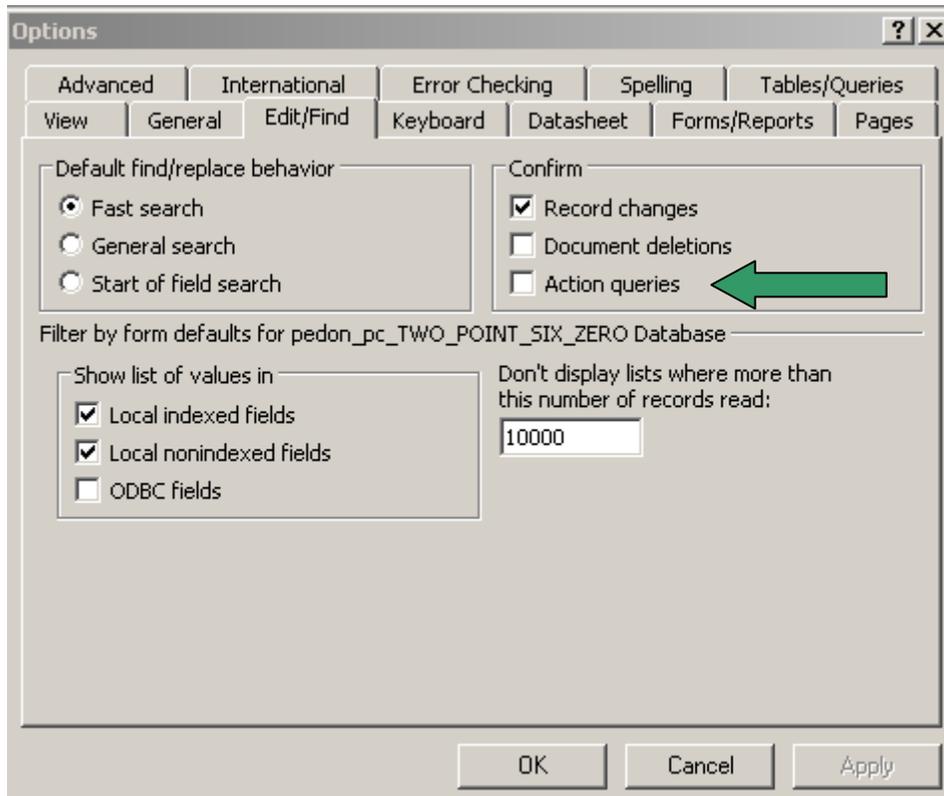


Figure 9. Unchecking the Action queries checkbox to disable Access notifications.

In Microsoft Access, navigate to the **Tools >> Options >> View** tab. Make sure the box next to **Show >> Hidden Objects** is checked. This step will allow you to see all database tables, forms, queries and reports.

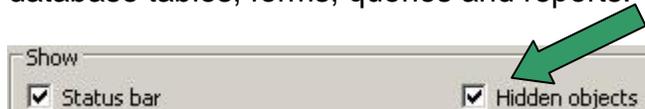


Figure 10. Checking the Hidden objects checkbox to show all tables, forms, queries and reports.

4.3 Security Warning Messages

After invoking the pedon_pc.mdb file, you may receive **up to** three Security Warning Messages, depending on your security settings. The red circles show what to select.

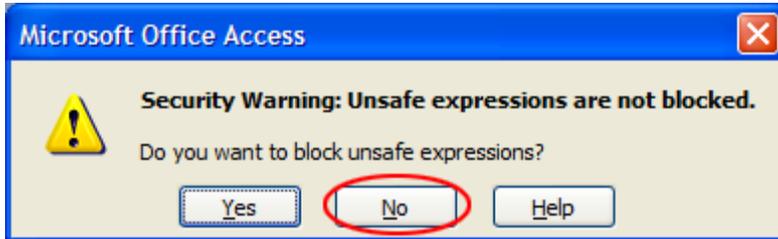


Figure 11. A possible security warning message is shown above (press No).

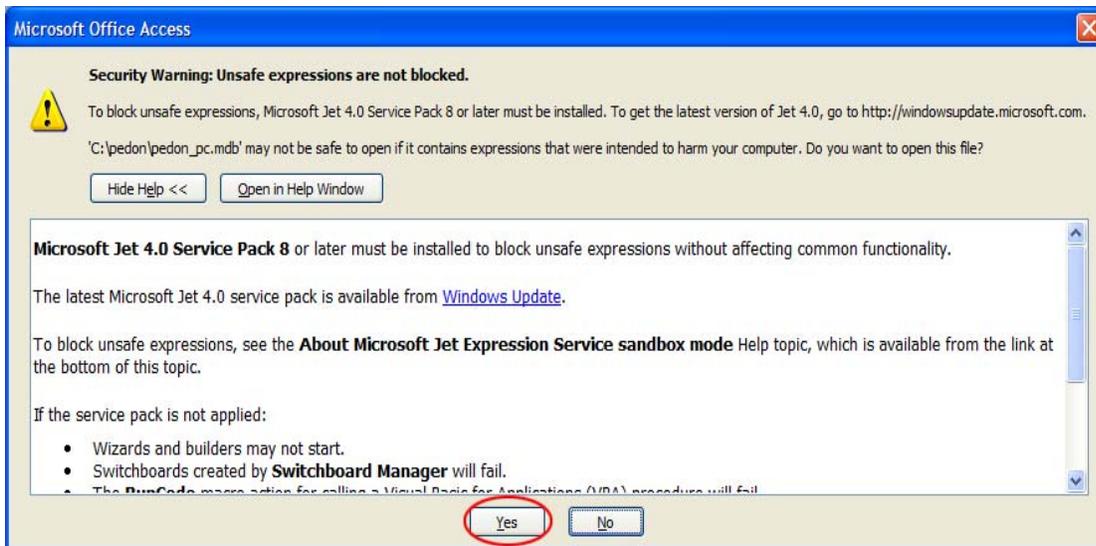


Figure 12. A possible security warning message is shown above (press Yes).

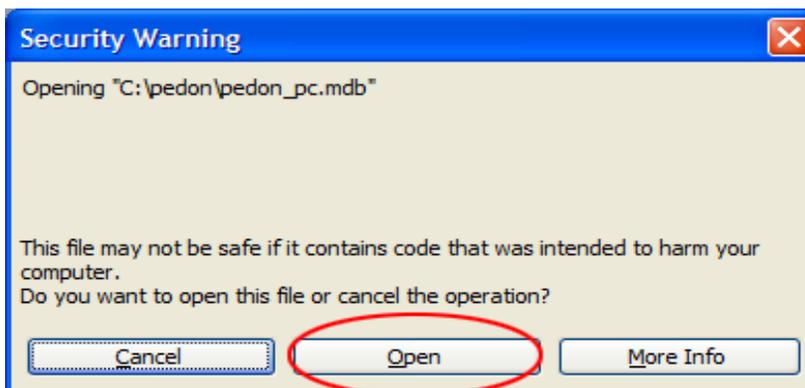


Figure 13. A possible security warning message is shown above (press Open). These security warnings are shown because of Microsoft Office macros.

The messages above refer to the security settings for Microsoft Office macros. The Pedon PC database application does not contain malicious macros.

4.4 Main Menu

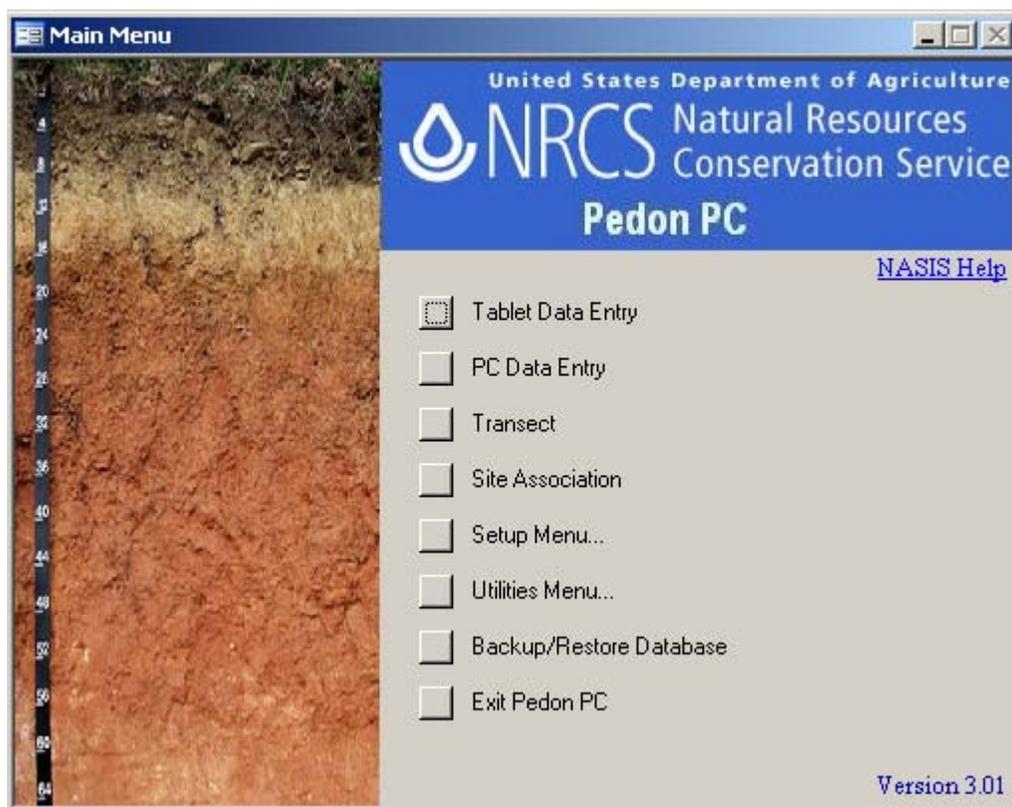


Figure 14. Pedon PC Main Menu.

Upon launching the Pedon PC database, the user will receive a main menu from which user options can be chosen.

1. **Tablet Data Entry:** Form designed for a Tablet PC for in-the-field use. This form may be used on a laptop, desktop or Tablet PC.
2. **PC Data Entry:** Form designed for a desktop computer. This form may be used on a laptop, desktop or Tablet PC.
3. **Transect Form:** Form to enter transect information
4. **Site Association:** Form to enter site association information
5. **Setup Menu:** Choose to access **Setup, Update Support Data, Customize Choice Lists, Import Choice List From Database, Empty Plant, Area, and Geomorphic Choice Lists and Import Data Menu** options
6. **Utilities Menu:** Choose to access **Quality Assurance/Quality Control, Report Menu, Copy a Pedon, Delete Function, Metric/English Calculator, DMS/DD Calculator and Converter and Export Pedons** options
7. **Backup/Restore Database:** Choose to either backup the current database (save the pedon.mdb file) or restore the database (load in the contents of a current pedon.mdb file).
8. **Exit Pedon PC:** Choose to exit the Pedon PC application

4.5 Tablet Data Entry



Figure 15. The Tablet Data Entry tabs.

The Tablet Form is called the “f_site_tablet” form and is visible on the “Forms” objects selection in the main database window. The Tablet Form contains six tabs: Site (Part 1), Site (Part 2), Site (Part 3), Pedon, Horizon (Part 1) and Horizon (Part 2). A single site’s information is contained among the three site tabs since there is much information to be collected for the site object. The Pedon tab consists of pedon related information and horizon information is contained on the Horizon (Part 1) and Horizon (Part 2) tabs.

One site can contain one or more pedons, and one pedon can contain one or more horizons. Please note that the numbers contained on the tabs do not indicate multiple sites or multiple horizons. The tabs are sequentially numbered as a continuation of the current object’s description because of the restricted amount of screen space. This form is very useful in the field on a Tablet PC, hence the name of the form. It takes up less screen real estate than the PC Form.

For storage purposes, make a copy of the “f_site_tablet” form and rename it to “f_site_tablet_archive”. If you make a change to the original “f_site_tablet” form you do not want, you can revert back to the archived version by deleting the current “f_site_tablet” form and renaming the “f_site_tablet_archive” form back to “f_site_tablet”.

4.5.1 Searching for a record

The user can search and load a record in the database by using the User Site ID (default) or the User Pedon ID. The “Check to Search by Pedon” checkbox switches the search between the User Site ID and User Pedon ID.



Figure 16. Searching for a record by User Site ID or User Pedon ID.



Figure 17. The information displayed in the form represents the current record. The current record’s Record ID and User Site ID are displayed on the top of the Site tabs.

4.5.2 Adding a site, site observation and pedon

The Add features allow a user to add a brand new site, add a site observation to the current site, add a site observation and pedon to the current site and add a pedon to the current site and site observation. The table hierarchy is site then site observation and then pedon.

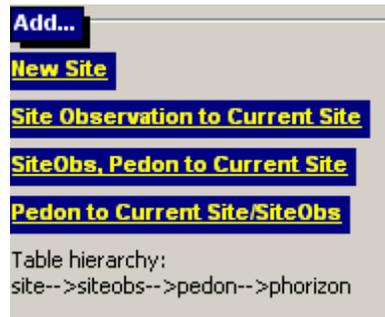


Figure 18. The Add features allow a user to add sites, site observations and/or pedons.

4.5.3 Parent/Child Relationship

The Horizon (Part 1) and Horizon (Part 2) tabs allow data recording of pedon horizon data. The “Pedon Horizon” table is displayed on each tab for easy access and data entry. All other datasheets are child tables of the “Pedon Horizon” parent table. Although it is possible to manually edit child datasheets such as “Designation Suffix”, “Matrix Color”, “Texture” and “Structure”, it is easier to enter this information in the “Pedon Horizon” table and allow the program to automatically populate the corresponding child tables. Note that the “Pedon Horizon” table shown on the Horizon (Part 1) and Horizon (Part 2) tabs represents the pedon table named “phorizon” but also contains some fields not found in the “phorizon” table such as “Suffix”, “DH”, “DVal”, “DChr”, “TexCl”, “Lieu” and “StrGrd”. These fields were added to the “Pedon Horizon” table to allow the automatic population of some child tables and are not saved into the actual pedon “phorizon” table. They are “pseudo table fields”.

When a record is inserted in the parent table “Pedon Horizon”, only the tables “Designation Suffix”, “Matrix Color”, “Texture” and “Structure” are affected by the automatic population feature. Note that only the first record of the pedon horizon child tables named “Matrix Color”, “Texture” and “Structure” are automatically populated using the parent “Pedon Horizon” table. For the table “Designation Suffix”, multiple records can be populated. The screenshots below display the Pedon Horizon fields on the left side and the associated child table fields on the right side.

Designation Suffix:	
Seq	Suf - Suffix
1	t
2	c
3	x

Suffix
t,c,x

Parent

Child

DH - Dry	DVal - D	DChr	MstHue -	MstVal	MstChr
10B	2.5	1	10G	3	4

Parent

Matrix Color:					
	% -	Hue - Col	Val - Co	Chr -	Moist
▶		10B	2.5	1	D
		10G	3	4	M

Child

TexCl -	Lieu	TexMod
cl	by	artx

Parent

Texture:		
	TexCl -	InLieu
▶	cl	by
	Seq	Mod - Modifier
	▶	artx

Child

StrGrd	StrSz - S	StrTp - S
1	M	GR

Parent

Structure:				
	Seq	Gr - Str	Sz - Str	Type - S
▶	1	1	M	GR

Child

An example for the “Designation Suffix” child table follows.

1. Enter “Suffix” data such as “t,s” (that is, the letter “t” followed by a comma and then the letter “s”) in the “Pedon Horizon” (parent) datasheet.
2. Click on another record (for example the second record if this is the first one being entered) in the “Pedon Horizon” datasheet.
3. Click back on the row where the “t,s” suffix data was first entered.
4. The “Designation Suffix” child datasheet will be automatically updated with two records, the first one representing the letter “t” and the second one the letter “s”.

Note: No phorizon child tables may be populated without data in a corresponding phorizon parent record.

Pedon Horizon: Auto Horizon Calculations

	Seq	Disc	Mstr - N	Pr	Suffix	Vert	HorDes - I	Des	UpDe	LoDe	DH - Dr	DVal - D	DChr	Mst
▶	1		A/B	'	t,s		A/B'st	1						
*														

Matrix Color:

	% -	Hue - Col	Val - C	Chr - Moist	PhySt
▶					

Suffix: To delete a record, use the Pedon Horizon table Suffix column above

	Seq	Suf - Suffix
▶	1	t
	2	s
*		

Figure 19. Tablet Data Entry form: Horizon (Part 1) tab showing the Suffix data entry.

Notice that if only the letter “t” were entered in the “Pedon Horizon” table, then the “Suffix” child table would only contain one record (“1” for Sequence and “t” for Suffix).

Also note that you cannot delete a suffix record from the child table “Suffix”. You must use the “Pedon Horizon” parent table field “Suffix” to perform the deletion. For example, to delete the “s” suffix record with a “Seq” of 2 in the figure above, select the “Suffix” field in the “Pedon Horizon” table (“t,s”), press the backspace key twice to delete the “s” suffix and the comma, and then select another record in the form to make the change permanent. The result will be one record – the “t” suffix.

4.5.4 Reports

Figure 20. The Pedon Description Report form can be launched from the Reports tab on the Tablet Form.

The Pedon Description Report button allows the user to save or print a narrative pedon description report using metric, English, or English and metric units. This function exists on both the PC Form and the Tablet Form.

Figure 21. The Completeness Reports can be launched from the Reports tab on the Tablet Form.

Completeness Reports can be used to verify the completeness of the population of horizon data. The reports help verify that child tables have been filled out.

Rock Fragments										
Depth				Size						
Top	Bottom	Kind	Vol%	Low	Representative	High	Shape	Roundness	Hardness	
0	15								2	
0	15	73	5	76		250	2		1	
0	15								2	
0	15	73	25	2		75	2		1	
15	36								2	
15	36	73	35	2		75	2		1	
15	36								2	

Figure 22. A sample completeness report. The user can visually examine a report to see if any data is missing.

4.5.5 Calculations

Pedon PC includes the feature to calculate the parent material group name, taxonomic classification, horizon designation suffix and horizon texture.

Figure 23. The Calculations Form can be launched from the Tablet Form.

A Calculations Form will appear giving the user the opportunity to choose which calculation to perform. The user is also given the choice to replace the existing calculation text or not through the “Replace all filled in entries?” checkbox (default is to replace). The result of the calculation (success or failure) will be displayed in the message box under the “Run” button.

The “Auto Horizon Calculations” checkbox allows the user to turn on and off the feature to automatically calculate horizon calculations as data is entered (default is on). If this is turned on the horizon designation and horizon texture calculations will automatically be calculated on-the-fly as data is entered by the user.

The screenshot shows a navigation bar with tabs: Site (Part 1), Site (Part 2), Site (Part 3), Pedon, Horizon (Part 1), Horizon (Part 2), and Reports. Below the tabs is a note: "Note: No phorizon child tables may be populated without data in a corresponding phorizon parent r". Below the note, the text "Pedon Horizon:" is followed by a checked checkbox labeled "Auto Horizon Calculations".

Figure 24. The Auto Horizon Calculations checkbox determines whether the two horizon calculations will be calculated on-the-fly.

4.5.6 Copy a Pedon

The screenshot shows the 'Copy a Pedon' form. At the top, there are buttons for 'PEDON DESCRIPTION', 'Customize Choice Lists', 'Metric/English Calculator', and 'Copy a Pedon' (which is circled in red). Below these is a search bar labeled 'Search by Pedon'. The main form area is titled 'COPY A PEDON' and contains the following sections:

- SOURCE:** A section labeled 'Existing Pedons' with a button 'Select Pedon To Copy' and a dropdown menu.
- DESTINATION:** A section with a checked checkbox: "Check to Create a New Site and place the copied pedon in this new site OR UNcheck to use an existing site and corresponding site observation."
 - A New Site:** A section with a button 'New User Site ID' and an input field.
 - Existing Sites:** A section with the instruction "Leave both blank to use the same site the selected source pedon is in." and two buttons: 'Assign to this Site' and 'Having this Site Observation', each with a dropdown menu.
- New Pedon:** A section with a button 'New User Pedon ID' and an input field.

At the bottom of the form are three buttons: 'Copy', 'Exit', and 'Return to Data Entry Form'.

Figure 25. The Copy Pedon Form can be launched from the Tablet Form.

The Copy Pedon Form is used to copy a current pedon’s information into a new site or an existing site.

4.5.7 Metric/English Calculator

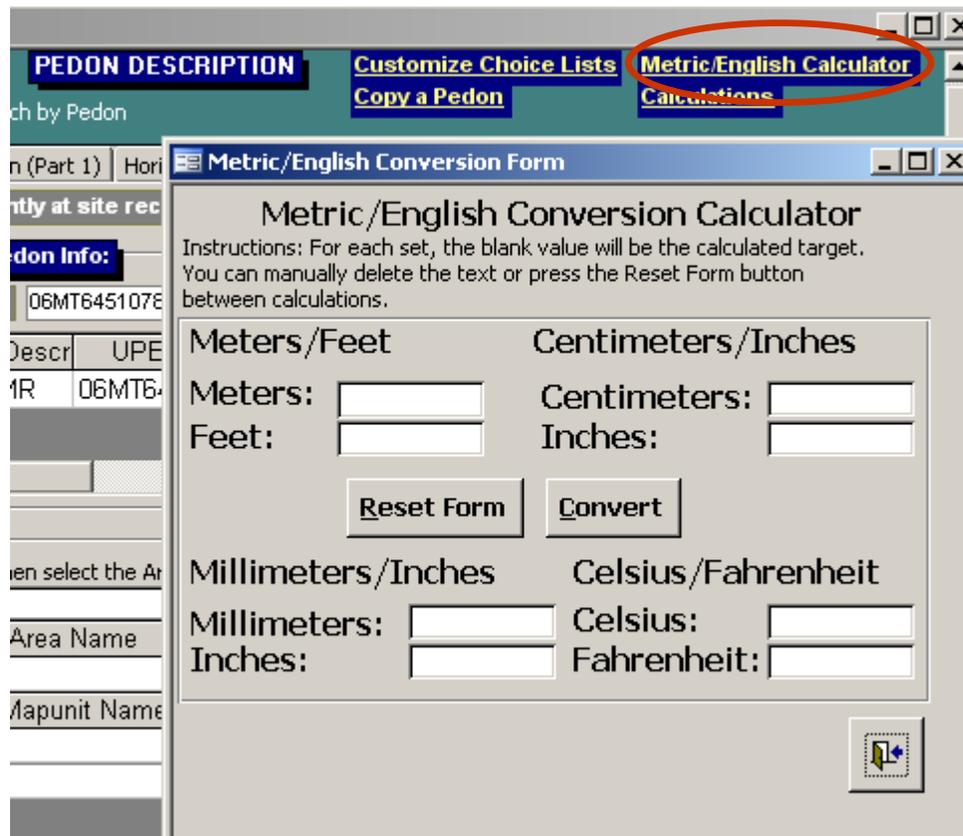


Figure 26. The Metric/English Calculator can be launched from the Tablet Form.

The Metric/English Calculator allows conversion between meters/feet, centimeters/inches, millimeters/inches and Celsius/Fahrenheit.

4.5.8 Customize Choice Lists

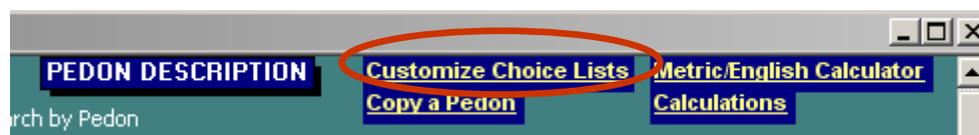


Figure 27. The Customize Choice Lists Form can be launched from the Tablet Form.

The Customize Choice Lists Form allows a user to select which choices in a choice list will be displayed in a drop down list.

4.6 PC Data Entry

The PC Form is called the “f_site” form, visible on the “Forms” objects tab in the main database window. The PC Form contains many tabs situated on one screen. This form is very useful in the office on a desktop or laptop PC, and data is easily accessible and can visually be seen at once. However, the form takes up more screen real estate than the Tablet Form.

For storage purposes, make a copy of the “f_site” form and rename it to “f_site_archive”. If you make a change to the original “f_site” form you do not want, you can revert back to the archived version by deleting the current “f_site” form and renaming the “f_site_archive” form back to “f_site”.

The screenshot shows the 'PC Form' interface for a USDA-NRCS PEDON DESCRIPTION. The main title is 'USDA-NRCS PEDON DESCRIPTION' with a search field for 'User Site ID: 00MT6380089'. Below the title, there are several tabs: 'Add a new site', 'Options', 'Utilities', 'Reports', 'Site Txt', 'Desc', 'UTM/LatLong', 'PLSS', 'Climate', 'Bedrock', 'Site Observation', 'Site Observation Text', 'Site Water/Geo', and 'Geomorphic Desc/Parent Material'. The 'Site Observation' tab is active, showing a table with columns: 'Rec ID', 'ObsDateKind - Observation Dat', 'ObsDate - Observation Date', 'PhiID - Air Photo ID', and 'SurfKind'. The table contains one record: '2 actual site observation date' with 'ObsDate - Observation Date' as '6/8/2000'. Below this, there are buttons for 'Add a new site', 'Add a new site observation to the current site', 'Add a new site observation and pedon to the current site', and 'Add a new pedon to the current site and site observation'. The main data area is divided into several sections: 'Pedon' (with columns: Rec ID, UPEDID - User Pedon ID, SoilName - Soil Name, CorrSoil, PSCS Top, PSCS Bot, PedOr - Pedon, TempReg - Temp, MSubCl), 'Diagnostic Features' (with columns: Kind, TDep, BDep, Thk, L, T), 'Restrictions' (with columns: Kind, Hrd, Har, TDep, BDep, Thk), and 'Field Measured Properties' (with columns: Name, UOM, Unit, Val, Valu). Below these are sections for 'Pedon Horizon' (with columns: Seq, Disc, Mstr, N Pr, Suffix, Vert, HorDes, Des, UpDe, LoDe, DH, D, DVal, D, DChr, RMP/Hue, MstVal, MstChr, VarColors?, TexCl, Lieu, TexMod, Strat?, Texture, Texture - Source, Sa) and 'Colors/Fragments/Texture/Structure' (with columns: % - Hue, Col, Val, C Chr, Moist, Phr, % - V, Kind, SzL - Sz, SzR - SzH, Shp, Rnc, Seq, TexCl - Text, InLieu, Gr - S, Sz - St, Type - S, ID - S, Parts To ID). A photo of a forest is displayed in the upper right corner. The bottom of the form shows record navigation buttons and the text 'Record: 2 of 1618'.

Figure 28. The PC Data Entry form.

The “PC Data Entry” Form allows all pedon data from Site to Horizon to be entered on one form. This form is easily utilized in the office on a desktop or laptop PC after the pedon data information is captured out in the field. If any photos were linked to the waypoint record (see section 4.9.3.3 below for details), hyperlinks and the related photos will appear in the upper right portion of the form. Use the record navigation buttons to move to the next photo if multiple photos were linked to a site. Click the

hyperlinked photo name to open these images with your default image program, such as Windows Picture and Fax Viewer or Microsoft Office Picture Manager.

4.6.1 PC Form Header and Tabs

To search and load a record by User Site ID or User Pedon ID, use the drop down list in the form's header.

The screenshot shows the search interface of the PC Form. It features a search bar with the text "Search by User Site ID:" followed by a text input field containing "00MT6380089". To the right of the input field is a dropdown arrow and a checkbox labeled "Check to Search by Pedon". Below the search bar, a status line reads "You are currently on site record: [input field with '2'] with a User Site ID: [input field with '00MT6380089']".

Figure 29. Searching is done through the form's drop down list in the header.

There are many tabs on the PC Form. The "Add a new..." tab allows the user to add a site, site observation and/or pedon record.

The screenshot shows the "Add a new..." tab selected in the PC Form header. The tab contains four buttons stacked vertically: "Add a new site", "Add a new site observation to the current site", "Add a new site observation and pedon to the current site", and "Add a new pedon to the current site and site observation".

Figure 30. Adding new records is done through the "Add a new..." tab.

The "Options" tab contains the photo option and the horizon calculation option. The "Auto Horizon Calculations" option determines whether horizon calculations are calculated on-the-fly.

The screenshot shows the "Options" tab selected in the PC Form header. It contains two checked checkboxes: "Load Hyperlinked Photos into Form." and "Auto Horizon Calculations."

Figure 31. The "Options" tab contains the photo and horizon calculations options.

The "Load Hyperlinked Photos into Form" option connects the hyperlinked photos in the photo_link table to records in the form. The "Photos" tab displays the photos for this record.

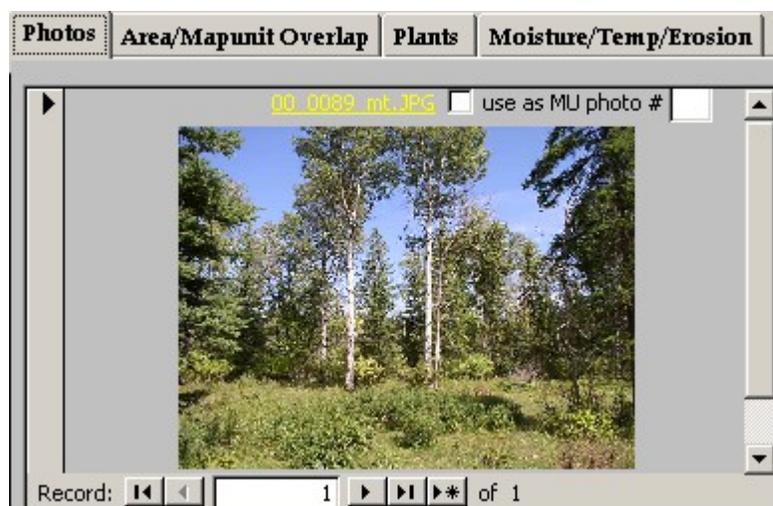


Figure 32. The “Photos” tab contains the photos for this site record.

The “Utilities” tab allows the user to Customize Choice Lists, Copy a Pedon, perform metric/English conversions and run the four available calculations.

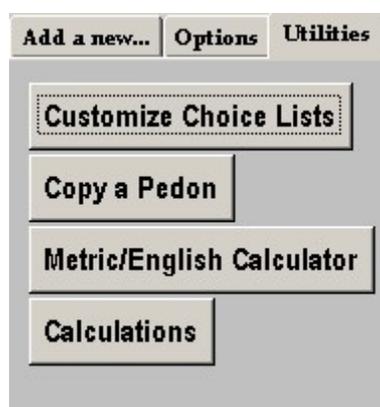


Figure 33. The “Utilities” tab contains useful functions. Pressing the Customize Choice Lists and Copy a Pedon buttons will close the PC Form.

The “Reports” tab allows the user to run the pedon description report or one of the completeness reports.

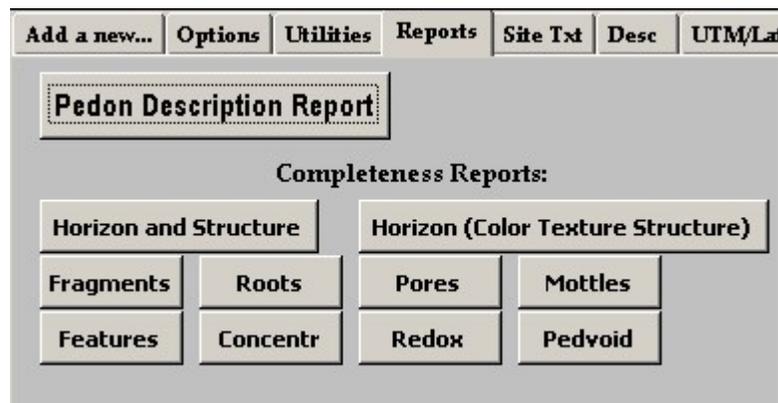


Figure 34. The “Reports” tab contains the description and completeness reports.

4.7 Pedon Table Features

Double-click on the “Subgroup” or the “Soil Name As Sampled” fields in the “Pedon” datasheet to open up an online Official Soil Series Description (OSD). Internet access is required for this to work. This can be done in the PC Form, Tablet Form or Transect Form. The Official Soil Series Descriptions Query Facility is shown below.

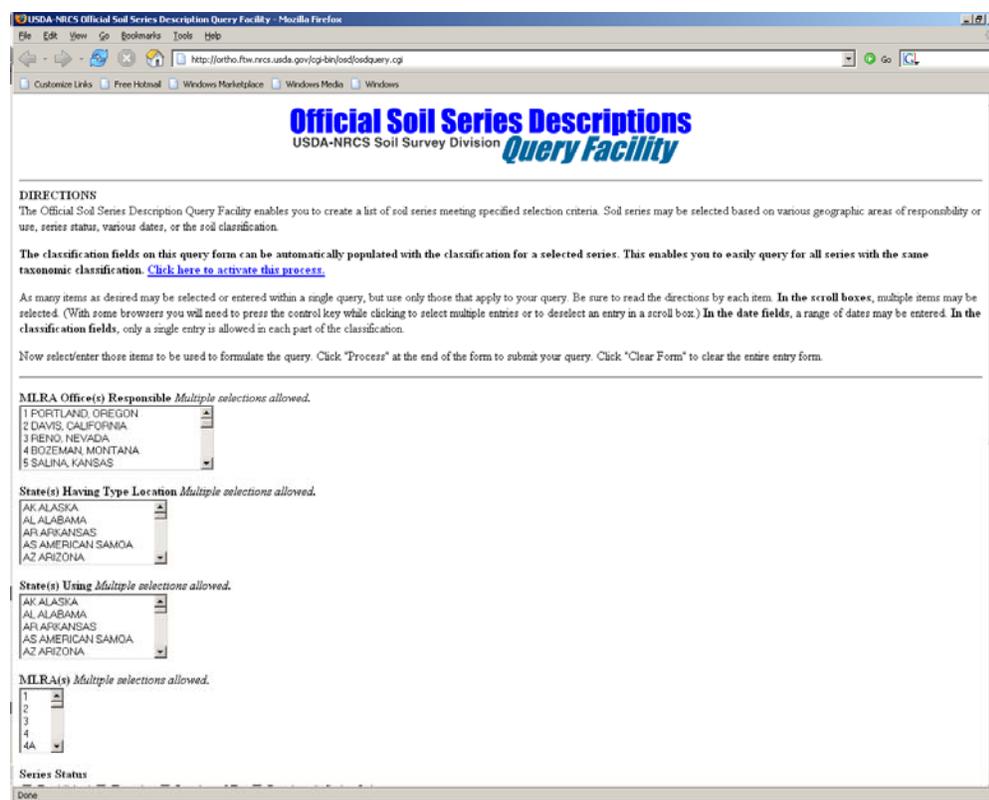


Figure 35. The online, Official Soil Series Descriptions (OSD) Query Facility.

Double-click a value in the pedon “Transect ID” field to open the Transect Form. Note that associating a pedon with a transect requires the transect to be created first. The pedon is then associated with the transect by going to the pedon table and choosing the Transect ID from the resulting choice list.

4.8 Transect Form

TRANSECT FORM
Instructions: Add a transect and transect text, choose a pedon from the drop down list and then click Add to add a pedon to the transect. Note that at least one pedon must exist in order to associate a pedon with a transect (use the Tablet or PC form to enter a pedon).

Transect

UTransectID - User Transect ID	Author - Transect Author	Kind - Transect Kind	Method - Transect Selector	Acres - Transect Delinea
05MT645TA	JMS,EMR	random point	biased	
05MT645TB	JMS,EMR	random point	biased	
05MT645TC	JMS,EMR	random point	biased	
05MT645TD	JMS,EMR	random point	biased	
05MT645TE	EMR	random point	biased	

Record: 1 of 5

Transect Text

Seq	Kind	Cat - Category	SubCat - S	Text	Date	Author
1	miscellaneous notes			very shallow to lithic quartz	9/26/2005	JMS,EMR
2	miscellaneous notes			mod deep to fragmental sut	9/26/2005	JMS,EMR
3	miscellaneous notes			mod deep to fragmental sut	9/26/2005	JMS,EMR

User Pedon ID Add pedon To or Update pedon In the Transect: Delete the pedon From the Transect:

When double-clicking UPEDID in the Pedon Table...
 Open the Tablet Form
 Open the PC Form

Pedon Note: Double-click a value in the UPEDID, Soil Name As Sampled or Subgroup columns for special features.

USiteID - User Site ID	SiteObsID	UPEDID - User Pedon ID	TranID - Transect ID	TStop#	Tint	Ped#	LabPed#	LabSrcID	Desc	PedType
05MT645TA01	1377	05MT645TA01	05MT645TA	1						
05MT645TA02	1378	05MT645TA02	05MT645TA	2						
05MT645TA03	1379	05MT645TA03	05MT645TA	3						
05MT645TA04	1380	05MT645TA04	05MT645TA	4						
05MT645TA05	1381	05MT645TA05	05MT645TA	5						
05MT645TA06	1382	05MT645TA06	05MT645TA	6						
05MT645TA07	1383	05MT645TA07	05MT645TA	7						
05MT645TA08	1384	05MT645TA08	05MT645TA	8						
05MT645TA09	1385	05MT645TA09	05MT645TA	9						
05MT645TA10	1386	05MT645TA10	05MT645TA	10						
05MT645TA15	1391	05MT645TA15	05MT645TA	15						
05MT645TA16	1392	05MT645TA16	05MT645TA	16						
05MT645TA17	1393	05MT645TA17	05MT645TA	17						

Record: 1 of 22

Figure 36. The Transect form allows easy recording of transect data.

From the main menu, navigate to the Transect Form. A transect (a group of pedons) can be entered here. Enter the Transect name and then choose the pedon (using the NASIS User Pedon ID) from the drop down menu. The pedon can belong to only one transect and must already exist prior to linking.

- Enter all fields: User Transect ID, Transect Author, Transect Kind, and so on
- Select the User Pedon ID (UPEDID) from the drop down list

- Click Add to insert a record into the datasheet at the bottom of the page
- Click Delete to delete a record from the datasheet at the bottom of the page
- Double Click on the UPEDID field on the Data Sheet to open either the Tablet or PC form in order to edit the pedon and its associated data.

4.9 Site Association Form

From the main menu, navigate to the Site Association Form. Site Associations (a group of sites) can be associated here. One or more sites should already exist and can be entered using the Tablet Form or PC Form. The site table is read-only in this form. Note the table relationships on this form. The site table is the parent of the site association soils table. The site and site association tables are the parents of the site association site table. The site association table is the parent of the site association text table.

Site Association

Site Association Form

Note: The Site table is the parent of the Site Association Soils table. The Site and Site Association tables are the parents of the Site Association Site table. The Site Association table is the parent of the Site Association Text table.

Site:

Rec ID	User Site ID	Lat. De	Lat. Mir	Lat. Sec	Lat. Dire	Long. Q	Long. W	Long. Sec	Lon
▶	14	MulD-OK117-098-0	36	23	46.278	1	96	50	54.486
	15	MulD-OK117-098-0	36	23	45.732	1	96	50	55.83
	17	MulD-OK117-098-0	36	23	45.408	1	96	50	56.604
	18	MulD-OK117-098-0	36	23	45.024	1	96	50	57.666
	19	MulD-OK117-098-0	36	23	44.172	1	96	50	59.244
	16	P2007-OK117-098-	36	23	45.732	1	96	50	55.83
	9	PruC-OK117-096-0	36	15	46.74	1	96	35	35.262
	10	PruC-OK117-096-0	36	15	46.872	1	96	35	34.452
	11	PruC-OK117-096-0	36	15	47.124	1	96	35	33.75

Record: of 18

Site Association Soils:

Seq	Associated Soil	Site Rec ID
▶		14

Record: of

Site Association:

Rec ID	User Site Association ID
▶	

Record: of 1

Site Association Site:

Rec ID	Seq	Site ID	Site Association ID
▶		14	

Record: of 1

Site Association Text:

Rec ID	Seq	Date	Author	Text	Kind	Cat - Category	SubCat - Sul	Site Association ID
▶								

Record: of 1

Figure 37. The Site Association Form

4.10 Setup Menu

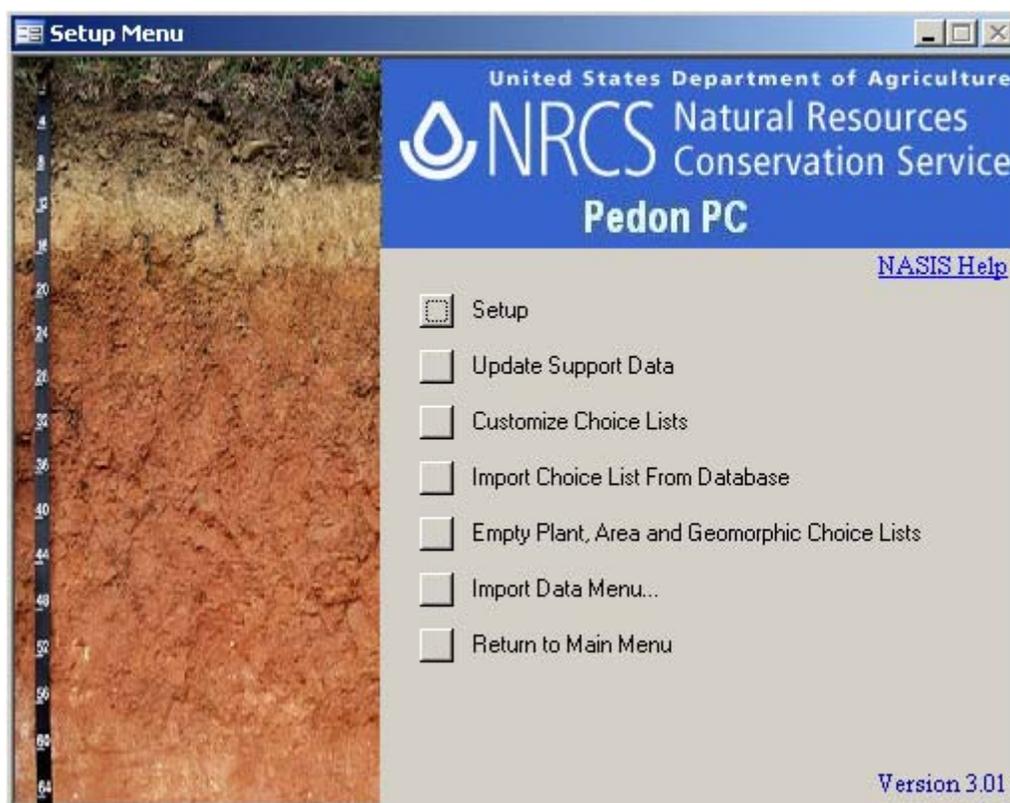


Figure 38. Setup Menu.

Upon selecting the Setup option, the user will receive a submenu from which user options can be chosen.

1. **Setup:** Click to change default directory locations and/or data source names.
2. **Update Support Data:** Click to import support data from the NASIS Download site into the Pedon PC program.
3. **Customize Choice Lists:** Click to customize all choice lists.
4. **Import Choice List from Database:** Click to import choice list data from another external Access database. This updates all local show/hide tables.
5. **Empty Plant, Area and Geomorphic Choice Lists:** Click to choose the Show/Hide Pedon PC tables you would like to empty.
6. **Import Data Menu:** Click to import a NASIS Data File for Analysis, import waypoints from a GPS or link photographs to site points.
7. **Return to Main Menu:** Click to return to the main menu.

4.10.1 Setup

Setup

Note: The current locations and names of the files are shown. Only change the datasources or filenames as needed. If the pedon or SSURGO Access files (mdb extension) are changed then you must Relink in order for the change to take place.

The current location and name for the pedon database is shown below. Press the "Browse..." button and select a different database location and name, if necessary. The default location and name is C:\pedon\pedon.mdb. This database is required for the Pedon PC program.

Browse... C:\pedon\pedon.mdb

The current location and name for the SSURGO database is shown below. Press the "Browse..." button and select a different database location and name, if necessary. The default location and name is C:\pedon\templatedb.mdb. This database is not required but is recommended.

Browse... C:\pedon\templatedb.mdb

If you have changed the location of the pedon database or the location of the SSURGO database, press the "Relink Manager" button to update the links to the tables.

Relink Manager

The current location and name for the MN Garmin application is shown below. Press the "Browse..." button to change the location and name, if necessary. The default location and name is C:\Program Files\dnr Garmin\dnr Garmin.exe. This file is required for the GPS import function.

Browse... C:\Program Files\dnr Garmin\dnr Garmin.exe

The current location and name of your Internet Browser is shown below. Press the "Browse..." button to change the location and name of your Internet Browser, if necessary. The default location and name is C:\Program Files\Internet Explorer\iexplore.exe. This file is used to display the results in a browser on the Pedon Description Report Form.

Browse... C:\Program Files\Internet Explorer\iexplore.exe

Press the "Save and Exit" button to save your changes or press the "Discard and Exit" button to cancel your path changes.

Save and Exit: Discard and Exit:

Figure 39. The Setup Form from which data sources and program locations may be changed.

After launching the Setup Form notice you may change the name and location of your data sources (pedon.mdb and templatedb.mdb). If you change the pedon.mdb or templatedb.mdb file locations or names **you must relink** the tables to the Pedon PC program by pressing the "Relink Manager" button. It is also necessary to save your changes (Save and Exit).

4.10.2 Update Support Data

The Update Support Data screen enables the user to import support data that you have downloaded from the NASIS website into the Pedon PC program, and update records in the local Show/Hide tables. First, download the Geographic Area, Geomorphic Features, Local Plants and General Choice List data from the NASIS download URL at: <http://soils.usda.gov/technical/nasis/downloads/index.html>. Save these files to your hard drive and unzip the zipped files using WinZip or another decompression program. Another way to access the NASIS download is by clicking the [NASIS Download](#) hyperlink shown in the screenshot below. After successfully downloading and unzipping the support data files, open the Pedon PC and navigate to **Main Menu >> Setup Menu >> Update Support Data**. The Update Support Data screen is shown below. Choose one of the four options in the “Domain” radio choice box. Next, choose the Data File Location by manually entering the directory where the files reside or click on the Browse button. The Browse button allows the user to choose a directory that contains the file to import into the Pedon PC. The final step is to click on the OK button. Repeat this process for all domains, if needed. After all support data is imported, press the “Compact And Repair Database” link to ensure database efficiency.

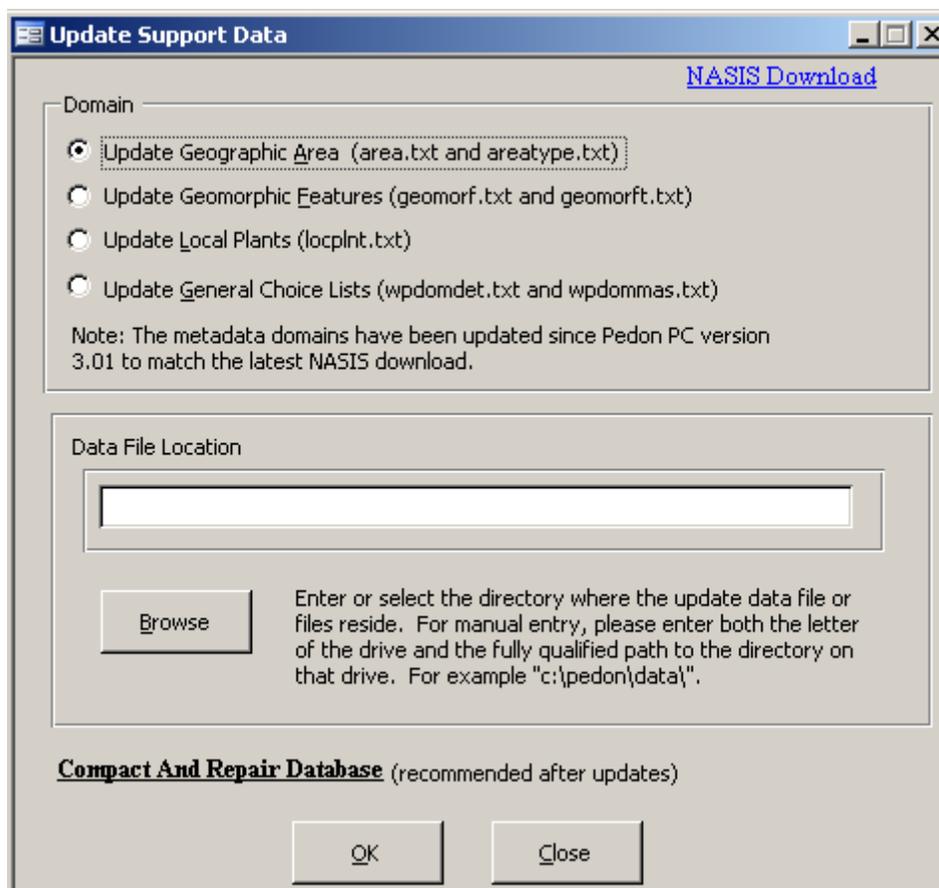


Figure 40. The Update Support Data screen enables the user to import support data from the NASIS website into the Pedon PC program.

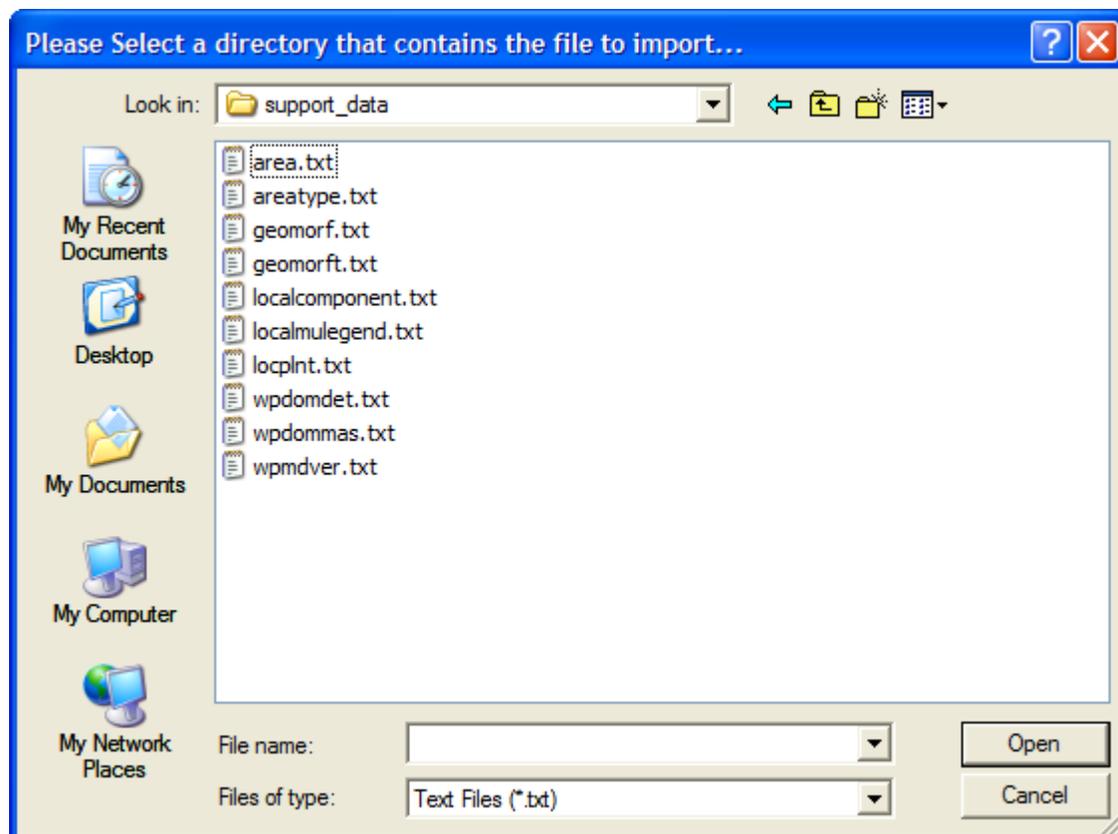


Figure 41. The Update Support Data “Browse” button allows the user to choose a directory that contains one of the text (.txt) files to import.

To hide some of the imported choice list values, review the “Customize Choice Lists” section.

4.10.3 Customize Choice Lists

Choice List Setup

Click the + sign to show choices; check the checkbox to show list items and uncheck to hide. After support data is loaded, do not add custom choices to the Standard, Geomorphic, Plant and Area tabs. Please go through the proper channels to propose new choice list additions.

[NASIS Download](#) [Return to Data Entry Form](#)

Local Standard Geomorphic Features Local Plant List Area Overlap

Check/UnCheck and then choose from dropdown: Show/Hide List ID [dropdown]

	domain_name	domain_id
+	soil_survey_personnel	100
+	note_type	200
+	fieldsheet	300
+	geologic_formation	400
+	siteobs_text_category	500
+	local_physiographic_name	600
+	textcat	700
+	phfmp_name	800
+	phfmp_uom	900
+	PLSS_meridian	1000
*		

Figure 42. The Customize Choice List Form. Five tabs will be displayed: Local, Standard, Geomorphic Features, Local Plant List and Area Overlap.

From the main menu, navigate to **Setup Menu >> Customize Choice Lists**. These values can be edited, but do not change the existing Domain ID. Remove the check in the Show/Hide column to remove that record from any associated drop-down lists for fields on forms that use that domain.

The standard tab contains values which cannot be edited, but choices can be tailored to local needs by removing the check in the Show/Hide column for any records the user

does not want to appear in associated drop-down lists. On this form, an underlined link exists named “Return to Data Entry Form”. This enables the user to go back to where he/she left off in the PC Form or Tablet Form, i.e. at the same User Site ID record on the form.

Note: Once you upload your support data, do not edit the standard choices in the “Standard”, “Geomorphic Features”, “Local Plant List” or “Area Overlap” tabs. Pedon PC provides the means for users to show/hide individual choices. If a new choice is needed, please go through the established process of proposing such a change.

4.10.4 Import Choice List from Database

This feature allows the user to import show/hide choices from a previous Pedon PC version. From the Main Menu, navigate to **Setup Menu >> Import Choice List From Database**. Use this option to import all Show/Hide records from another external Access database. The external Access database file will have an MDB file extension as in the file “pedon_old.mdb”. The user may update local area, local plant, geomorphic features or general choice Show/Hide records. After this operation, press the **Compact And Repair Database** link to ensure database efficiency. This process inserts and updates your local Pedon PC show/hide tables. An example table is the “localarea_showhide” table.

Important: *The metadata domains have been updated to match the latest NASIS domains, so do **not** import from versions prior to Pedon PC version 3.01 into any version that is 3.01 or greater. This means you should **not** import choice lists from say version 3.0 into version 3.01 or from version 3.0 into version 3.02.*

Update Data from External Database

Important: Do not import from versions prior to Pedon PC version 3.01 into any version that is 3.01 or greater. For example, do not import using version 3.0.

Import Show/Hide tables from External Database

- Update Geographic Area (localarea_showhide table)
- Update Geomorphic Features (geomorfeat_showhide table)
- Update Local Plants Show/Hide List (localplant_showhide table)
- Update General Choice Lists (metadata_domain_detail_local metadata_domain_detail_showhide and metadata_domain_static tables)

Note: The metadata domains have been updated since Pedon PC version 3.01 to match the latest NASIS download.

External Pedon PC Database Location

Enter or select the directory path where the external PEDON PC database data file resides. For manual entry, please enter both the letter of the drive and the fully qualified path to the directory on that drive. For example "c:\pedon\data\pedon_pc_mine.mdb".

Compact And Repair Database (recommended after updates)

Figure 43. Use this form to import choice list data from another Microsoft Access external database.

4.10.5 Empty Plant, Area and Geomorphic Choice Lists



Figure 44. Remove Plant, Area and Geomorphic Choice List records.

The Empty Choice Lists Form enables you to delete the plant, area, and geomorphic features show/hide records in the Pedon PC database. There are three show hide tables affected by this process: localarea_showhide, localplant_showhide and geomorfeat_showhide. This will only delete records in the pedon_pc.mdb database. After removal, you can use "Update Support Data", or "Import Choice List From Database" to change your show/hide records or return your show/hide records back to the way they were.

To use this form, select one or more tables to delete records by using the checkboxes and then press the "Remove" button. The tables selected will be emptied. A handy feature is the "Select/Deselect All Tables" checkbox so that you do not have to check or uncheck each box.

4.10.6 Steps To Add a Custom Local Plant List

1. From the main menu, navigate to the Choice List Setup page (**Setup Menu >> Customize Choice Lists**).
2. Click the "Local Plant List" tab (fourth tab from the left).
3. Highlight all local plant list records and press the delete key on your keyboard to delete them. Click on Yes when asked if you want to delete all the records.
4. Close the Choice List Setup page.
5. Download the local plant list file from the NASIS Download site at <http://soils.usda.gov/technical/nasis/downloads/index.html>. Scroll down to "Windows Pedon Support Data", choose your MO Local Plant Lookup Data, save the zip file to your hard drive, and then unzip the file using a file extraction tool like WinZip or WinRAR.

6. From the main menu, navigate to the Update Support Data (**Setup Menu >> Update Support Data**) to upload the corresponding local plant list file.
7. Click on the “Update Local Plants (locplnt.txt)” radio button under “Domain”.
8. Click the Browse button to find the local plant list file you downloaded on your hard drive and then the “OK” button to load the data. Finally click the “OK” button again to close the “Update Support Data” dialog box.
9. From the main menu, navigate to the Choice List Setup page (**Setup Menu >> Customize Choice Lists**).
10. Press the “Yes” button to load the local plant list table.

4.10.7 Import Data Menu

The Import Data Menu allows the user to import a data file from NASIS, import waypoints from a GPS and import photos for use in the PC Form.

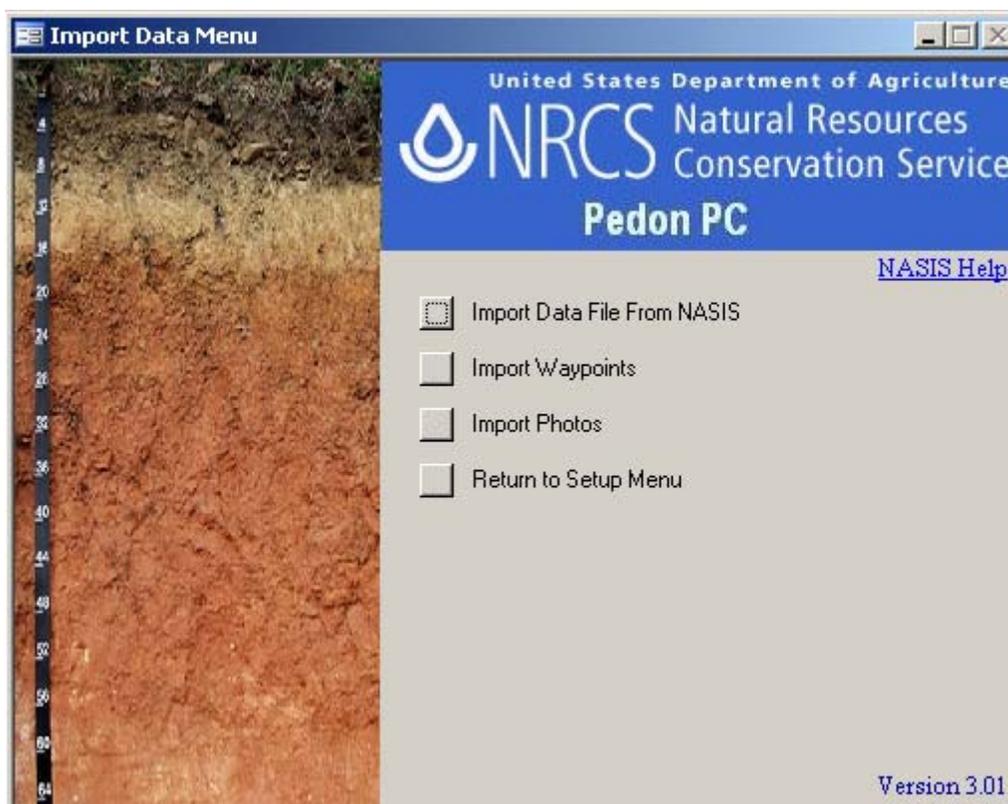


Figure 45. *Import Data Menu options.*

Upon selecting the Import Data option, the user will receive a submenu from which user options can be chosen.

1. **Import Data File From NASIS:** Click to import a NASIS text file.
2. **Import Waypoints:** Click to import waypoints from a GPS.
3. **Import Photos:** Click to link your photographs to site points.
4. **Return to Setup Menu:** Click to return to the Setup Menu.

4.10.7.1 Import Data File From NASIS

Summary of steps

1. Load "placeholder" site, pedon, and transect into selected set using the National Query
2. Load the sites, pedons, and transects you wish to analyze into your selected set.
3. Run the National report to export the data
4. Save this report as ASCII using the .txt extension.
5. Use Pedon PC to import the NASIS data file into an empty pedon.mdb database.

Directions on how to export pedon data from NASIS

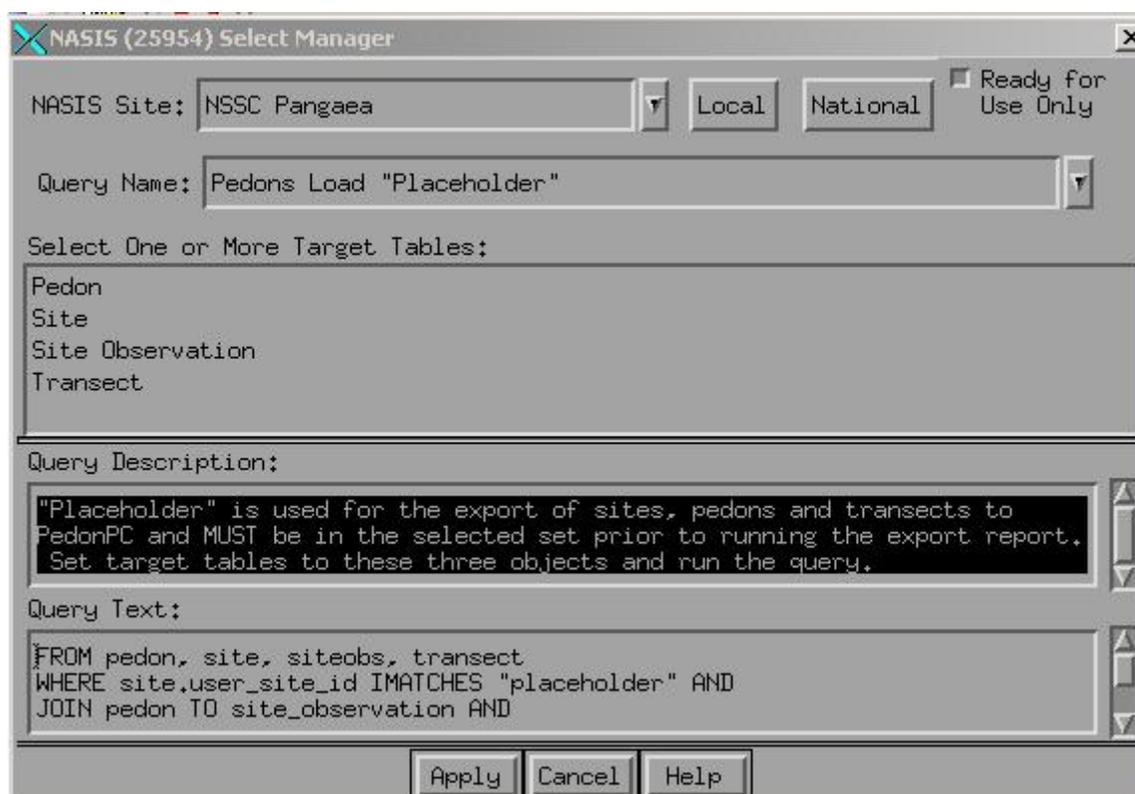


Figure 46. The NASIS Select Manager: select NSSC Pangaea and "Placeholder".

From the Select Manager, select the NASIS Site "NSSC Pangaea" and the Query Name: Pedons Load "Placeholder". "Placeholder" is used for the export of sites, pedons and transects to Pedon PC and **must** be in the selected set prior to running the export report. Set target tables to these three objects and run the query. Note: You may load your pedons and sites by any number of queries in NASIS. The only qualification is that pedons and related sites and/or transects should be loaded. Next, navigate to **Options>> Standard Reports:**

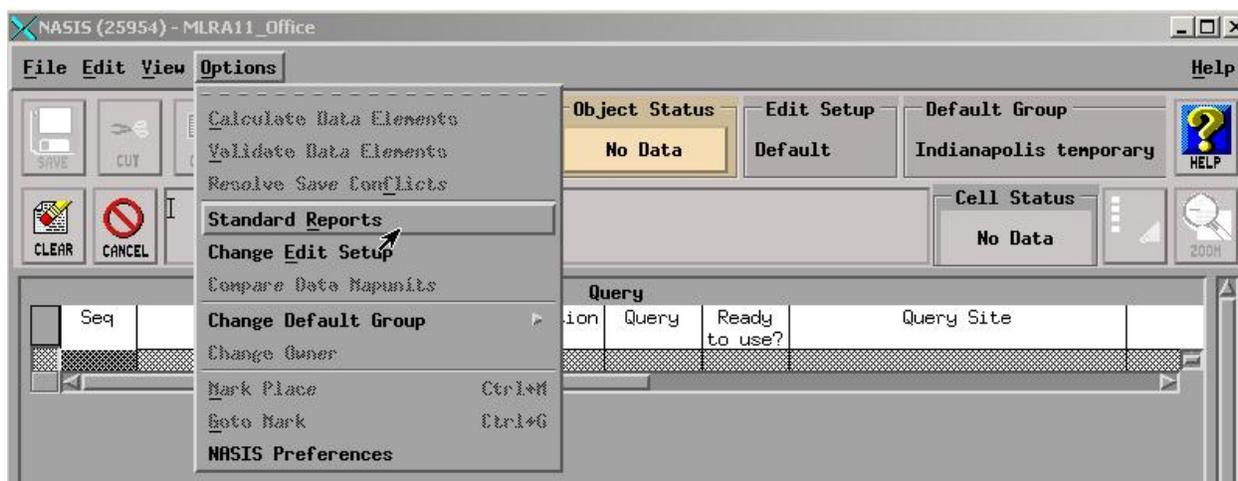


Figure 47. Navigate to **Options >> Standard Reports**

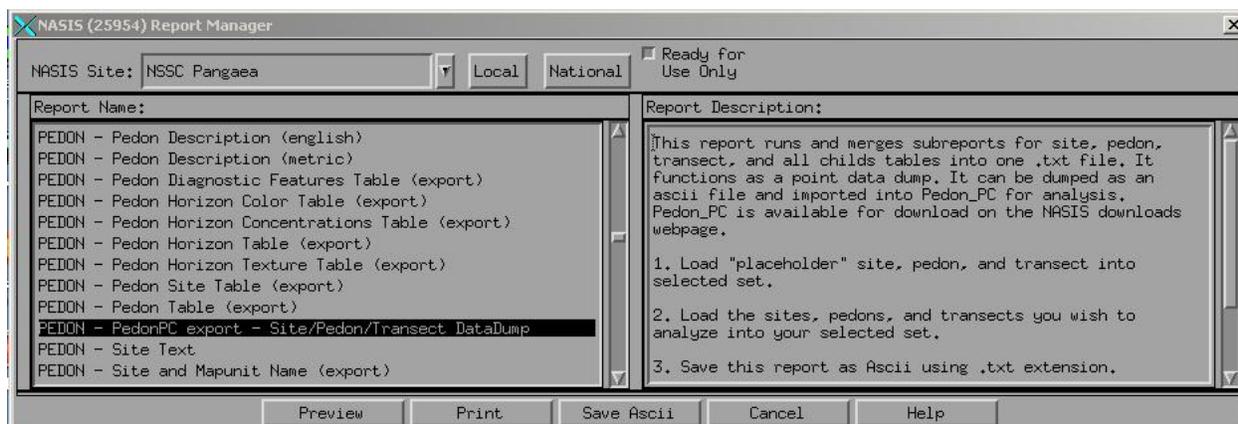


Figure 48. From Report Manager choose NSSC Pangaea and “PEDON – PedonPC export – Site/Pedon/Transect DataDump”.

Within Report Manager, choose the NASIS Site “NSSC Pangaea” and the Report Name “PEDON – PedonPC export – Site/Pedon/Transect DataDump”. The report runs and merges subreports for site, pedon, transect, and all child tables into one text (.txt) file. It functions as a point data dump. It can be dumped as an ASCII file and imported into Pedon PC for analysis. This report merges sub-tables into one file with Visual Basic commands to break files into separate tables.

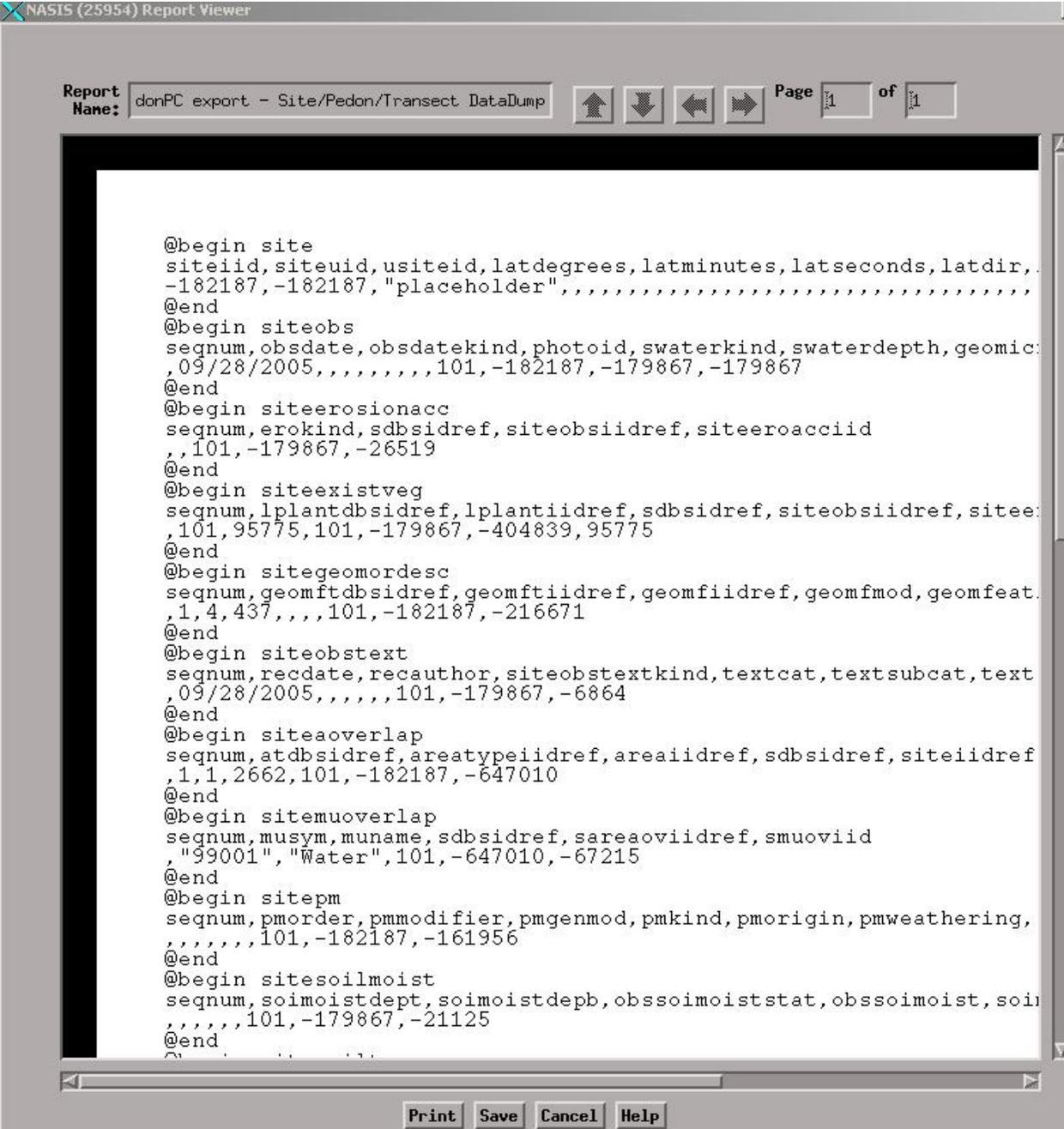


Figure 49. NASIS Report Viewer

This is an example preview of the report, which contains many sub-reports.

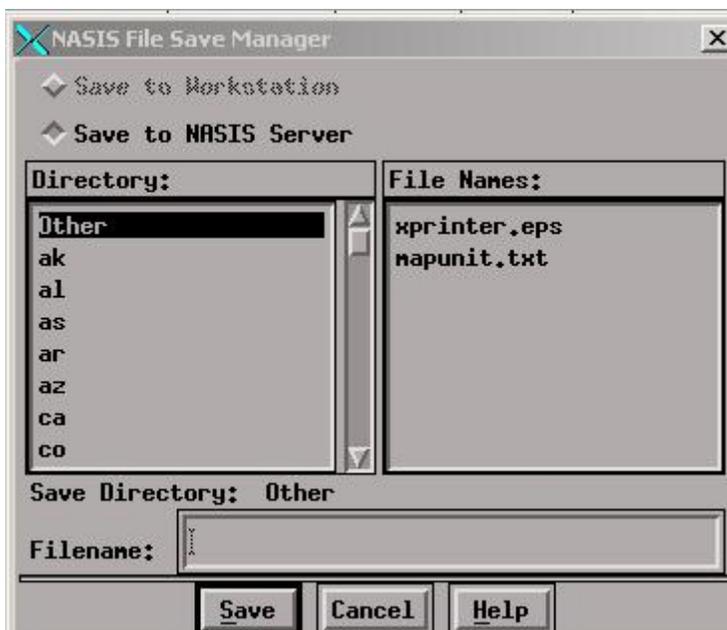


Figure 50. NASIS File Save Manager: Save to Workstation or Save to NASIS Server

In this example we used the NASIS File Save Manager to save our ASCII text (.txt) file. You may also save this file to your local PC (Citrix).

Using Pedon PC to import the NASIS data file

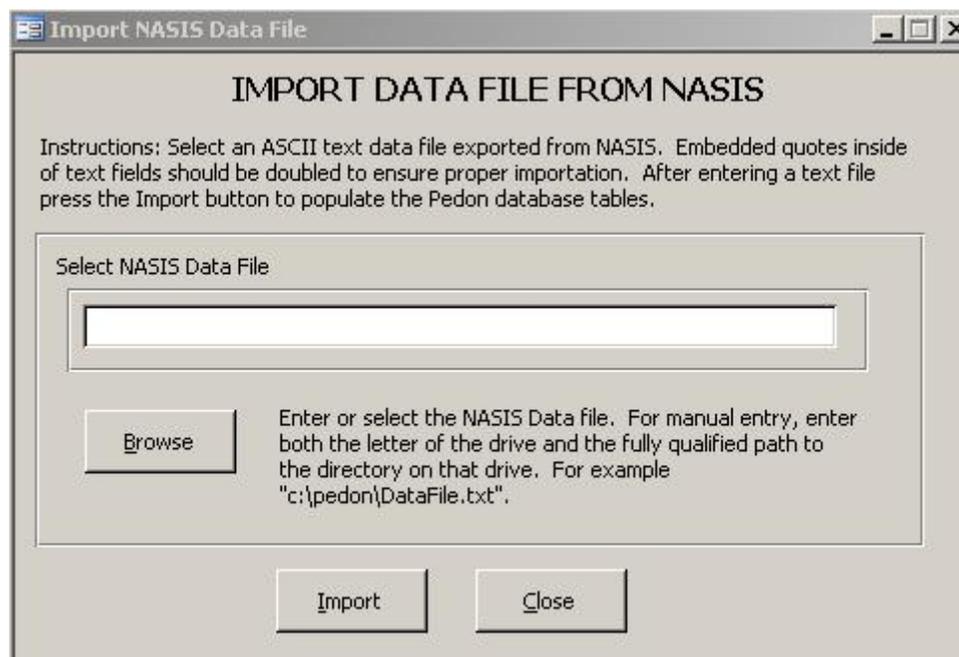


Figure 51. Pedon PC: The Import Data File From NASIS Form.

A data file from NASIS may be used to import data into Pedon PC. This data file must be an ASCII text data file and the fields must be delimited. Embedded quotes inside of text fields must be doubled to ensure proper importation. For example, the text field: “Sam said, “That’s all folks” and then left” should be changed to: “Sam said, ““That’s all folks”” and then left” (notice the doubled double-quote before the word *That’s* and after the word *folks*). You should not have to worry about these details if you use the directions for exporting Pedon data from NASIS.

The import process uses a blank pedon.mdb file to insert imported data into. You must download a New/Empty Windows Pedon (pedon.mdb) database and place it in the pedon folder (default is “C:\pedon”) to use the Pedon PC import function, or you can let Pedon PC clean your current pedon.mdb database. If you let Pedon PC do this, it will make a backup copy of your current pedon.mdb file using the following naming convention: “C:\pedon\pedon_backup_” and then a unique timestamp. Note that your original data file (pedon.mdb) will be copied to this new file. The program will then clean (empty) your original pedon.mdb file and prepare it for importation.

After entering a NASIS Data File manually or using the Browse button, press the Import button to populate the pedon.mdb database tables.

4.10.7.2 Import Waypoints

Import new GPS points

Garmin GPS Import

To import GPS points to the Pedon database, use the DNR Garmin stand-alone application to save points in a text (*.txt) file. Then navigate to that text file with the "Browse..." button. After the text file is read into the grid, double-check and edit the waypoints as needed. Choose your import options and then press the "Execute" button.

NOTE: Garmin GPS units record location information in decimal degrees and elevation in feet. Pedon currently allows storage of location information as LatLong Degree, Minute, Second, and/or UTM's. Elevation is recorded in meters.

1. Run DNR Garmin Application: 

2. Specify Path:

User Site ID	Observation Date	UTM Northing	UTM Easting	Elevation	latdecdeg	londecdeg
	12/21/2007					

3. Choose Options:

User Site ID Field:

Elevation Units:

Describer:

Year:

Include UTM's
 UTM-Projection:
 Zone:

Build Area Overlap
 Area:

Build Transect
 #Transect Digits:
 #Stop Digits:

4. Press the Execute button to Import to the database:

Figure 52. Import Waypoints option from the Import menu.

Waypoints stored on your GPS (Global Positioning System) can be periodically uploaded to Pedon PC. This is the first step in data entry. Waypoints should be saved on your GPS using a unique site ID number. This number is important for unique identification of the point as well as photo linking. In soil survey crews of two or more, numbers should be assigned to ensure uniqueness. For example, use a 4 digit number

where the first digit represents an individual survey member and the last three digits represent a site number (Example: 1001, 1 = Project Leader, 001 = site id). Alternatively, use a 6 digit number where the first three digits represent a 3rd quad field sheet and the last three digits represent a site number (Example: 123 001, 123=3rd quad, 001 = site id). During the import process, the standard NASIS User Site ID is built from this unique number by adding a two-digit year and a Soil Survey symbol to the front of it. For example, a GPS site id of 1001 will be converted to 06MT6181001 in the database (06 = 2006; MT = Montana; Survey area = MT618; GPS site id = 1001).

To import GPS points to the Pedon database, use the DNR Garmin stand-alone application to save points in a text (*.txt) file. There are some rules to follow regarding this text file. The text file should have these columns: type, ident, lat, long, y_proj, x_proj, comment, altitude

Also the y_proj value (UTM Northing) must be ≥ 0 And ≤ 10000000 (10 million) and the x_proj value (UTM Easting) must be ≥ 0 And ≤ 1000000 (1 million). The waypoint import will not import the date correctly if the date in the comment column does not follow the format of "day-month-year".

For example, the following date formats are valid (notice some have military time).

'25-OCT-07 12:34'

'12:34 25-OCT-07'

'25-OCT-07'

The following is a valid sample file:

```
type,ident,lat,long,y_proj,x_proj,comment,altitude
WAYPOINT,0,39.99248735,-91.27016117,4428356.37672630,647678.65421980,16:45 07-NOV-07,0
WAYPOINT,1,39.99257770,-91.27062712,4428365.63345826,647638.67871748,22-NOV-07,0
WAYPOINT,10,40.00097972,-91.34073034,4429184.46205982,641636.21614998,23-NOV-07 16:45,0
WAYPOINT,11,40.00300655,-91.30127932,4429472.89284774,644999.66043451,16:45 07-NOV-07,0
```

1. Create the folder "gps_upload" under C:\pedon (default directory). The full path should be C:\pedon\gps_upload.
2. Use the MN (Minnesota) DNR Garmin stand-alone application to upload waypoints and save them as a text file. If you don't have the MN DNR Garmin application, you can obtain the most recent version from the web at: <http://www.dnr.state.mn.us/mis/gis/tools/arcview/extensions/DNRRGarmin/DNRRGarmin.html>
3. Plug the GPS into the serial port of your computer.
4. Turn the GPS on.
5. Launch the MN DNR Garmin application.
6. Navigate to **Waypoint >> Waypoint Properties**
7. On the "projection" tab, set projection using the drop down list (Example: NAD_1983_UTM_Zone_11N)
8. On the "waypoint" tab, remove the check marks from all but the following fields: type, ident, lat, long, y_proj, x_proj, comment, altitude. (Note: The altitude field is stored on the Garmin GPS unit as metric units).

9. Navigate to **Waypoint >> Download**
10. Records from the GPS should appear in the dialog window. Once records are as you want them to appear navigate to **File >> Save To >> File** and then browse to C:\pedon\gps_upload (the folder you created in step one) and save the selected GPS points with the filename "gps_upload". The full path should be C:\pedon\gps_upload\gps_upload.txt
11. Import the text file containing GPS waypoints into Pedon PC. Open Pedon PC and from the Main Menu, navigate to **Setup Menu >> Import Data Menu >> Import Waypoints**. Enter the full directory path to the location where the text (.txt) file is stored, or use the Browse button. An example file pathname is C:\pedon\gps_upload\gps_upload.txt. After the text file is read into the grid, double-check and edit the waypoints as needed. Choose your import options and then press the "Execute" button.
12. New waypoints are appended to the site table within the database. Waypoints that duplicate an existing NASIS User Site ID will not be imported and will be displayed in the message box.

4.10.7.3 Import Photos

The PC Form will display linked digital images/photos. The Tablet Form does not have a photo feature. The User Site ID must be created first. It can be created in either the Tablet Form or the PC Form by simply Adding a New Site and appropriately naming the User Site ID.

Photographs stored in a single Windows directory can be automatically linked to the PC Form. Photos to be linked must reside in a single directory and they must be named following a standard naming convention of:

2DigitYear_SiteID_Detail.JPG

An example is 06_1001_p1.JPG where 06 = year of 2006,
 1001 = SiteID of 4 digits (can be 3, 4, 5, or 6 digits)
 p1 = photograph description (detail section)

The detail section (p1 in our example) can consist of a description which further identifies the photo and may be any string length.

The Photo Link feature builds a hyperlink to the directory location of photos and a field that links to the *usiteid* field of the site table. An example of the *usiteid* field is 06MT6181001.

How to link photos to points:

There is a prerequisite before you begin the following steps. A corresponding site record must exist in the site table **prior** to linking to photos. For example, if a photo

named 06_1001_p1.jpg is to be linked to a user site id of 06MT6181001, this site record must exist in the site table before you link any photos to it.

1. Open Pedon PC and navigate to **Setup Menu >> Import Data Menu >> Import Photos**. A dialog box appears that shows the default survey area (MT618), the default number of GPS site ID digits being used in the naming convention, and a directory path.
2. Choose your survey area (e.g. MT618).
3. Choose the number of site ID digits you use (from 3 to 6). For example, if a photo named 06_1001_p1.jpg is to be linked to a user site id of 06MT6181001, choose MT618 from the Survey Area box and choose 4 from the SiteID Digits box for the 4 digits in "1001".
4. Enter the full directory path to the location where your photos are stored, e.g. C:\pedon\photos\. Enter both the letter of the drive and the fully qualified path to the directory on that drive, or use the Browse button.
5. Press the OK button.
6. Answer Yes to the Microsoft Access query run and append questions.

An example of this process follows.

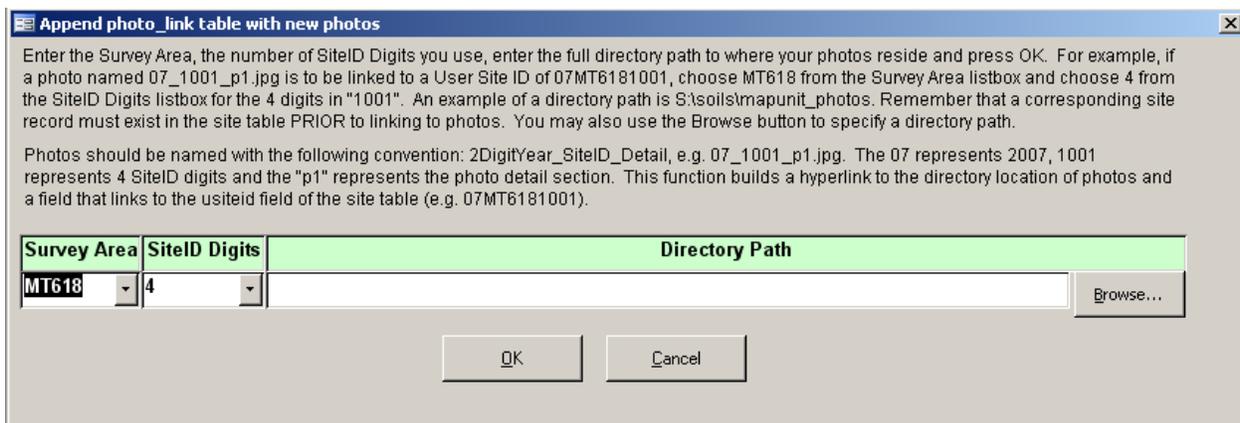


Figure 53. Link Photos/Points option from the Import menu. Photo links are built in the "photo_link" table. In the figure above the "Append photo_link Table with new photos" dialog box is shown with survey area "MT618" for Montana and 4 Site ID digits for "1001". In this example, all photos are located in "C:\pedon\sample_photos".

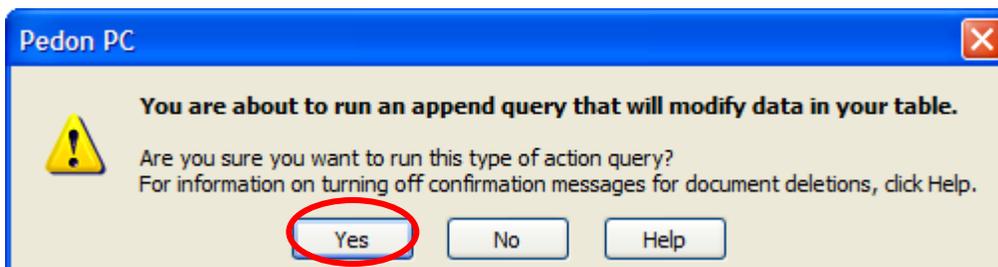


Figure 54. If this dialog box appears, answer Yes to the above question.

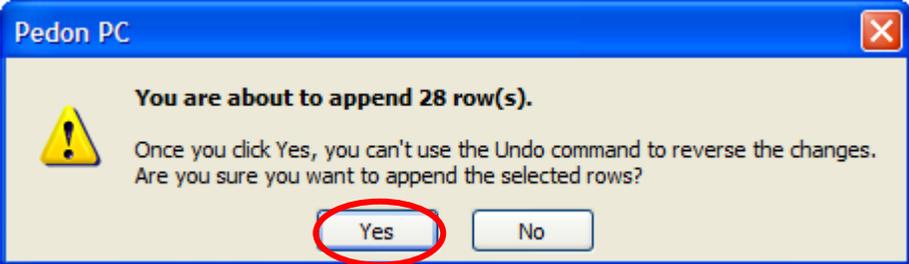


Figure 55. If this dialog appears, answer Yes to the above question. The number of rows displayed may be different than shown in this example.

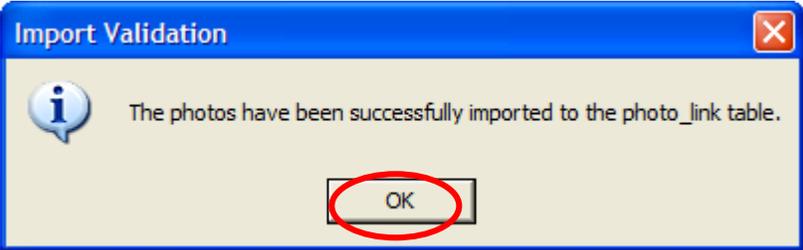


Figure 56. Successful importation of the photo data into the photo_link table.

05KY2195206	05_5206_s1.JPG	3840	C:\pedon\sample_photos\05_5206_s1.JPG
05KY2195206	05_5206_s2.JPG	3841	C:\pedon\sample_photos\05_5206_s2.JPG
05KY2195206	05_5206_s3.JPG	3842	C:\pedon\sample_photos\05_5206_s3.JPG
05KY2195206	05_5206_v1.JPG	3843	C:\pedon\sample_photos\05_5206_v1.JPG
05KY2195207	05_5207_p1.JPG	3844	C:\pedon\sample_photos\05_5207_p1.JPG
05KY2195207	05_5207_s1.JPG	3845	C:\pedon\sample_photos\05_5207_s1.JPG
05KY2195207	05_5207_s2.JPG	3846	C:\pedon\sample_photos\05_5207_s2.JPG
05KY2195207	05_5207_s3_pan1.JPG	3847	C:\pedon\sample_photos\05_5207_s3_pan1.JPG
05KY2195207	05_5207_s3_pan2.JPG	3848	C:\pedon\sample_photos\05_5207_s3_pan2.JPG
05KY2195207	05_5207_s3_pan3.JPG	3849	C:\pedon\sample_photos\05_5207_s3_pan3.JPG
05KY2195207	05_5207_s3_pan4.JPG	3850	C:\pedon\sample_photos\05_5207_s3_pan4.JPG
05KY2195207	05_5207_s3_pan5.JPG	3851	C:\pedon\sample_photos\05_5207_s3_pan5.JPG
05KY2195207	05_5207_s3_pan6.JPG	3852	C:\pedon\sample_photos\05_5207_s3_pan6.JPG
05KY2195207	05_5207_v1.JPG	3853	C:\pedon\sample_photos\05_5207_v1.JPG
05KY2195208	05_5208_p1.JPG	3854	C:\pedon\sample_photos\05_5208_p1.JPG
05KY2195208	05_5208_s1.JPG	3855	C:\pedon\sample_photos\05_5208_s1.JPG
05KY2195208	05_5208_s2.JPG	3856	C:\pedon\sample_photos\05_5208_s2.JPG
05KY2195209	05_5209_p1.JPG	3857	C:\pedon\sample_photos\05_5209_p1.JPG
05KY2195209	05_5209_s1.JPG	3858	C:\pedon\sample_photos\05_5209_s1.JPG
05KY2195209	05_5209_s2.JPG	3859	C:\pedon\sample_photos\05_5209_s2.JPG
05KY2195210	05_5210_s1.JPG	3860	C:\pedon\sample_photos\05_5210_s1.JPG
05KY2195210	05_5210_s2.JPG	3861	C:\pedon\sample_photos\05_5210_s2.JPG
05KY2195210	05_5210_tray1.JPG	3862	C:\pedon\sample_photos\05_5210_tray1.JPG
05KY2195210	05_5210_v1.JPG	3863	C:\pedon\sample_photos\05_5210_v1.JPG
05KY2195210	05_5210_v2.JPG	3864	C:\pedon\sample_photos\05_5210_v2.JPG
05KY2195211	05_5211_s1.JPG	3865	C:\pedon\sample_photos\05_5211_s1.JPG
05KY2195211	05_5211_s2.JPG	3866	C:\pedon\sample_photos\05_5211_s2.JPG
05KY2195211	05_5211_s3.JPG	3867	C:\pedon\sample_photos\05_5211_s3.JPG

Figure 57. Appended rows in the photo_link table.

Success! You will receive an Import Validation dialog box. Press OK. You may check the end of the “photo_link” table to see what records were appended to it. In this example, 28 records were appended, one for each of the pictures in “C:\pedon\sample_photos” (the location of our photos).

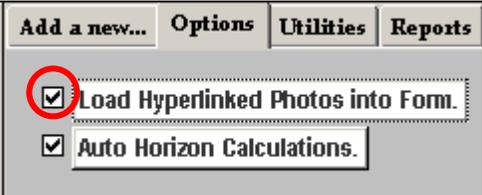


Figure 58. The PC Form Site tab is shown above.

Open up the PC Form and on the Options tab notice the “Load Hyperlinked Photos into Form” checkbox on the left side of the form. This must be checked in order for the associated site pictures to be shown on the PC form.

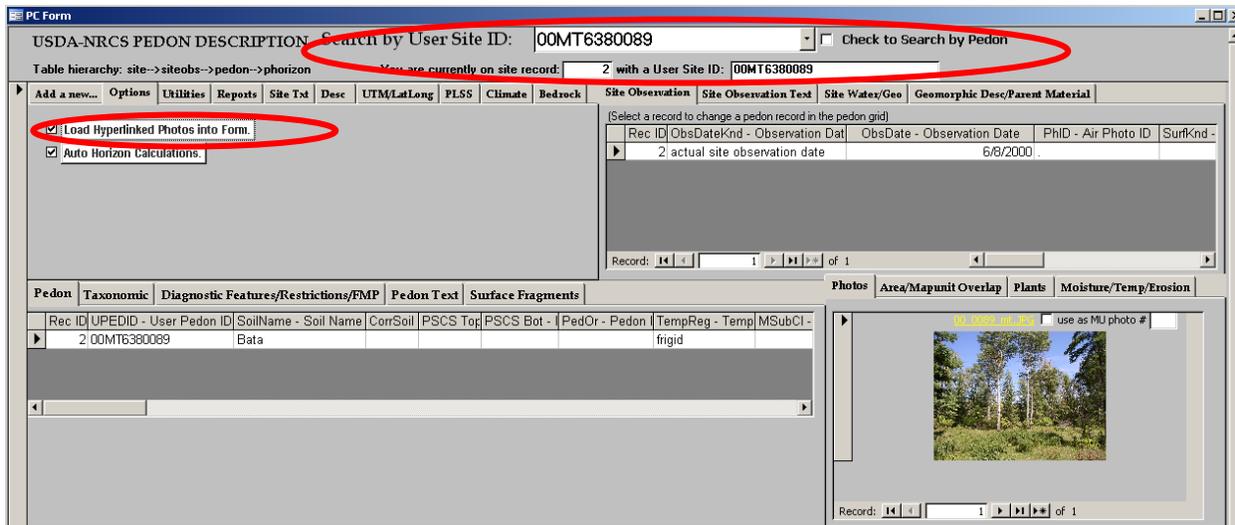


Figure 59. Photos can only be displayed in the PC Form.

The following textbox shows an example User Site ID in the PC Data Entry form:



Figure 60. The User Site ID on the PC Form.

4.11 Utilities

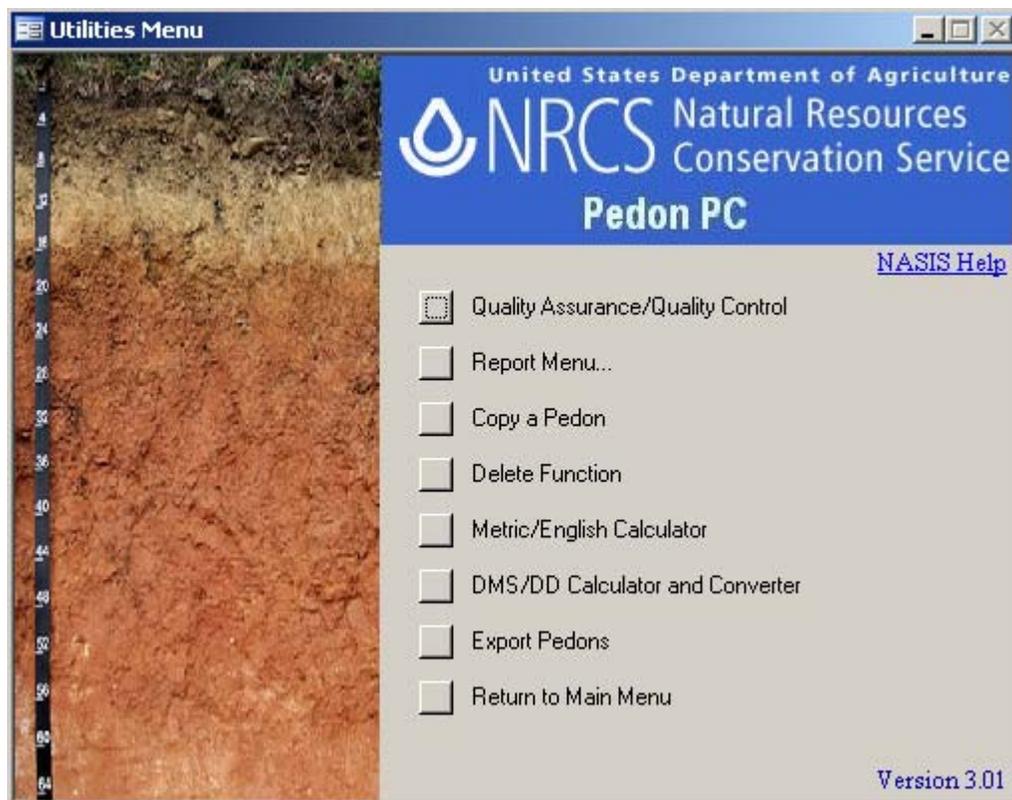


Figure 61. Utilities Menu.

Upon selecting the Utilities option, the user will receive a submenu from which user options can be chosen.

Quality Assurance/Quality Control: Click to run the QA/QC Tool.

Report Menu: Click to run a pedon description report or a completeness report.

Copy a Pedon: Click to copy a pedon to a new site or existing site. This will copy all pedon information, pedon child tables, horizons, horizon child tables and pedon site information.

Delete Function: Click to delete a site, transect, pedon or horizon.

Metric/English Calculator: Click to show a Metric to English and English to Metric calculator from which you can enter values and have the corresponding unit of measure returned.

DMS/DD Calculator and Converter: Click to show a DMS//DD Calculator and a SiteNad83 table converter.

Export New Pedons: Click to export data from the Pedon PC into an empty pedon.mdb file marked with a timestamp.

Return to Main Menu: Click to return to the main menu.

4.11.1 Quality Assurance Form

The Quality Assurance Form enables a user to view and verify pedon description data. There are six tabs on this form. The Database Relationships tab allows the user to view data in various formats. A user can view site, pedon and horizon data at once, view transect, pedon and horizon data at once and so on. The Pedon Database Structure tab allows the user to view the entire pedon database structure. The Missing/Dups tab enables the user to run queries to show any missing or duplicate data, such as the number of sites with no pedons, and the number of duplicate User Site IDs. The Count tab enables the user to verify database completeness. The Aggregate Functions tab allows the user to perform basic statistical functions such as count, mean, min, max and average for any table field. The Goto tab allows the user to view any table, query or form in the database.

Quality Assurance/Quality Control

QA/QC

Database Relationships | Pedon Database Structure | **Missing/Dups** | Count | Aggregate Functions | Goto

Number sites with no pedons:	0	Calculate...	Show Records...
Number sites with blank User Site ID:	0	Calculate...	Show Records...
Number sites with blank lat/long info:	0	Calculate...	Show Records...
Number sites with blank UTM info:	0	Calculate...	Show Records...
Number sites with blank Datum info:	0	Calculate...	Show Records...
Number sites with blank lat/long, UTM, and Datum info:	0	Calculate...	Show Records...
Number sites with NAD27 Datum:	0	Calculate...	Show Records...
Number sites with NAD83 Datum:	0	Calculate...	Show Records...
Number pedons with no horizons:	0	Calculate...	Show Records...
Number pedons with blank User Pedon ID:	0	Calculate...	Show Records...
Number pedons not attached to a site (should be 0):	0	Calculate...	Show Records...
Number pedons not attached to a transect:	0	Calculate...	Show Records...
Number transects with no pedons:	0	Calculate...	Show Records...
Number transects with blank User Transect ID:	0	Calculate...	Show Records...
Number User Site IDs with duplicates:	0	Calculate...	Show Records...
Number User Pedon IDs with duplicates:	0	Calculate...	Show Records...
Number User Transect IDs with duplicates:	0	Calculate...	Show Records...
These next two queries take time to process so please be patient:			
Number duplicate pedons by their UTM overlap:	0	Calculate...	Show Records...
Number duplicate pedons by their lat long:	0	Calculate...	Show Records...

Figure 62. The Quality Assurance Form (Missing/Dups tab shown)

4.11.2 Report Menu

The report menu allows the user to run the pedon description report or completeness report outside of the input data forms. The completeness report form also contains a choice list decoder that allows the user to decode the integers in the pedon choice lists. These reports can be run through the PC Form, Tablet Form or the Report Menu.

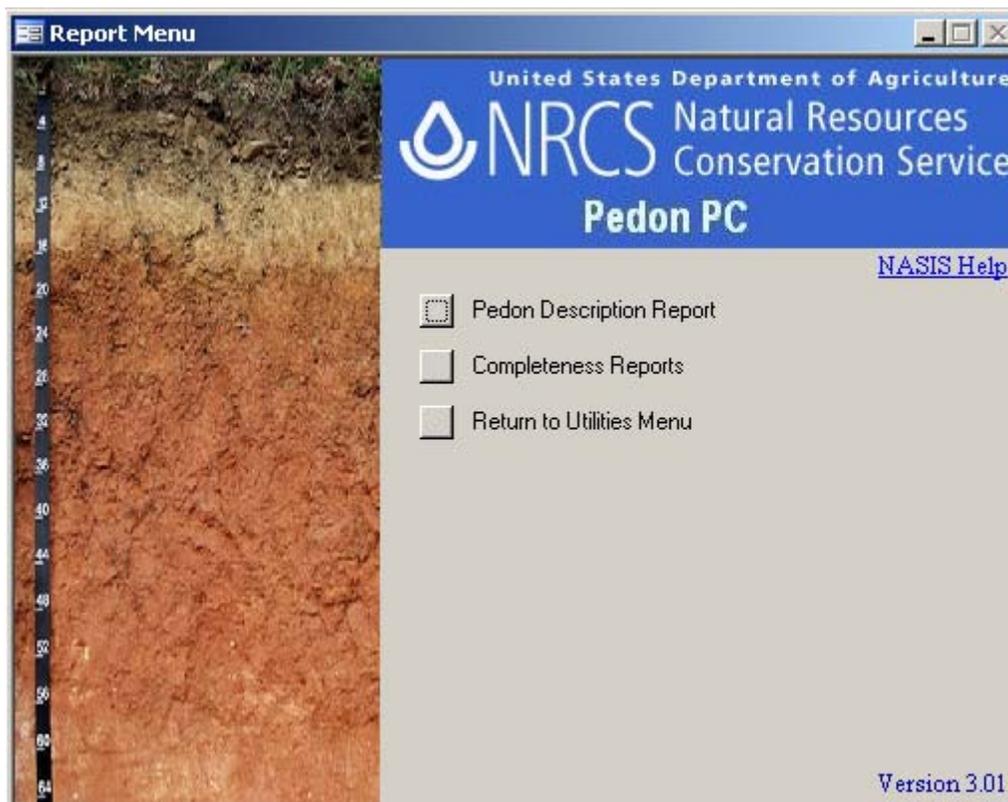


Figure 63. Report Menu.

Figure 64. The Pedon Description Report Form.

In the Pedon Description Report form the user may select which User Site ID/User Pedon ID to print, which folder to place the report file in, what to call the HTML report file, which Internet browser to display the results in and which unit of measure to use.

Figure 65. The Completeness Reports Form.

The completeness report displays the raw values in the database and does not do any conversion to text values for domains. There are currently 10 types of completeness reports.

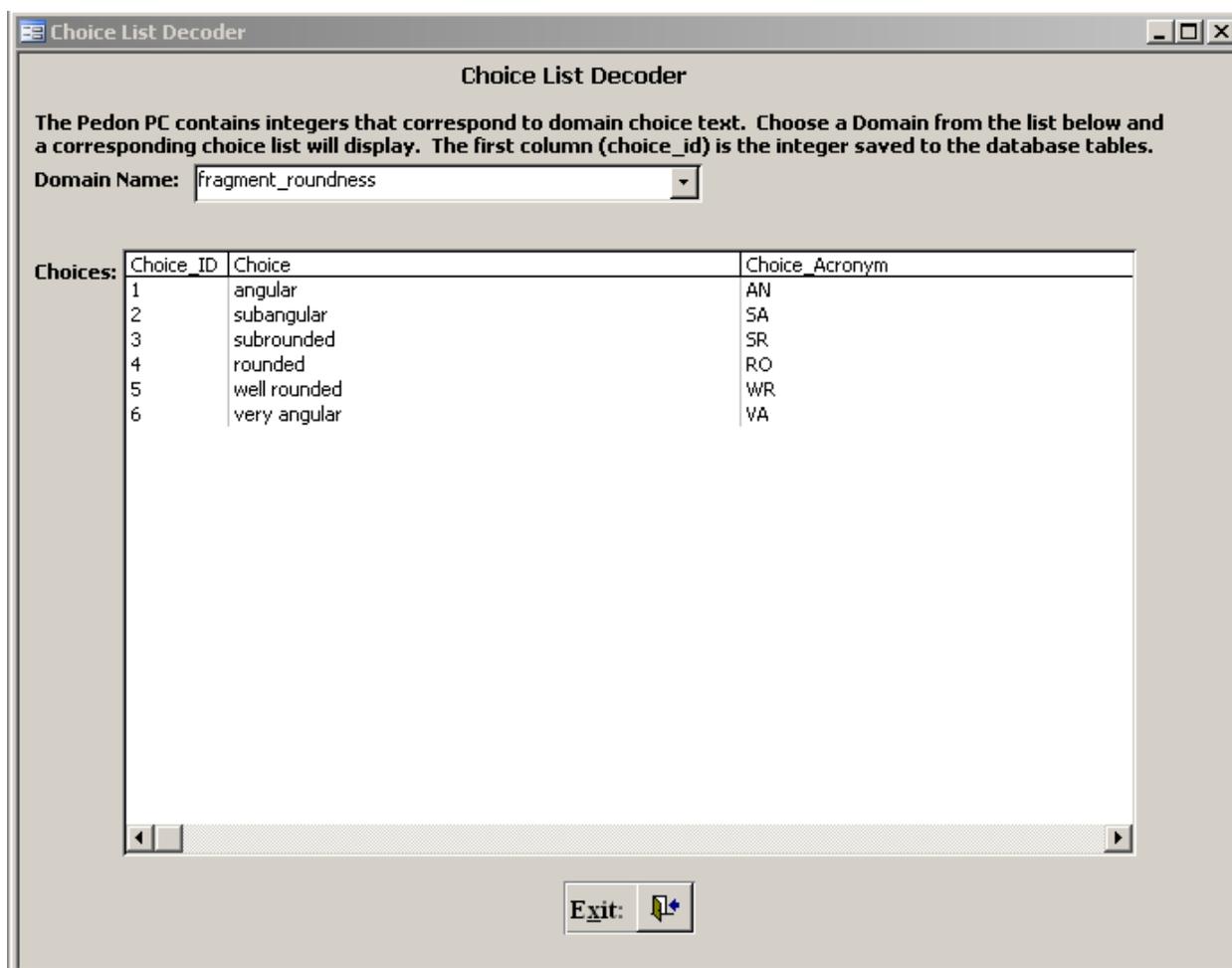


Figure 66. The Choice List Decoder Utility: “Choice_ID” represents integer values.

The Pedon PC contains integers that correspond to domain choice text. The Choice List Decoder utility allows the user to choose a domain and display the text choices associated with integers stored in the database table fields. For example, for the “fragment_roundness” domain, the integers 1, 2, 3, 4, 5 and 6 correspond to the text values angular, subangular, subrounded, rounded, well rounded and very angular, respectively. Therefore, if a completeness report has the value “5” shown for the “fragment_roundness” domain, then this translates to the text “well rounded”. The “Choice_ID” field in the grid above represents the integer values stored in the database table fields.

4.11.3 Copy a Pedon

Figure 67. Copy a Pedon form

This form will copy a pedon to a new site or existing site. This will copy all pedon information, pedon child tables, horizons, horizon child tables and site information. After the copy is performed, please check the C:\pedon\copy_pedon.txt log file to ensure completeness.

The source is an existing pedon from which to copy. The destination is where you would like this copied pedon to be placed. You may place it in a brand new site or in an existing one. Enter the new User Site ID if necessary and a new User Pedon ID (required). Choosing an existing site will display all the site observations associated with that selected site. Press the Copy button to perform the operation. You may press the “Return to Data Entry Form” link to return to the PC Form or Tablet Form, or simply press Exit to close the form.

Note: The site information will only be copied into a new site and will not be copied into an existing site. This safeguard ensures that existing site information is not overwritten.

4.11.4 Delete Function

Delete Form

Instructions: Choose whether to delete a site, pedon, horizon or transect. This operation will perform a cascade delete of all related child records and cannot be undone! For example, a pedon deletion will delete ALL related pedon information, including all its horizons.

Step 1: Backup your database

Enter both the letter of the drive and the fully qualified path to the directory on that drive. For example: "c:\pedon\pedon_backup_Friday.mdb" and then press the Backup button. Press the Browse button so you do not have to type the directory in.

Database Name:

Step 2: Choose something to delete

Object

Horizon

Pedon

Site

Transect

Note that the pedon and horizon records are easy to delete. The site and transect records cannot be deleted until their pedon child records are deleted. The safest thing to do is to delete horizons then the pedons and then the site/transect.

Step 3: Make a selection

Pedon

For deletion of a pedon, select a site first.
For deletion of a horizon, select a pedon first.

Horizon

Horizon

Press the Details button to get a detailed listing of all fields:

Step 4: Perform the deletion

Figure 68. Delete Form

As a safeguard, the first step is to backup your pedon.mdb file (your pedon data). A default filename will display which appends the system date and time to the text "C:\pedon\pedon_". You may also enter both the letter of the drive and the fully qualified path to the directory on that drive. For example: "c:\pedon\pedon_backup_Friday.mdb" and then press the Backup button. Press the Browse button so you do not have to type the directory.

Note: Windows and Access may lock the database, preventing a backup from within the Pedon PC program. This will require you to exit the Pedon PC application, and then re-open it in order to unlock the pedon.mdb database.

The second step is to choose whether to delete a site, pedon, horizon or transect. *This operation will perform a cascade delete of all related child records and **cannot be undone**.* For example, a pedon deletion will delete ALL related pedon information, including all its horizons. Note that the pedon and horizon records are easy to delete. The site and transect records cannot be deleted until their pedon child records are deleted. The safest thing to do is to delete horizons, then the pedons, and then the site/transect.

The third step is to make a selection from the drop down lists. For deletion of a pedon, select a site first. For deletion of a horizon, select a pedon first. Press the Details button to get a detailed listing of all fields.

Finally, press the Delete button to perform the operation.

4.11.5 Metric/English Conversion Form

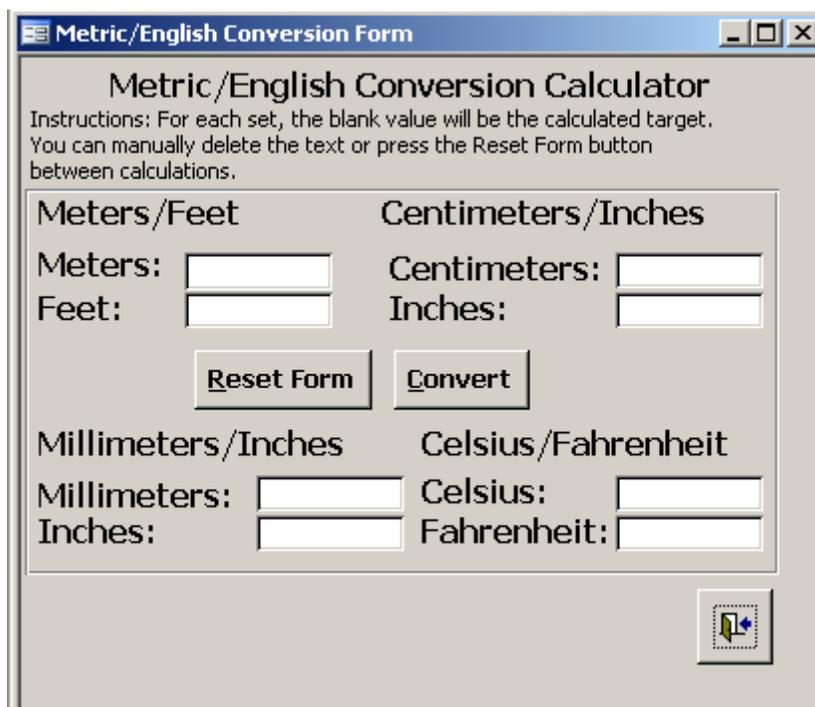
The image shows a screenshot of a software window titled "Metric/English Conversion Form". The window contains a "Metric/English Conversion Calculator" section. At the top, there are instructions: "Instructions: For each set, the blank value will be the calculated target. You can manually delete the text or press the Reset Form button between calculations." Below the instructions, there are four conversion sets, each with two input fields and a "Convert" button. The first set is "Meters/Feet" with "Meters:" and "Feet:" fields. The second set is "Centimeters/Inches" with "Centimeters:" and "Inches:" fields. The third set is "Millimeters/Inches" with "Millimeters:" and "Inches:" fields. The fourth set is "Celsius/Fahrenheit" with "Celsius:" and "Fahrenheit:" fields. There are also "Reset Form" and "Convert" buttons. A small icon of a calculator is visible in the bottom right corner of the window.

Figure 69. Metric/English Conversion Form

The Metric/English Conversion Calculator allows accurate conversion of English unit of measures to Metric unit of measures and vice-versa. There are four conversions possible in both directions: Meters/Feet, Centimeters/Inches, Millimeters/Inches and Celsius/Fahrenheit. You can enter values individually or in a group, in any combination. The only requirement is that the corresponding textbox in that set must be blank (the destination or converted value).

For each set, a blank value will be the calculated target. A user entered value in a set represents the source. For example, for meters to feet, enter a value in meters, make feet blank and then click the Convert button to convert the meters entered into feet.

You may enter as many values as you wish in any set. For example, if you were to enter meters, centimeters, millimeters and Celsius in the four sets, you would receive feet, inches, inches and Fahrenheit values respectively. You can also go in the other direction and enter all English values and have the corresponding Metric values returned. Also, you can mix and match values in English and Metric. For example, you can enter meters, inches, millimeters and Fahrenheit values and have feet, centimeters, inches and Celsius values returned respectively.

4.11.6 Degrees Minutes Seconds/Decimal Degrees (DMS/DD) Conversion

NASIS does not store decimal degree information in the site database table. However, the database does contain degrees, minutes and seconds, and UTM coordinates. A table in Pedon PC used to store point information is called "SiteNad83". It contains a link back to the site table (siteiid), the site table's point information (latitude and longitude degree, minute, second, and direction), and latitude and longitude decimal degrees. The SiteNad83 table will contain as many records as the site table. This table is used with the NAD83 Tool in the SRITB Autopopulation Toolbar.

The DMS/DD Conversion Form allows the user to convert from degrees, minutes and seconds (DMS) to decimal degrees and vice-versa within the SiteNad83 table. There also exists a calculator to convert user-defined values. The calculator exists as a convenience and is **not** a requirement or a step to be performed in this form.

DMS/DD Form

Degrees Minutes Seconds/Decimal Degrees Form

The DMS/DD Calculator is a utility you can use to convert from decimal degrees to degrees, minutes, seconds and direction or vice-versa. The second part displays a grid of lat/long decimal degree values in the table "SiteNad83". Press the "Convert DD to DMS in Grid" button to convert the decimal degree values in the table to DMS and populate the grid.

DMS/DD Calculator

-----Latitude----- -----Longitude-----

DD: DD:

Degrees: Degrees:

Minutes: Minutes:

Seconds: Seconds:

Direction: Direction:

SiteNad83 Table:

	Site Rec ID	User Site ID	Latitude DD	Longitude DD	LatDegree	LatMinute	LatSecond	Lat Direction	LongDegree
▶	1638	06MT6451078	46.485556	-114.003056	46	29	8 1		11.
	1637	06MT6451077	46.489444	-114.010278	46	29	22 1		11.
	1636	06MT6451076	46.487500	-114.010556	46	29	15 1		11.
	1635	06MT6451075	46.488889	-114.013333	46	29	20 1		11.
	1634	06MT6451074	46.490556	-114.001389	46	29	26 1		11.
	1633	06MT6451073	46.493333	-114.000556	46	29	36 1		11.
	1632	97MT6459108	46.262355	-114.164353	46	15	44.47707 1		11.
	1631	97MT6459111	46.262115	-114.164597	46	15	43.61425 1		11.
	1630	97MT6459114	46.261924	-114.163788	46	15	42.92633 1		11.
	1629	97MT6459113	46.262067	-114.163807	46	15	43.44005 1		11.
	1628	97MT6459121	46.261053	-114.165279	46	15	39.79032 1		11.
	1627	97MT6459117	46.261515	-114.16411	46	15	41.45493 1		11.
	1626	97MT6459116	46.26168	-114.163842	46	15	42.04661 1		11.
	1625	97MT6459089	46.262793	-114.161068	46	15	46.05616 1		11.
	1624	97MT6459087	46.263490	-114.161292	46	15	48.56459 1		11.
	1623	97MT6459084	46.263492	-114.160963	46	15	48.57085 1		11.
	1622	97MT6459080	46.263763	-114.160063	46	15	49.54658 1		11.
	1621	97MT6459088	46.263225	-114.161251	46	15	47.60834 1		11.
	1620	97MT6459078	46.264967	-114.158623	46	15	53.88256 1		11.▼

Record: 1 of 1617

Figure 70. The DMS/DD Form.

The first part of the form displays the DMS/DD Calculator. DMS stands for “Degree Minute Second” and DD stands for “Decimal Degrees”. To use this utility properly to convert from DMS to DD, enter Degrees, Minutes, Seconds and Direction for both Latitude and Longitude. Conversely, to use this utility properly to convert from DD to DMS, simply enter the decimal degrees for both Latitude and Longitude. This utility is to be used as needed by the user, and is not required.

The second part of the form displays a grid format containing records from the SiteNad83 table. The table contains degree, minute, second, and direction information, and also decimal degree information. Two buttons displayed at the bottom of the form allow the user to convert from one format to the other, depending on what is filled in the table. Press the “Convert DD to DMS in Grid” button to convert from decimal degrees to degrees, minutes, seconds and direction for all records in the SiteNad83 table. Press the “Convert DMS to DD in Grid” button to convert from degrees, minutes, seconds and direction to decimal degrees for all records in the SiteNad83 table.

4.11.7 Export Pedons

The Pedon PC export process allows the user to export a selected set of records from the data-filled pedon.mdb file into another, empty pedon.mdb file for upload to NASIS. As part of the export process, Pedon PC will create this new, empty pedon.mdb file and fill it with the selected records. It will also differentiate this newly created file with a date and timestamp extension, such as “C:\pedon\pedon_542006_135836.mdb”. This example timestamp extension represents May 4, 2006 at 1:58:36 PM. The time portion is represented as Military Time.

From the main menu navigate to **Setup Menu >> Export Pedons**. The user can export using one of three choices: Export Site List, Export Pedon List, or Export from Query. The Export Site List choice will display a list of User Site IDs on the right side of the screen, while the Export Pedon List choice will display a list of User Pedon IDs on the right side of the screen. Note that you must have at least one site record defined in order to see anything on the right side of the screen. On the right side, you may select one or more User Site IDs or User Pedon IDs by using the Shift or Ctrl keys on your keyboard as in traditional Windows selection operations. Press and hold either the Shift or Ctrl key while pressing the left mouse button to make selection choices. The Export from Query choice will display a drop down list of available queries from which to run. If you see no queries, then you need to create a query from within Access first. The query name must begin with the word “export”. There are two export queries already defined in Pedon PC, but these are used for other internal program operations.

An empty pedon.mdb file is necessary for exportation so a copy of your pedon.mdb will be made and then emptied automatically. Your original pedon.mdb data file will not be altered in any way. The “Export Database Location” filename is prepared automatically by the program. This export filename is based on the current date and military time to ensure uniqueness. You may rename this file if you wish after exportation has completed.

Imported NASIS records have negative key values. This is data that has been downloaded from NASIS (exported) and then imported into Pedon PC. This data will be read-only in the Pedon PC. Imported NASIS records are not allowed for export back into NASIS.

Rec ID	siteuid	User Site ID	Lat. D	Lat. M	Lat. Seconds
-203676	-203676	05PW227001	7	31	48.04324
Rec ID	peuid	siteobsuidref	User Pedon ID	Pedon	
-201345	-201345	-202003	05PW227001	NASIS	
Rec ID	Seq	Observation Method	Designation	Designation - St	
-974916	1		5 A		
-974917	2		5 Bo1		
-974918	3		5 Bo2		
-974919	4		5 BCt		
-974920	5		5 C2		
-974921	6		5 C1		
*					

Figure 71. This is a site, pedon and horizon view shown above. Note the negative record IDs (Rec ID field) for all three tables.

Figure 72. The Tablet Form will display the text “(Read Only)” for imported NASIS records.

Figure 73. The PC Form will display the text “(Read Only)” for imported NASIS records.

The “C:\pedon\pedon_log.txt” log file will display all the SQL commands that were executed in the export process. Please view this file using any text editor like Notepad to ensure completeness. The last line in the log file should display the text “Finish site association children”.

The current NASIS pedon upload process is used for taking your exported Pedon PC pedons and placing them into NASIS. For instructions, use the following link: <http://soils.usda.gov/technical/nasis/products/index.html>. Scroll down to the **Pedon** section and select [Instructions for Uploading Windows Pedon Data into NASIS](#).

The following three screenshots show the Export main screen, the first radio button choice “Export Site List” and then a successful message after exporting.

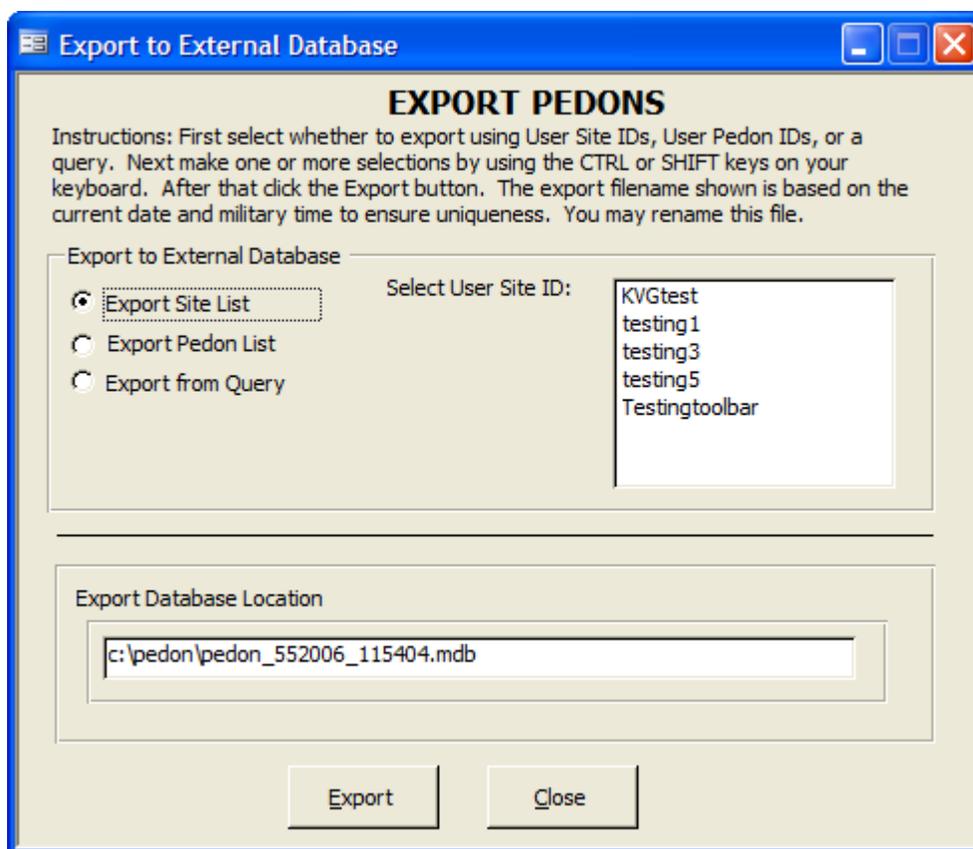


Figure 74. The main Export screen.

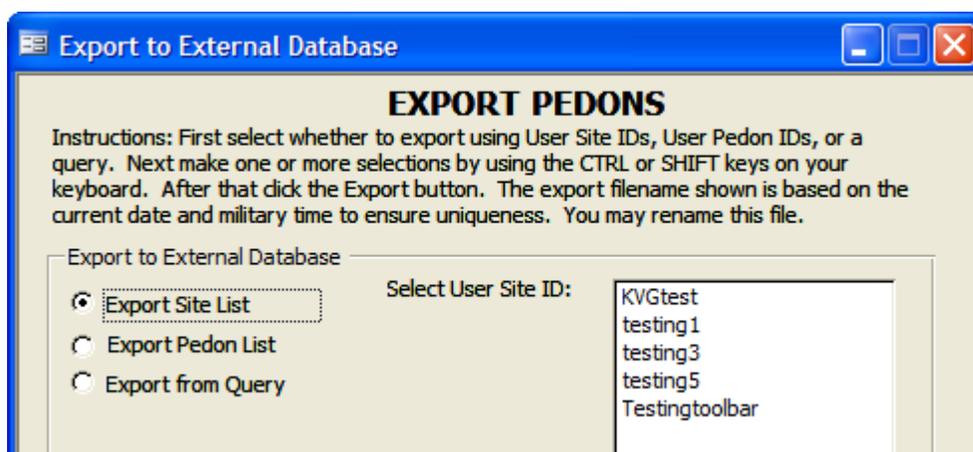


Figure 75. Selecting the Export Site List creates a list of User Site IDs on the right side of the screen. Select using the Shift or Ctrl keys, and the left mouse button.

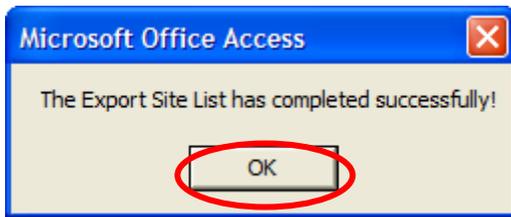


Figure 76. After clicking the Export button, a successful message will display if the export was completed successfully.

4.11.8 Compact and Repair Database

This function will repair and compress your database to ensure efficiency. This will cause Microsoft Access to shut down your Pedon PC database, compact and repair it, and then re-open it. This is a good thing to perform from time to time as it will shrink the size of your Pedon PC database. It can be accessed through the Microsoft Access menu by navigating to **Tools >> Database Utilities >> Compact and Repair Database**.

4.12 Backup/Restore Database

The Backup/Restore module allows the pedon.mdb Access database file to be saved or recovered. This file contains all of your data.



Figure 77. After clicking the Backup/Restore Database button, you will receive a choice to either backup (save) or restore (recover) your database file.

4.12.1 Backup Database

1. Select the Backup Database radio button
2. Save the pedon.mdb by entering a new filename for pedon.mdb. An example of a new filename is “C:\pedon\pedon_Monday.mdb”.
3. Click the Backup/Restore button to copy pedon.mdb to “C:\pedon\pedon_Monday.mdb”.

Note: Windows and Access may lock the database, preventing a backup from within the Pedon PC program. This will require you to exit the Pedon PC application, and then re-open it in order to unlock the pedon.mdb database.

4.12.2 Restore Database

1. Select the Restore Database radio button
2. Browse or enter the database name of the Access database file you wish to restore.
3. Click Backup/Restore button at the bottom of the window to replace the current C:\pedon\pedon.mdb with the selected file.

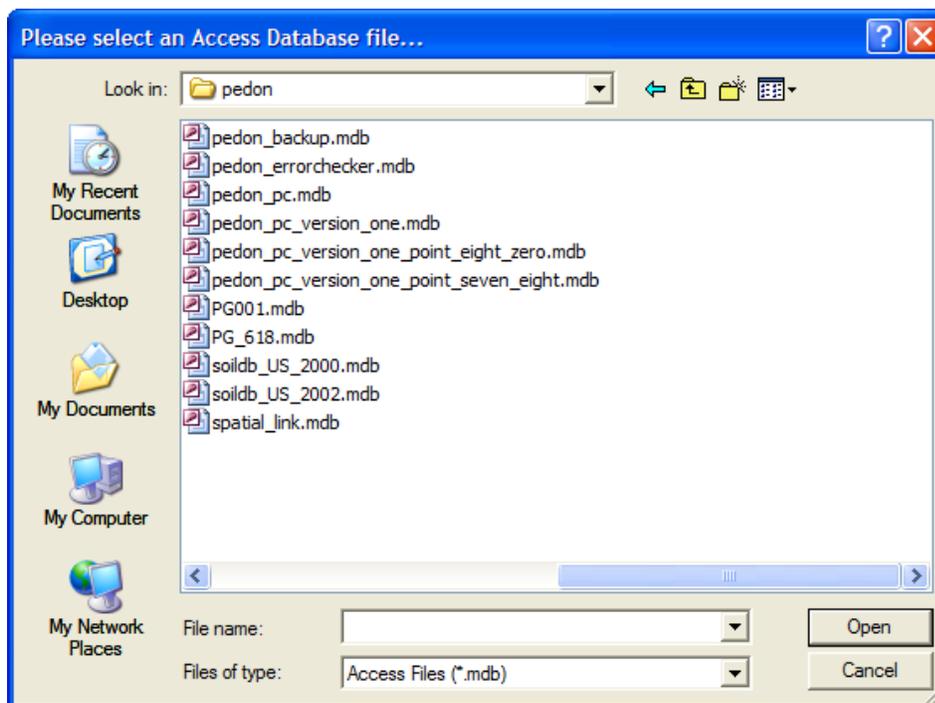


Figure 78. Browsing for an Access Database File

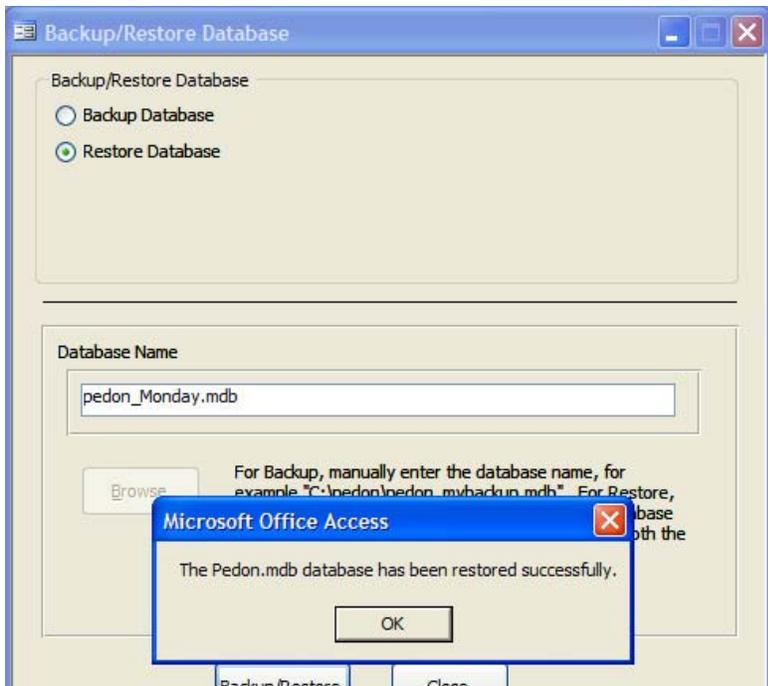


Figure 79. Replacing pedon.mdb with pedon_Monday.mdb

4.13 Exiting Pedon PC

In order to exit the Pedon PC database application, simply choose **Exit Pedon PC** on the main menu, or close the pedon_pc.mdb database.

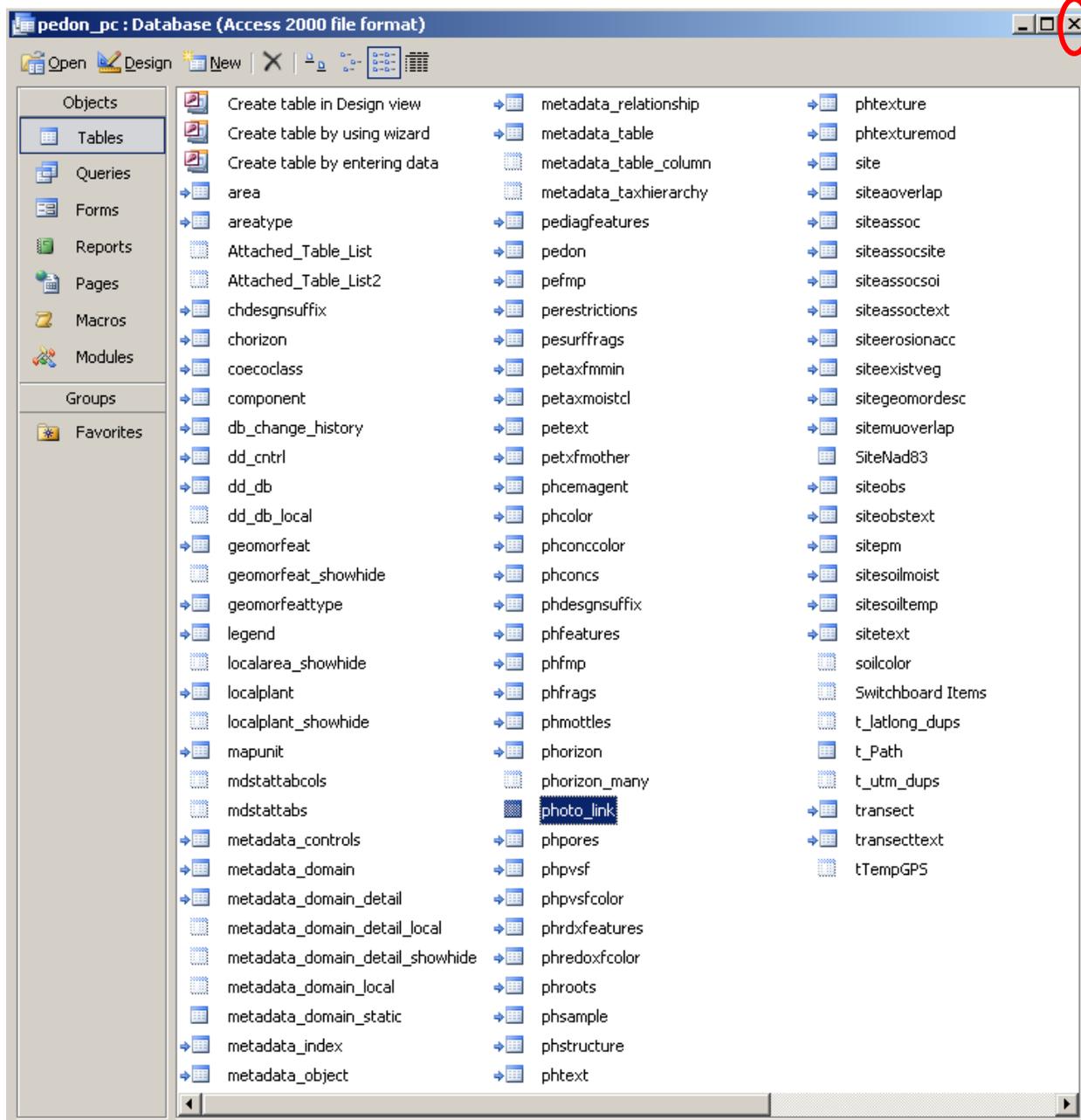


Figure 80. The Pedon PC Database window. You can click on the graphical “X” in the upper right hand corner of the window to exit the Pedon PC database application.

Appendix A: Frequently Asked Questions

APPENDIX A: FREQUENTLY ASKED QUESTIONS

1- Q: What is the Pedon PC?

A: Pedon PC is what we are calling this entire pedon coding program. Pedon PC contains two main data entry forms: the PC Data Entry Form and the Tablet Data Entry Form. They both use the exact same backend database called pedon.mdb, but present the data differently. In other words, the only difference is in the presentation of the data. Both forms may be used on a laptop, desktop PC or a Tablet PC. One scenario is to use the Tablet Form in the field and then use the PC Form in the office.

2- Q: What is the difference between the pedon.mdb and pedon_pc.mdb files?

A: The pedon_pc.mdb file is the front-end database user interface. The pedon.mdb file is the back-end database file where all the data is stored. All data that you enter is stored in the pedon.mdb file. You can think of the pedon_pc.mdb file as your user interface and the pedon.mdb file as your database.

3- Q: Is the Pedon PC related to Windows Pedon? If so, how?

A: Yes, Pedon PC uses the same exact database as Windows Pedon. The default name of this database is pedon.mdb. Pedon PC was created after Windows Pedon was released. The Windows Pedon database uses a subset of the NASIS database. Both applications were written using Visual Basic.

4- Q: When I receive a new version of the Pedon PC, can I overwrite all my files? What about pedon.mdb, as this is the actual database?

A: No, you should not overwrite all your files. Feel free to overwrite any documentation (doc files) and the pedon_pc.mdb file, but you should not replace the pedon.mdb file since this is where all of your data is stored. If you ever want to replace your pedon.mdb file, make sure you back it up before overwriting it, otherwise you will lose all the data you entered. You can back up the pedon.mdb file by using Windows Explorer or My Computer and common Windows copy and paste operations. Copy and paste the pedon.mdb file (select pedon.mdb and then press Ctrl+C to copy and then Ctrl+V to paste). Rename the copied file as you wish.

If you have uploaded all pedons in the database to NASIS you may wish to start entering pedons in an empty pedon.mdb file (an empty database). Make sure you archive your old pedon.mdb with a date and descriptive information so that you can identify it should you need to reload your pedons into NASIS.

5- Q: When do I want to replace my pedon.mdb file? Where do I get it?

A: You want to replace the pedon.mdb file if you want to start with an empty database. If you have entered data, you should replace pedon.mdb after archiving your old pedon.mdb database file. If this is your first time at entering pedon data, then you want a clean, empty database. You may download an empty pedon.mdb file via the NASIS download site at <http://soils.usda.gov/technical/nasis/downloads/index.html>. Go to Windows Pedon Subscribe/Related Downloads and finally click on Download

New/Empty Windows Pedon Database (Approximately 2500K bytes). You will need a compression program such as WinZip in order to unzip the download.

6- Q: How do I start the Pedon PC application?

A: The Pedon PC application can be launched in three ways:

From Microsoft Access:

- a. Open Microsoft Access (For example, **Start >> All Programs >> Microsoft Office >> Microsoft Office Access 2003**)
- b. Choose **File >> Open** from the Menu bar up top
- c. Choose the pedon_pc.mdb database file (default location is at C:\pedon)

From Windows Explorer/My Computer:

- a. Navigate Windows Explorer or My Computer to the location of the pedon_pc.mdb database file
- b. Double-click the file to launch Microsoft Access

Via shortcut on your Desktop:

- a. Navigate to the pedon_pc.mdb database file
- b. Right click on the file, select Create Shortcut. This places a shortcut to this file in the same folder
- c. Click and drag the shortcut to your Desktop
- d. Right click on the shortcut, then select Rename
- e. Type in PedonPC
- f. Start the Pedon PC application by double-clicking the shortcut

Currently, the parent folder in which all files must be placed is called “pedon” and must reside on the C letter-designated hard drive (i.e. C:\pedon). The Pedon database filename is currently “pedon.mdb”, and the Pedon PC database file is currently named “pedon_pc.mdb”.

7- Q: I need help with the database and understanding some fields in tables.

Where can I get help?

A: You can go to the NASIS help site at <http://nasis.usda.gov/documents/help/index.htm>. Pedon PC has a link to this site on the Main Menu named “NASIS Help”.

8- Q: It seems that I cannot find certain columns in some of the tables presented in one or both forms. Why?

A: In the default view, the columns are not displayed because they are hidden. Microsoft Access gives the user the option to customize the view by showing and hiding columns in tables. To show a hidden column, select a column in the table, go up to the Access main menu and choose **Format >> Unhide Columns...** and check the column you wish to show (unhide). To hide a column, select a column in the table, go up to the Access main menu and choose **Format >> Hide Columns...**

Note: You can show or hide one or more columns.

9- Q: How do I move columns in a table? I want to switch the order of the columns.

A: Highlight the column(s) you wish to move and hold down the left mouse button. You will see the mouse pointer change with a little rectangle beside it. Now drag and drop the column(s) where you want them.

10- Q: I found a bug in your program. Where do I send it?

A: You can email your bug find to NGDC via henry.ferguson@mail.wvu.edu. Please include what version you found the bug in, a screen shot of the error, and the steps you made right before the error. The version of the program will be on the lower right of the Main Menu; e.g. version 3.02. You can capture a screen shot by pressing the “Print Screen” button on your keyboard, or pressing Alt + Print Screen. By doing this, the screen has been copied to the clipboard. You can now open up Microsoft Word and paste the screenshot (Ctrl+V) into any Word document.

11- Q: I have an idea for an enhancement to your program. Where do I send it?

A: You can email your idea, enhancement or wish list to NGDC via henry.ferguson@mail.wvu.edu.

12- Q: How do I get the plant’s list to update with my local plants list?

A: Here are the steps:

1. From the main Menu, navigate to the Choice List Setup page (**Setup Menu >> Customize Choice Lists**)
2. Click the Local Plant List tab
3. Highlight all local plant list records and press the delete key on your keyboard to delete them. Click on Yes when asked if you want to delete all the records.
4. Close the Choice List Setup page
5. Download the local plant list file from the NASIS Download site at <http://soils.usda.gov/technical/nasis/downloads/>. Scroll down to “Windows Pedon and Pedon PC Support Data”, choose your MO Local Plant Lookup Data, save the zip file to your hard drive, and then unzip the file using a file extraction tool like WinZip or WinRAR.
6. From the Main Menu, navigate to the Update Support Data (**Setup Menu >> Update Support Data**) to upload the corresponding local plant list file
7. Click on the “Update Local Plants (locplnt.txt)” radio button under Domain
8. Click the Browse button to find the local plant list file you downloaded on your hard drive and OK to update the data. Finally click OK to close the Update Support Data dialog box.
9. From the Main Menu, navigate to the Choice List Setup page (**Setup Menu >> Customize Choice Lists**)
10. Press the “Yes” button to load the local plant list table

13- Q: How do I make obsolete values appear in a drop down list?

A: Here are the steps:

1. From the Main Menu, navigate to **Setup Menu >>Customize Choice Lists >> Standard**. The Standard tab is the second from the left.
2. Locate the field(s) to be modified. Check each “Show?” checkbox to view the field(s). Most domains have more than one choice. For example the domain_id of 169 has choices of IG, VE, TU, DT, IR and so on. For each of the “Show?” boxes you have checked make sure to also place “No” in the “Choice Obsolete” field (select “No” from the drop down).

14- Q: The application will not run. I get a Startup script error.

A: The Microsoft Access version that you are running is probably missing some dll files. One solution is to download "Microsoft JET service pack 8" via <http://support.microsoft.com/?kbid=829558> (this link may be changed by Microsoft so please do a Google search for “Microsoft JET service pack 8”). This will most likely require Admin privileges so ask your IT department to help you with this issue. Similar issues would occur if your version of Access does not have all the latest updates loaded.

15- Q: Visually, can you show me how to perform some common Access functions?

A: Please see the descriptions and diagrams below.

How To Move a Field (Column) in Access

1. Select the Datasheet view (grid) you want.
2. Select the columns you want to move.
3. To select one column, click the **field selector** (field selector: A small box or bar that you click to select an entire column in a datasheet.) for that column.



4. To select adjacent columns, click a column field selector and then, without releasing the mouse button, drag to extend the selection.
5. Click and hold down the mouse button in the field selectors again.
6. Drag the columns to a new position.

How To Hide/Unhide a Field (Column) in Access

1. Select the Datasheet view (grid) you want.

2. Do one of the following:

I. Hide a column or columns

1. Select the columns you want to hide.
2. To select one column, click the **field selector** (field selector: A small box or bar that you click to select an entire column in a datasheet.) for that column.
3. To select adjacent columns, click a column field selector and then, without releasing the mouse button, drag to extend the selection.
4. On the **Format** menu, click **Hide Columns**.

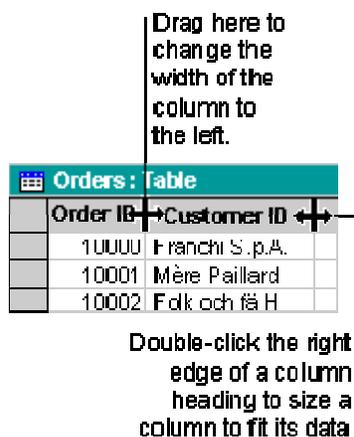
II. Show a hidden column or columns

1. On the **Format** menu, click **Unhide Columns**.
2. In the **Unhide Columns** dialog box, select the names of the columns that you want to show.

How To Resize a Column or Row

1. Select the Datasheet view (grid) you want.
2. Do one or both of the following:

I. Resize a Column



Do one of the following:

To resize a column to a specific width, position the pointer on the right edge of the column you want to resize, as shown in the illustration, and drag until the column is the desired size.

To size a column to fit its data, double-click the right edge of the column heading.

II. Resize Rows

Order ID	Customer ID
10000	Franchi S.p.A.
10001	Mère Paillard
10002	Folk och få H

Drag here to change the row height, for all rows.

Position the pointer between any two **record selectors** (**record selector: A small box or bar to the left of a record that you can click to select the entire record in Datasheet view and Form view.**) at the left side of the datasheet, as shown in the preceding illustration, and drag until the rows are the desired size.

16. Q: Can I rename the Microsoft Access file “pedon_pc.mdb”?

A: Yes you may. You can also rename the pedon.mdb or templatedb.mdb files.

17. Q: Can I move the Microsoft Access file “pedon_pc.mdb” to another location like C:\MyPедonPC or somewhere else on my network?

A: Yes you may. You can also move the pedon.mdb and templatedb.mdb files.

18. Q: Do I have to use the C:\pedon directory and the C drive as the storage area for this application?

A: No you do not have to use a specific location or a specific drive.

19. Q: Can I make my own customizations?

A: Yes, use Access functionality to make this application tailor-made for your soil survey area needs. The only file you should **never modify** is the “pedon.mdb” file since this is the backend database file. You also should never add to the domain choice lists associated with choices in NASIS.

20. Q: Can I place the pedon.mdb file on my network drive and then allow users to use their own, customized pedon_pc.mdb file to access it?

A: You may place your files anywhere you want and name them as you please. This is not a client/server application, however, so you may get locking issues if you share the same backend database among many users.

21. Q: What is the format for a new user site ID?

A: A possible format can be: 2 digit year (YY), then a 2 digit state abbreviation (ST), then the 3 digit county FIPS code, then a 3 digit pedon number then a dash and then a 1 digit satellite number (12 digits in total). An example is 05TX012999-9. This field can be up to 60 characters long.

Appendix B: Help Sheet

APPENDIX B: HELP SHEET

Minimum System Requirements: Windows XP, Office 2003, Pentium 4, 512 MB

Software can run on a desktop, laptop or Tablet PC

Point of Contact - Henry Ferguson (NGDC), (304) 293-8232 x6106

Setup Steps:

- 1- Download the Pedon PC zip file and place in C:\pedon
- 2- Download an empty pedon.mdb file and place in C:\pedon
- 3- Download a SSURGO template file and related data (rename the SSURGO database file to templatedb.mdb) and place in C:\pedon (OPTIONAL STEP)
- 4- Download support data from NASIS and place in C:\pedon\support_data
- 5- Tailor pedon.mdb tables area, areatype, localplant, geomorfeat, geomorfeatype
- 6- Update support data using Pedon PC
- 7- Edit Choice Lists or Import Choice List from Database using Pedon PC

Where to get an empty “pedon.mdb” file - <http://soils.usda.gov/technical/nasis/downloads/>

Where to get Pedon PC support data - <http://soils.usda.gov/technical/nasis/downloads/>

Where to get SSURGO template file: Soil Data Mart’s [Template Databases](http://soildatamart.nrcs.usda.gov/Templates.aspx) page - <http://soildatamart.nrcs.usda.gov/Templates.aspx>

Support data URLs:

[Download National \(Pangaea\) Geographic Area Lookup Data](#)

[Download Geomorphic Feature Lookup Data](#)

[Download Windows Pedon Domains](#)

[Download MO13 \(West Virginia\) Local Plant Lookup Data](#) (Example of a plant file for MO13)

Where to get NASIS pedon tables and fields help - <http://nasis.usda.gov/documents/help/>

The instructions for uploading (importing) pedons into NASIS:

<http://soils.usda.gov/technical/nasis/products/index.html>. Scroll down to the **Pedon** section and select [Instructions for Uploading Windows Pedon data into NASIS](#).

Two “mdb” files (Microsoft Access database files) are required for the Pedon PC:

pedon.mdb – The back-end Access database file that holds all the data

pedon_pc.mdb – The front-end Access database file that contains the user interface

How to invoke the Pedon PC program: Navigate Windows Explorer (or My Computer) to the location of the “pedon_pc.mdb” database file in C:\pedon and then double-click the file.

Microsoft Access security messages: The Pedon PC does not contain malicious macros.

Please refer to the section “Security Warning Messages” in the Pedon PC Installation Guide for screenshots and details.

Two major user interface forms in the Pedon PC: The Tablet Data Entry Form and the PC Data Entry Form. Use the PC Data Entry Form in the office and the Tablet Data Entry Form in the field (Tablet PC).

Where do I go to enter a new site, a new pedon, or a new site observation? In the Tablet Form, go to the Site (Part 1) tab and under “Add...” click one of the links. In the PC Form, it is under the “Add a new...” tab.

What is the format for a new User Site ID? A possible format can be: 2 digit year (YY), then a 2 digit state abbreviation (ST), then the 3 digit county FIPS code, then a 3 digit pedon number then a dash and then a 1 digit satellite number (12 digits in total). An example is 05TX012999-9. This field can be up to 60 characters long and it is up to the individual as to what is appropriate for their particular soil survey area.

Where do I place all the files at? The default folder location is C:\pedon. The following files may be placed in the C:\pedon folder: pedon.mdb, pedon_pc.mdb, templatedb.mdb. The following files may be placed in the C:\pedon\support_data folder: area.txt, areatype.txt, geomorf.txt, geomorft.txt, locplnt.txt, wpdmdet.txt and wpdmmas.txt. These are all default file locations.

Microsoft Access Options that should be changed:

In Microsoft Access, navigate to the **Tools >> Options >> Edit/Find** tab. Make sure the box next to **Confirm >> Action Queries** is empty (not checked). Many of the functions in this database use action queries to perform their commands. This step keeps Access from notifying you every time an action query runs.

In Microsoft Access, navigate to the **Tools >> Options >> View** tab. Make sure the box next to **Show >> Hidden Objects** is not empty (checked). This step will allow you to see all database tables, forms and queries.

How To Add a Custom Plant List:

1. From the Main Menu, navigate to the Choice List Setup page (**Setup Menu >> Customize Choice Lists**)
2. Click the “Local Plant List” tab
3. Highlight all local plant list records and press the delete key on your keyboard to delete them. Click on Yes when asked if you want to delete all the records.
4. Close the Choice List Setup page
5. Download the local plant list file from the NASIS web site <http://soils.usda.gov/technical/nasis/downloads/>. Scroll down to “Windows Pedon Support Data”, choose your MO Local Plant Lookup Data, save the zip file to your hard drive, and then unzip the file using a file extraction tool like WinZip or WinRAR.
6. From the Main Menu, navigate to the Update Support Data (**Setup Menu >> Update Support Data**) to upload the corresponding local plant list file
7. Click on the “Update Local Plants (locplnt.txt)” radio button under Domain
8. Click the Browse button to find the local plant list file you downloaded on your hard drive and click OK to update the data. Finally click OK to close the Update Support Data dialog box.
9. From the Main Menu, navigate to the Choice List Setup page (**Setup Menu >> Customize Choice Lists**)
10. Press the “Yes” button to load the local plant list table.