Chapter 12 Managing Soil Survey Data

This is a scenario-based lesson. It demonstrates how to create a new mapunit and its data and link them together. It also shows how to correlate the two existing mapunits to the new mapunit, and how to construct the coincidence of other areas with the legend and mapunits. In this scenario, you are a correlator working on the ongoing survey TD609 to build a complex out of two consociations. Two of the mapunits (Symbols 5 and 6) occur together in the field and are similar enough in composition that you want to build a new mapunit called SACO-RIPPOWAM COMPLEX. Symbols 5 and 6 will become additional symbols and will be correlated as the new complex.

If you are participating in a multi-user training session, system performance can suffer when several people are attempting the same action at the same time to the same data. Table 12-1 below provides alternative sample data. The primary difference between the data used throughout the lesson and the alternative data is mapunits 5 and 6 in TD609 have no inclusions and the alternative mapunits do. (If you use TD015, use the legend with a project survey status.)

Survey	Mapunit symbols
TD005	Symbols 5 and 6
TD005	Symbols 2 and 4
TD009	Symbols 15 and 27A
TD015	Symbols 26A and 29A
TD015	Symbols 26B and 29B
TD609	Symbols 1 and 2

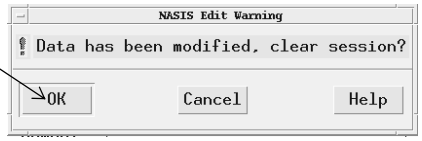
Table 12-1. Alternative Surveys and Symbols for Multi-User Training Sessions

Beginning a New Selected Set

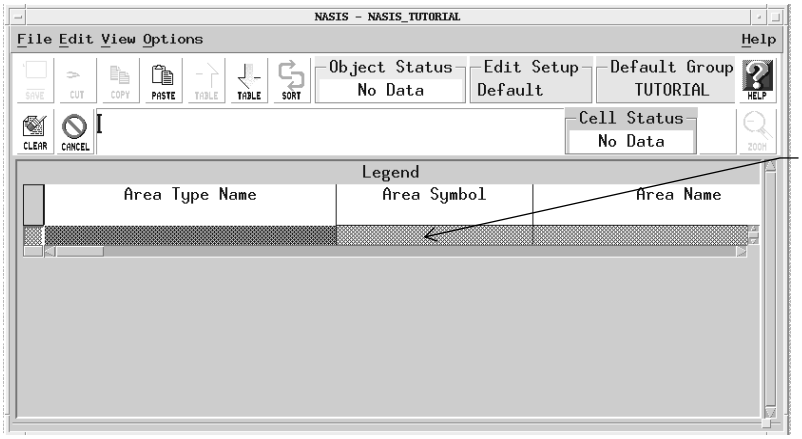
Before you begin this lesson, you will need to start a new selected set and only load into the selected set the soil survey legend for Mariposa and Bell County (TD609).

1. On the **File** menu, select **New**. The New function clears the entire selected set and starts a new one. Click **OK**.

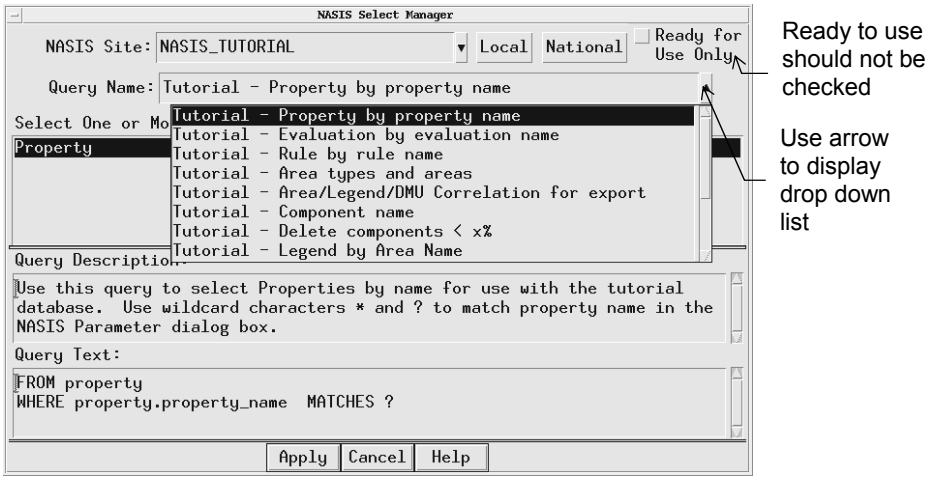
If this message appears, click OK



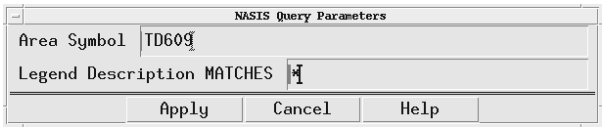
2. Click the **View** menu, and select **Legends,** then click **Legend**. The empty Legend table appears.



3. On the **File** menu, choose **Select**.
4. In the Select Manager, choose the query **Tutorial - Soil survey area legend**.



5. Highlight the **Legend** target table.
6. Run the query by clicking **Apply**. A parameters dialog box appears.
7. Enter the parameters: **TD609** (Area Symbol) and ***** (Legend Description), pressing the **TAB** key to move from one field to another.

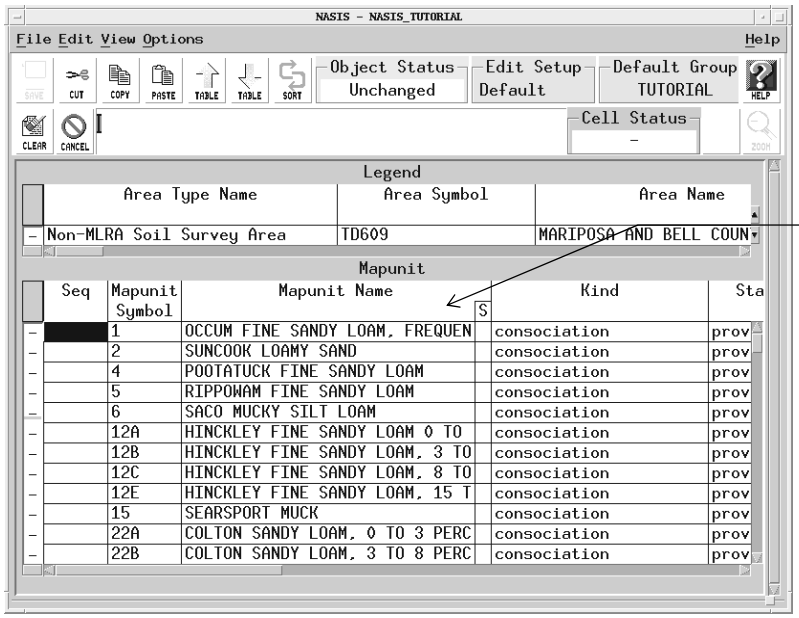


Note: The asterisk symbol is a wildcard character that can be used with the operators MATCHES and IMATCHES. It returns all legends in the selected area. Because the query uses MATCHES as the comparison operator (instead of IMATCHES), the query is case-sensitive and the parameters must be entered exactly as the record appears in the database. Area Symbol must be entered exactly as TD609, not td609 or TD 609. Case insensitive queries use the IMATCHES comparison operator.

8. Click **Apply**.

9. A message appears indicating that one row was added to the Legend table. Click **OK.**
10. Close the Select Manager by clicking **Cancel**. (This does not cancel your changes to the selected set.)

    Note: The Legend table now contains the detailed soil map legend for TD609 Mariposa and Bell County.
11. Scroll to the right in the Legend table, and notice the legend description and survey status. This legend is an update survey that does not have a final correlation date.
12. Click the **Down table** button. The Mapunit table appears, as shown below.
13. Resize or scroll the screen so you can see the Legend table and at least the first six mapunits.



Note: Notice that mapunits RIPPOWAM FINE SANDY LOAM (Mapunit Symbol 5) and SACO MUCKY SILT LOAM (Mapunit Symbol 6) are both in this legend. Look at the mapunit kind and status for these two mapunits. In this scenario, Symbols 5 and 6 occur together in the field and are similar enough in composition that you want to build a new mapunit called SACO-RIPPOWAM COMPLEX. Later in this lesson, Symbols 5 and 6 will become additional symbols and correlated as the new complex.

Loading Data Mapunits Linked to Existing Mapunits

You want to correlate Mapunits 5 and 6 and create a mapunit that represents them as a complex. In order to look at the mapunit composition and the physical and chemical properties of these two mapunits, first you must identify the DMU IDs (or descriptions) linked to them.

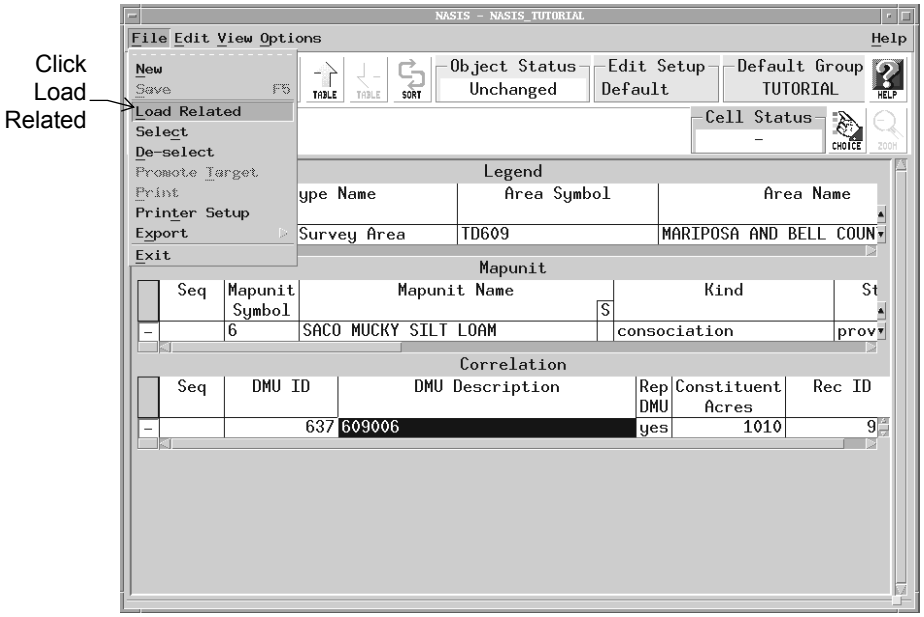
1. In the Mapunit table, click somewhere in the **Mapunit Symbol 5** row, then click the **Down table** button.

Note: The Correlation table appears. It stores the information that links the mapunit to its data. The first thing you will do is load the data associated with Mapunit 5.

2. In the Correlation table, click in the **609005** row.

   Note: Since you are crossing object boundaries, you need to do a load related.

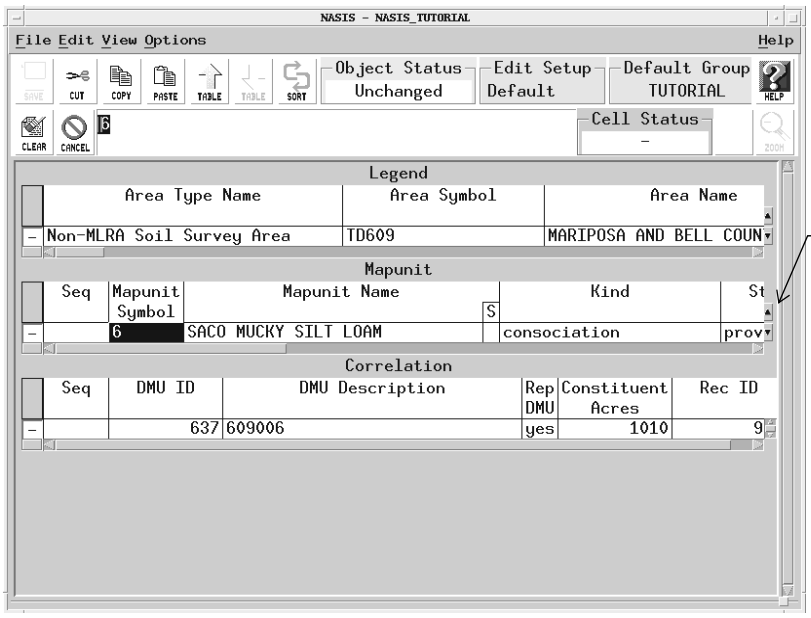
3. On the **File** menu, click **Load Related**, then click **Data Mapunit**.



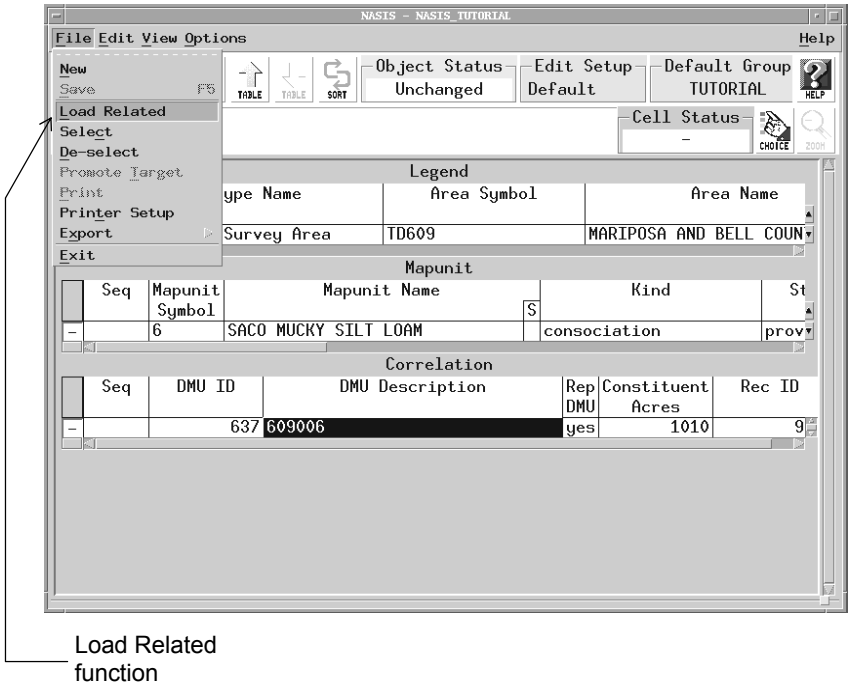
4. A message appears, reporting that one row was added to the selected set. Click **OK**.

   Note: Notice that in the Correlation table you cannot see the link data of more than one mapunit at a time, and therefore, you cannot select them both at the same time. As a result, you will need to perform a Load Related function for each mapunit (explained below).

5. In the **Mapunit** table, use the vertical scroll arrows to select **Mapunit Symbol 6.**



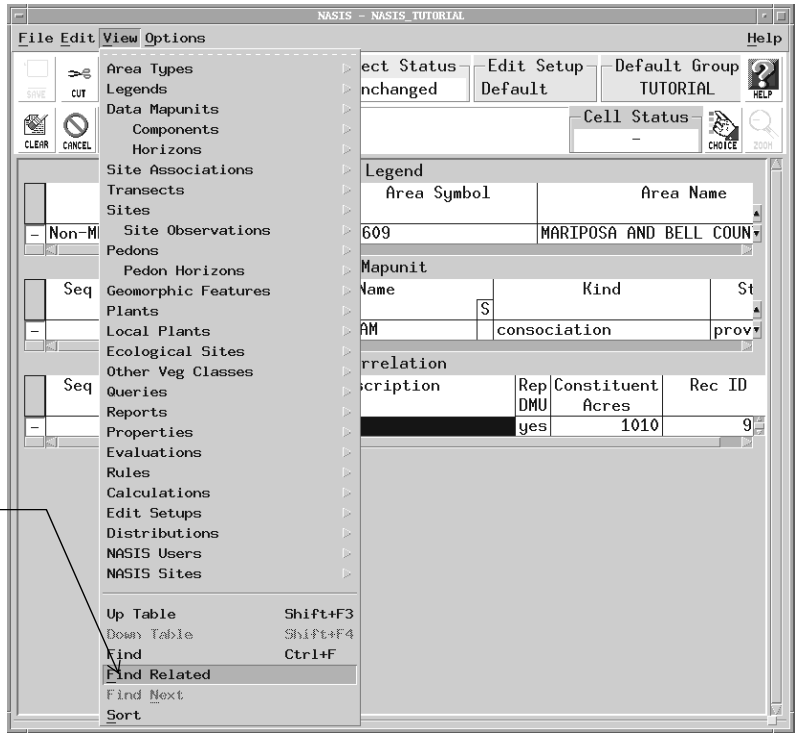
6. In the Correlation table, highlight the Data Mapunit **609006** and click the **File** menu.



7. Click **Load Related**, then click **Data Mapunit**. A message appears, indicating that one more row was added to the selected set. Click **OK**.

   Note: When you run a query or use Load Related to bring records into the selected set, the retrieved records are always appended to the selected set.

8. With the highlight cursor in the **Correlation** table, click the **View** menu.
9. Select **Find Related** and **Data Mapunit**.



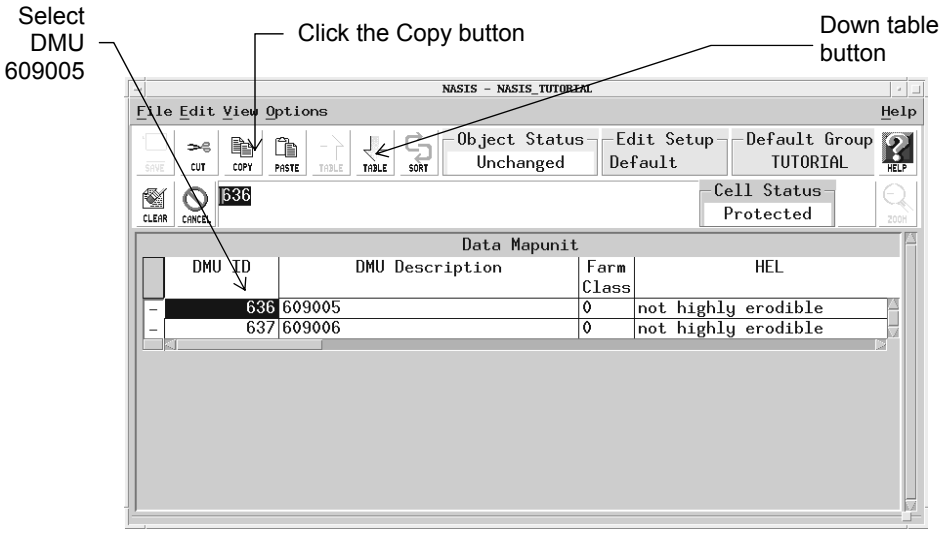
Note: The Data Mapunit table appears with the cursor in the row of the mapunit you had selected when you activated the Find Related function. You have now loaded into the selected set the data mapunits linked to the two existing mapunits.

Building a New Data Mapunit

Now you're ready to start building the new complex. To create a new data mapunit, you can copy an existing data mapunit and then rename and modify it.

1. In the Data Mapunit table, highlight **609005**, and click the **Copy** button. (See the sample screen on the next page.)

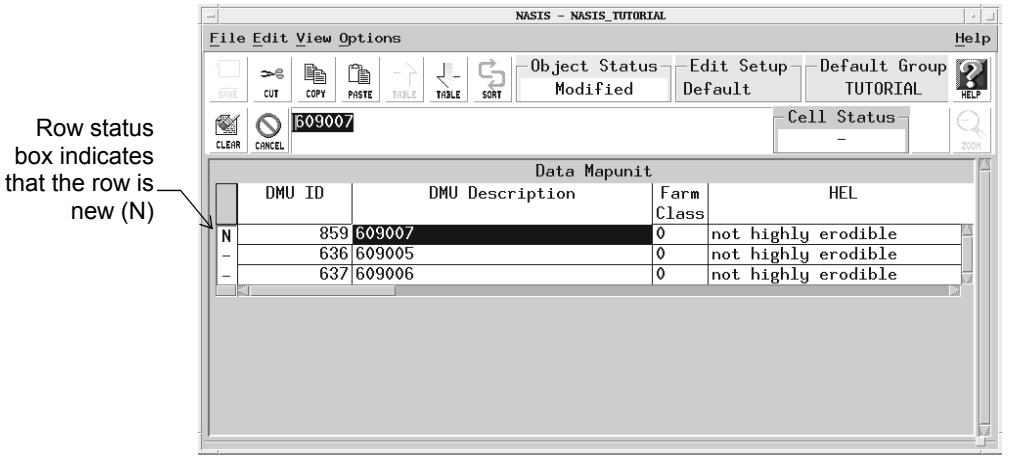
   Note: The Copy button is the same as the Copy command on the Edit menu. This command copies objects. For example, you copied the Data Mapunit 609005 including all of its component and horizon data. A separate function, accessible only through the Edit menu, exists for copying rows.



2. Without moving the cursor, click the **Paste** button.

   Note: Notice that a new row is inserted, and the row status box reads "N" for new. By default, the paste command pastes to the row above the cursor.

3. Now you have a new data mapunit but it needs to be renamed. The DMU Description can be anything you choose; it's for your own use in identifying the data. To rename it, click the **DMU Description** field, and in the Edit Window type **609007**. Press **ENTER**. (Refer to the sample screen below.)

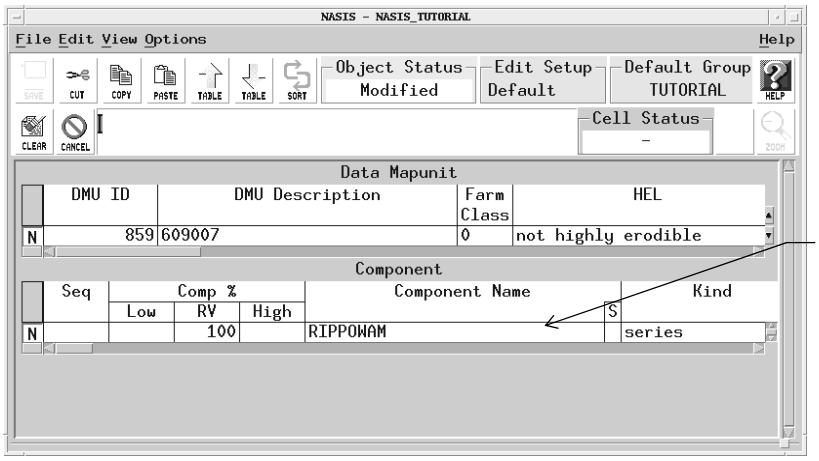


   Note: The number automatically created for DMU ID on your screen may differ from this sample screen.

4. In the Data Mapunit table, scroll to the right and view the columns in this table, particularly DMU Site, Group, User, Last Updated.

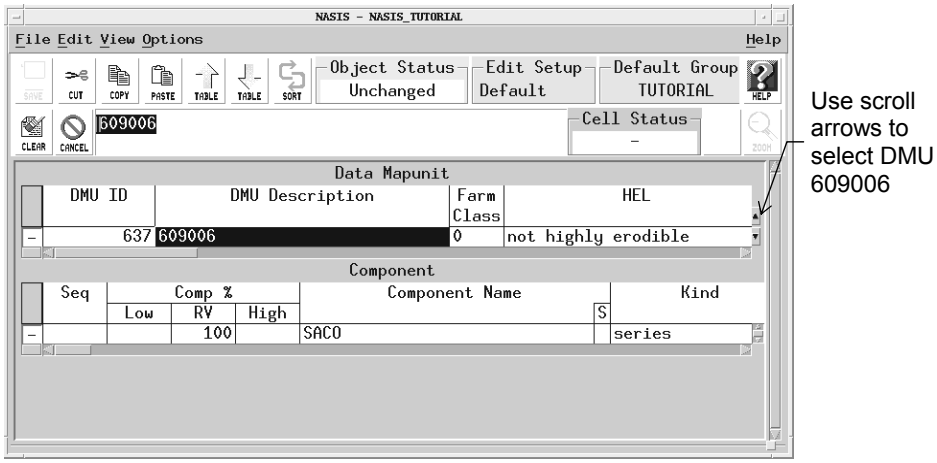
   Note: Because you added the new row, you will see information about your tutorial user login. Only you or another person in the tutorial user group have authority to edit this record.

5. Look at the components for the new data mapunit by clicking the **Down table** button.



Note: The new data mapunit contains the RIPPOWAM component only. Because you are building a complex, you will also need to copy the SACO component into the new data mapunit (next step).

6. To select the SACO component, in the **Data Mapunit** table, use the vertical scroll arrows to scroll to data mapunit **609006**. The SACO component appears.



7. Click the **SACO** record in the **Component** table, then click the **Copy** button.

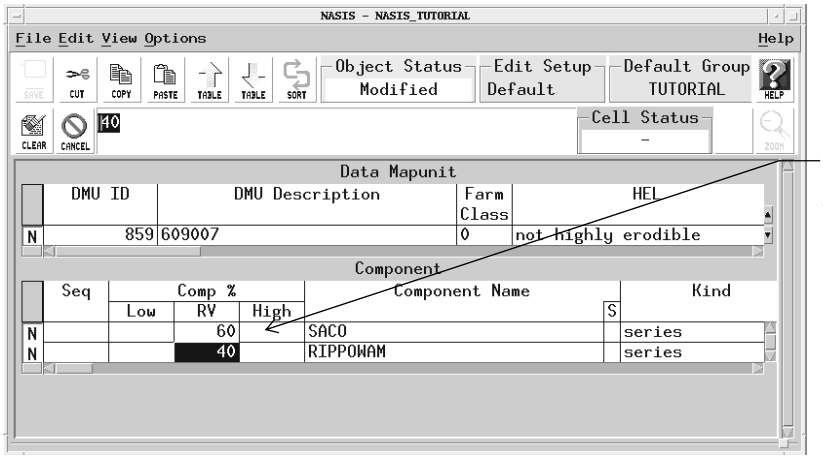
   Note: This action copies the entire SACO component object to the clipboard. Keep in mind that the SACO component includes all of its horizon data, which you will take into the new mapunit

8. In the **Data Mapunit** table, use the vertical scroll arrows to select **609007**.
9. With the cursor in the **Component** table, click the **Paste** button. This pastes the SACO component from the clipboard into the Component table.

   Note: If a Paste Options window appears, cancel it and then make sure the cursor is in the Component table when you click Paste.

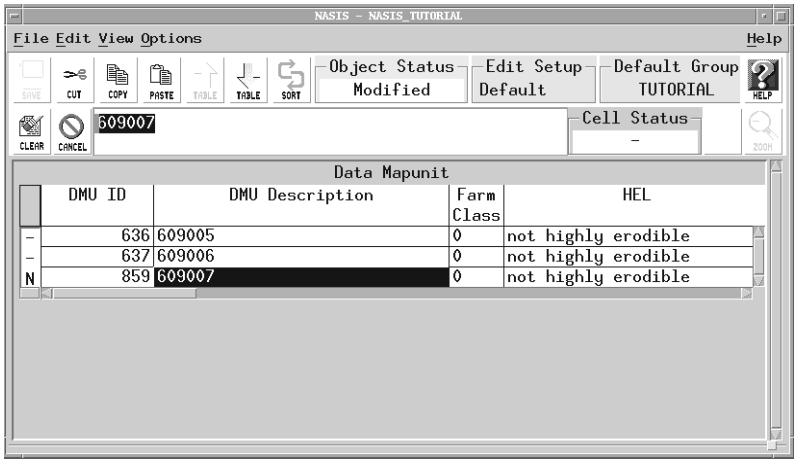
10. Look at the two components contained in the new data mapunit. The mapunit is 100% SACO and 100% RIPPOWAM. Change the **Comp % RV** for **RIPPOWAM** to **40%** and **SACO** to **60%**.
11. Arrange the components so SACO is first by clicking the **Sort** button on the toolbar.

Note: When you want to sort rows in a different order than the predetermined one, you can define the order in the Sequence column (Seq).



Note: When working with your own data, at this point you might begin tailoring the complex to fit your survey area (unless you postpone the fine tuning until the end of the survey). You might delete any additional components. You might tailor some of the soil properties such as Available Water Capacity, Ksat, etc. to represent the survey area you are working in. When working with the tutorial database, feel free to experiment with the data.

12. Scroll horizontally and examine the Component table. Notice that you have now populated the data mapunit with two components.
13. Click the **Up table** button to look at the entire Data Mapunit table.
14. Sort the records in the table by clicking the **Sort**. The screen should look similar to the sample on the next page (DMU ID may not match).

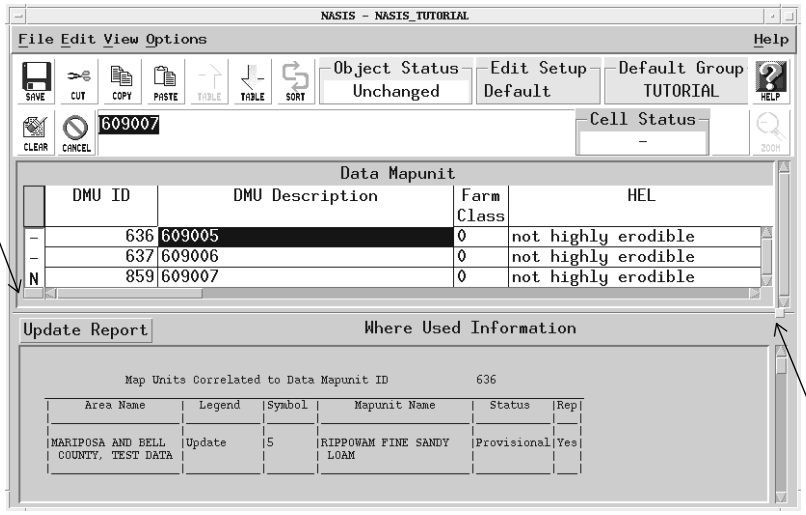


Building a New Mapunit

So far, the new data mapunit has no geographic meaning because it's not linked to a mapunit. In this section, you will create a new mapunit (symbol, name, etc.) to link the data mapunit to. From the Data Mapunit table, you may be wondering, "How

can I tell what mapunits the existing Data Mapunits 5 and 6 are linked to?" NASIS provides an online report called the Where Used report. From the Data Mapunit table, you will be able to request this report (explained below).

1. In the **Data Mapunit** table, use the mouse pointer to point to the **sash box** (shown on the sample screen on the next page). The mouse pointer turns into cross-hairs.
2. Click and drag the **sash box** upward toward the Data Mapunit table, then release the mouse button. An entire section of screen exists below the sash (similar to a split-screen function).
3. With the **609005** record highlighted, click the **Update Report** button.
4. Resize your NASIS screen so you can view the entire report (sample on next page).



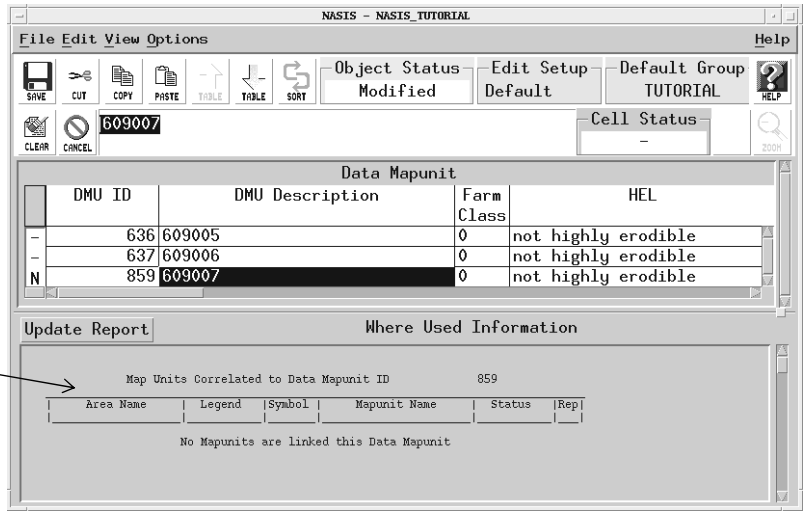
Click here to get the Where Used report in the lower window

Sash box opens the lower window

Note: The Where Used report indicates the mapunit symbols and names (throughout the entire permanent database, not just the selected set) that are linked to the selected data.

5. One at a time, select the other data mapunits and click **Update Report** on the Where Used report

Note: As indicated in the Where Used Information, your new data mapunit 609007 is not linked to a mapunit. You will need to create a mapunit (next step) before you can link to it.

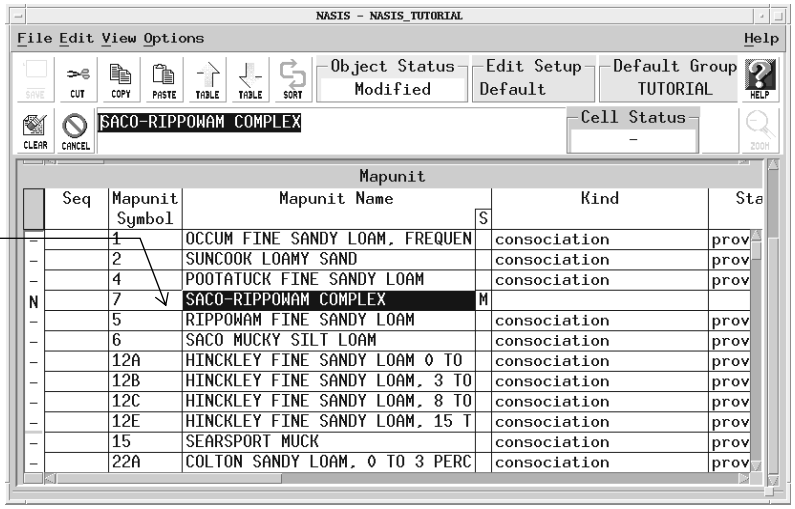


The new data mapunit is not linked to a mapunit

Note: Remember that data mapunits and mapunits are linked through the Correlation table. After you create a new mapunit, you will go into its Correlation table and add the ID and Description of the new data mapunit. You will have three choices for entering the DMU ID and Description: You can copy the row from the DMU table where the DMU ID and Description are stored; you can select the DMU Description from a choice list in the Correlation table; or if you can remember either the DMU ID or Description, type it into the Correlation table. Here, we will use the Copy Row command.

6. In the Data Mapunit table, place your cursor in the row for **609007**.
7. On the **Edit** menu, click **Copy Rows**. (This command does not copy the component and horizon data for the DMU.)
8. Open the Legend tables by clicking the **View** menu, **Legends,** then click **Mapunit**.
9. Lower the **sash**, if necessary, to view the Legend object.
10. In the **Mapunit** table, insert a new row by pressing **F8**. A new row is inserted above the highlight cursor position.

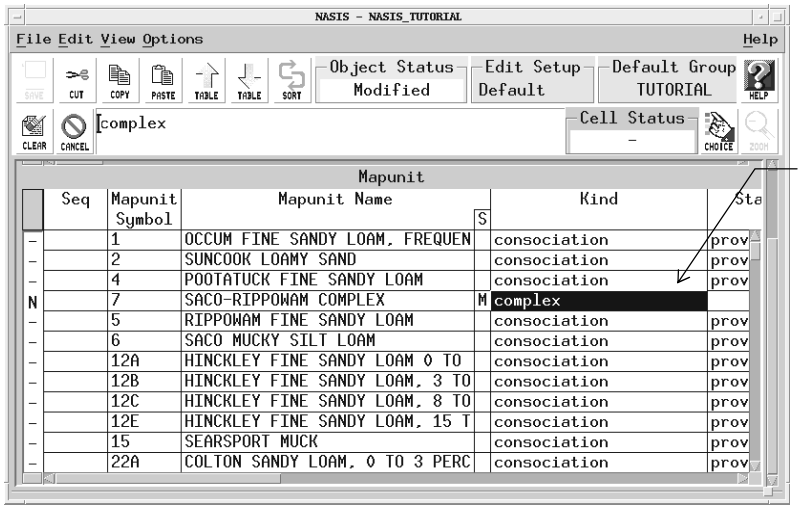
    Note: If the **F8** key does not work, check three things: Make sure the object status reads "unchanged" or "modified" (which means it's editable), make sure the **CAPS LOCK** key is off, and make sure the **NUM LOCK** key is off.
11. In the blank row, type Mapunit Symbol **7** and Mapunit Name **SACO-RIPPOWAM COMPLEX**.



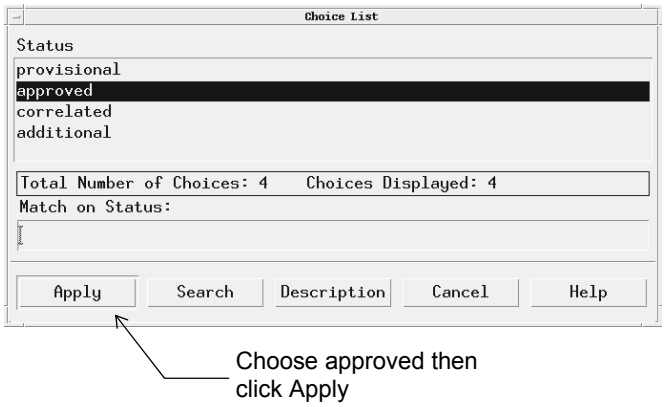
Type the new mapunit symbol and name

Note: Remember that some queries are case-sensitive and require you to enter the value as it actually appears in the permanent database. Having entered this name in uppercase letters, some queries will require you to enter the Mapunit Name in uppercase.

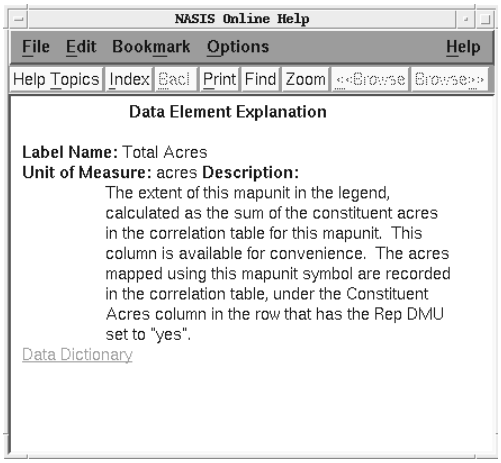
12. Go to the **Mapunit Kind** column by pressing the **TAB** key.
13. Open the choice list by pressing **F2**; select **complex**, then click **Apply**.



14. Go to the **Status** column by pressing the **TAB** key.
15. The new mapunit occurred as the result of a field review, therefore it has been approved. In the **Status** column, open the choice list (**F2**), select **approved**, then click **Apply**.



16. Presently, you choose *not* to enter Total Acres. (Total Acres is the sum of acres in the Correlation table).
17. Click the **Sort** button, if your mapunits are out of order and you want to sort them.
18. To find more information about Total Acres, click the **Help** button, then click the **Total Acres** column. The main help window appears (resized and shown on the next page).

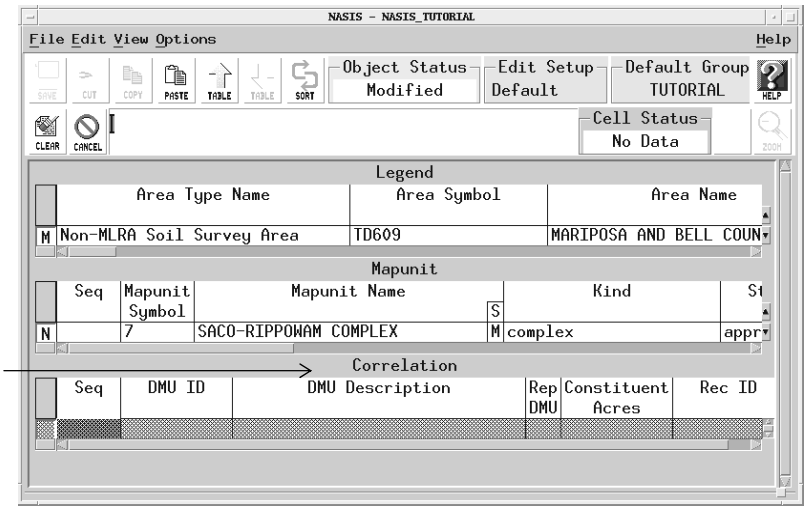


19. While you proceed through the lesson, reduce the help window to an icon or move it so it doesn't obstruct your view of the NASIS screen.

Linking the New Mapunit to its Data Mapunit

The next step is to link the new mapunit to its data.

1. In the Mapunit table, highlight the new mapunit symbol **7**, and click the **Down Table** button. The empty Correlation table appears.

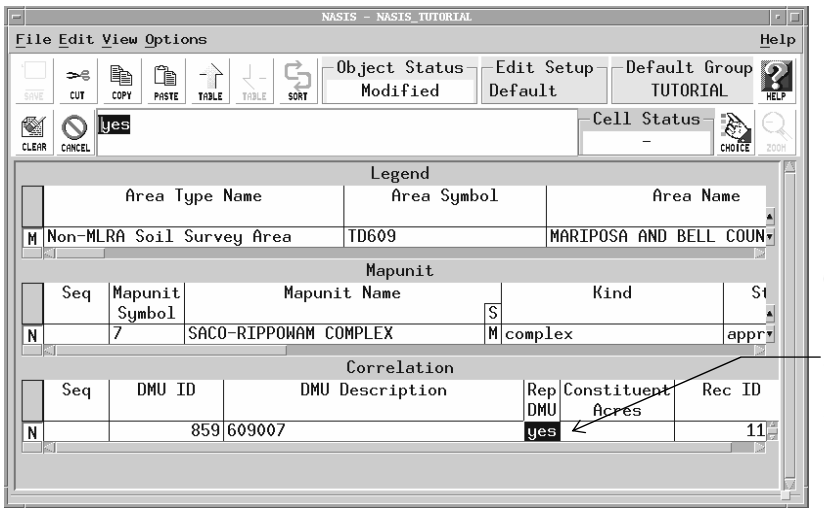


2. Since the last thing you copied was DMU, the clipboard still contains the DMU ID and Description for the new data mapunit. Insert it into the **Correlation** table by clicking the **Paste** button. Only the link information is pasted.

   Note: If a Paste Options window appears, your cursor is in the wrong table. Cancel the dialog and then make sure the cursor is in the Correlation table when you click Paste.

3. Indicate that this data mapunit is representative for Mapunit 7 by entering **yes** in the Rep DMU field (if it is not already entered). See the sample screen below.

   Note: If you were to type the abbreviation "y" or use uppercase letters, NASIS would automatically translate the entry to lowercase "yes."

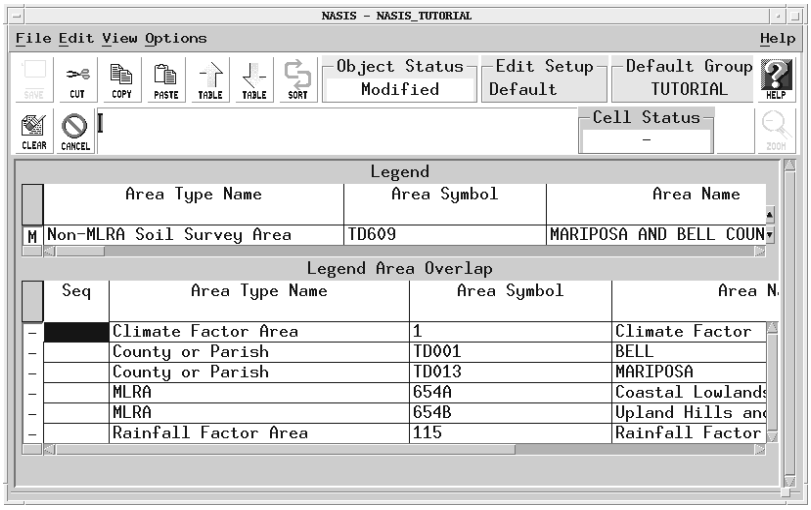


Note: Under normal circumstances, at this point you might go on to print your manuscript or other reports. In this tutorial, the printing of standard reports and stored interpretations is covered in Chapter 13.

Building Overlaps for the New Mapunit

You have set up a new data mapunit and mapunit in NASIS and linked them. If your task were simply to build a new mapunit and data mapunit, you would be finished. However, now you will build overlaps. In this part of the lesson, you will construct the coincidence of other areas, such as counties, MLRAs, states, and climate factor areas, with the legend and mapunits of the Mariposa and Bell County soil survey area, which now includes a new mapunit.

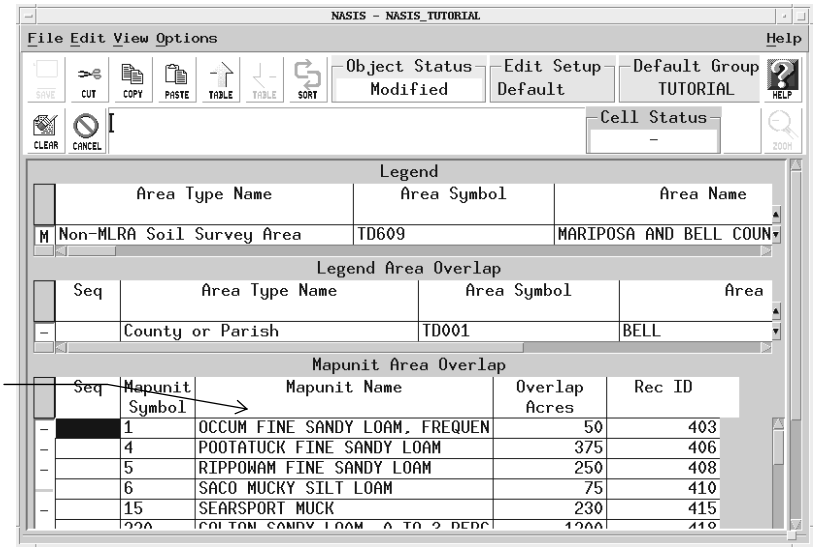
1. Click the **View** menu, select **Legends**, then click **Legend Area Overlap**. (Refer to the sample screen on the next page.)



Note: Scroll to the right in the Legend table to see the Area Name: MARIPOSA AND BELL COUNTY, TEST. The Detailed Soil Map Legend of Mariposa and Bell County covers two counties, two MLRAs, a climate factor area, and a rainfall factor area. The mapunit symbol 7 overlaps with all areas except MLRA

area symbol 654B. The process of building overlaps is essentially the same regardless of area type.

2. Scroll to the right in the Legend Area Overlap table until you can see the area symbols and names.
3. Click **TD001** (Bell County), then click the **Down table** button. The Mapunit Area Overlap table appears .

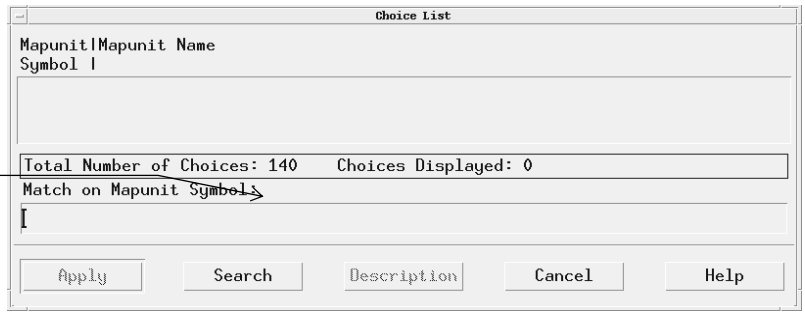


Mapunit Area Overlap table

Note: Filling in the Mapunit Area Overlap table is the equivalent to filling out MLRA symbol on the SOI-6 and the county overlaps.

4. Insert a new row by pressing **F8**.
5. With the cursor in the **Mapunit Symbol** field of the new row, open the choice list by clicking the **Choice** button or pressing **F2**.

   Note: The choice list opens with no selections, because there are more choices than the display is set to handle in a single scrolling list. (The number of choices displayed may be changed under the NASIS preferences option, so it may be more or less than the default of 100.)



Total number of choices is 140. Use the search feature to display lists with more than 100 choices

6. In the search field, type **7**, then click the **Search** button.

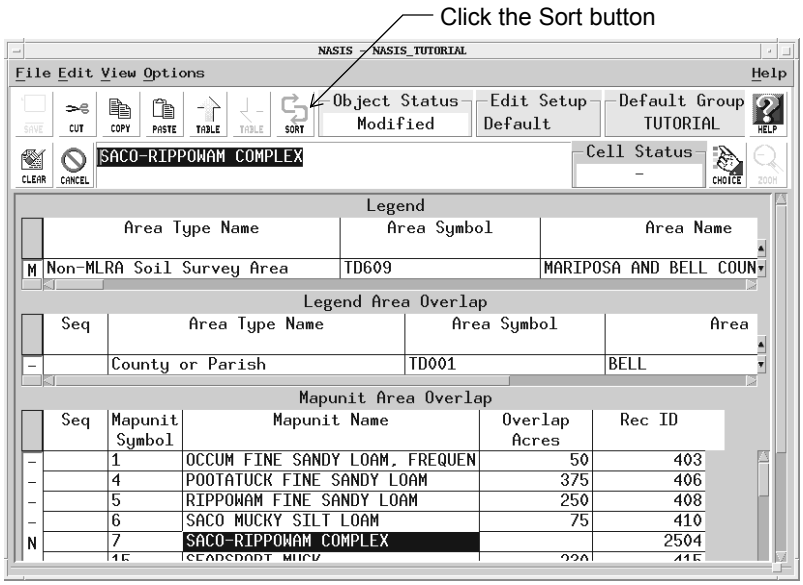
   Note: Obviously, you probably would not have used the choice list in the case of entering mapunit symbol 7. However, for tutorial purposes, a demonstration of how the choice list works may be useful.

7. One match is found and displayed. Highlight it, then click the **Apply** button.

   Note: NASIS automatically enters the Mapunit Name (a protected field in this table) in the Mapunit Area Overlap table.

8. You choose *not* to enter Overlap Acres at this time.
9. Click the **Sort** button to reorder the mapunits.
10. Repeat steps 3 through 7 for each of the other areas desired in the Legend Area Overlap table.

    Note: It is recommended that overlaps be created for the following area types at a minimum—state or territory, county or parish, MLRA, climate factor area, and rainfall factor area. Others may be created as desired or needed.



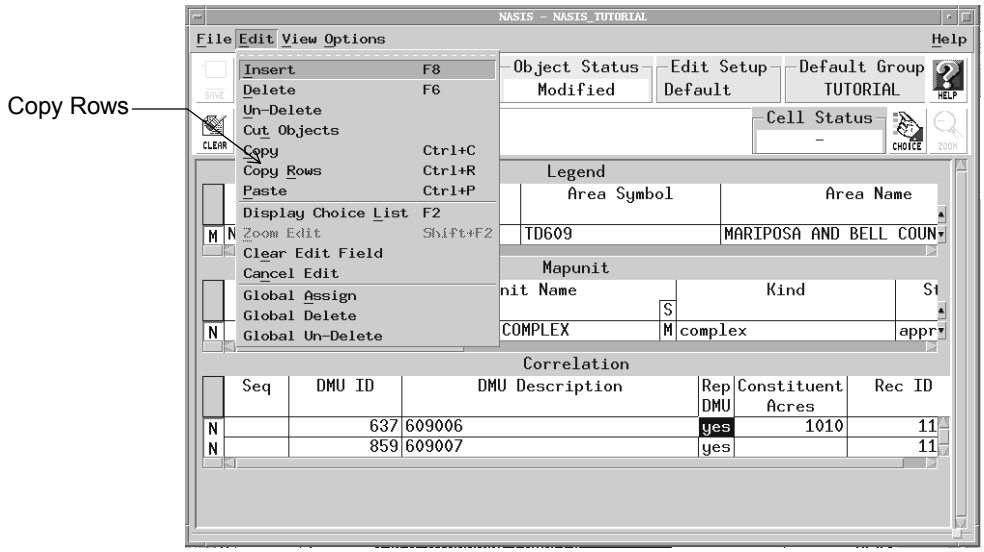
Correlating Existing Mapunits with the New Mapunit

This is the final part of the lesson. Here you will correlate existing Mapunits 5 and 6 into the new Mapunit 7, and document your c+orrelation decisions. After correlating, a review of the lesson will help you pull together all the tasks you have performed.

1. To return to the Mapunit table, on the **View** menu, select **Legends**, then click **Mapunit**.
2. In the Mapunit table, select **Mapunit Symbol 6**.

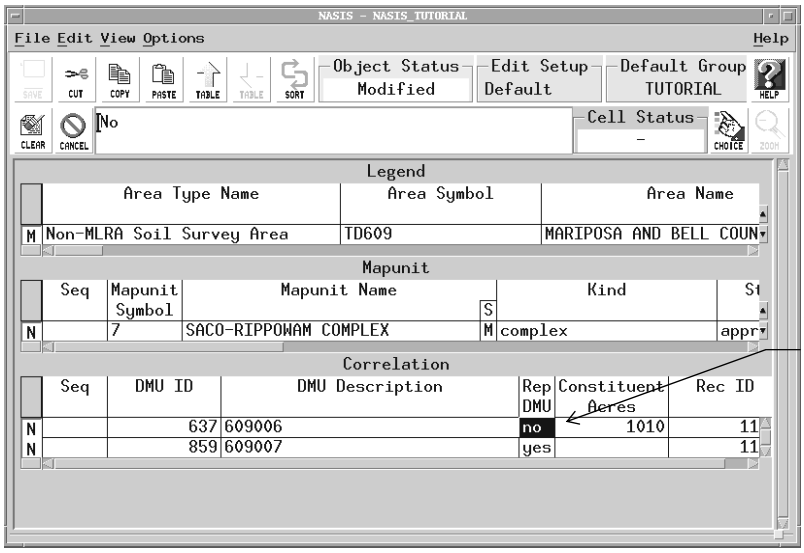
   Note: You now have two consociations that are no longer used. In NASIS, you would not necessarily have to delete Mapunits 5 and 6. They don't affect anything, and you might want to leave them in for historical purposes. You might want to indicate that Mapunits 5 and 6 existed at one time and where they occurred. The following steps explain how to log this information.
3. Scroll to the right in the Mapunit table and change the **provisional** status to **additional** using the choice list.
4. Open the **Correlation** table (if necessary, click the **Down table** button).
5. With the cursor in the Correlation table, copy the correlation record for **Mapunit 6** by selecting the **Edit** menu, then click **Copy Rows**.

   Note: In this case, you could use the Copy button, which would only copy the row, since you are in the Correlation table at the bottom of the Legend object hierarchy.



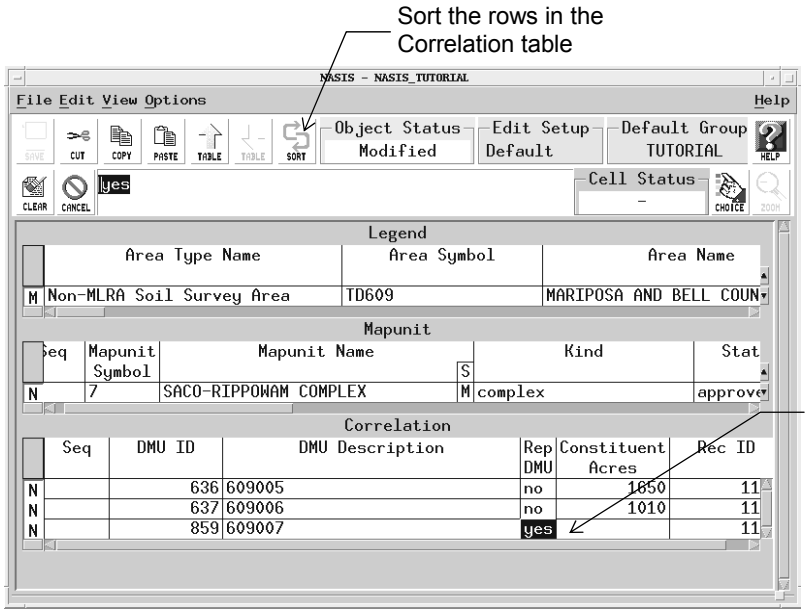
6. In the **Mapunit** table, select **Mapunit 7**.
7. Move the cursor to the **Correlation** table, click the **Paste** button.

   Note: If a Paste Options window appears, cancel it and then make sure the cursor is in the Correlation table when you click Paste.
8. Change the **Rep DMU** status for 609006 to **no** (as shown in the sample screen on the following page).



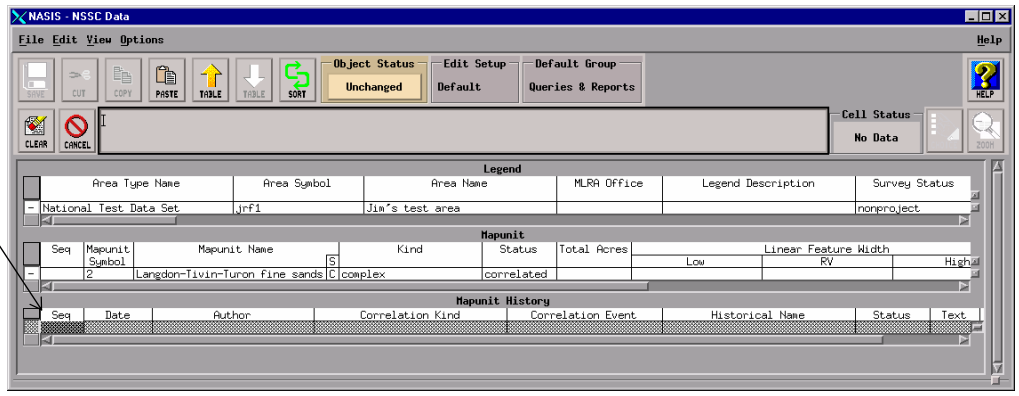
Note: Only one data mapunit is considered "representative" for a mapunit. Data Mapunits 609005 and 609006 are not representative for Mapunit 7. They are linked to the additional Mapunit Symbols 5 and 6.

9. Repeat steps 2-8 for **Mapunit Symbol 5**.
10. After correlating mapunit 5, click the **Sort** button on the toolbar. The screen should be similar to the sample below.



11. To record correlation decisions for the new mapunit, in the **Mapunit** table, select the **SACO-RIPPOWAM COMPLEX** mapunit.
12. Open the Mapunit History table by clicking the **View** menu, selecting **Legends,** then click **Mapunit History**. The Mapunit History table is empty.

When the first column of an empty table is darkened, that table is active; any actions you take, like inserting a row, will be performed on that table

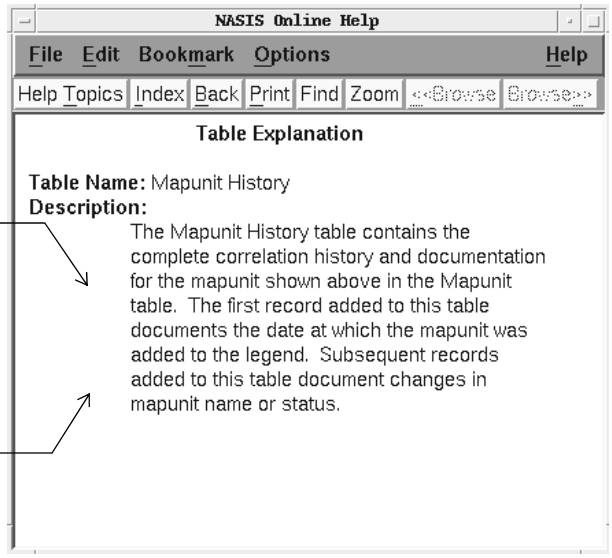


13. Insert a new row into the Mapunit History table by pressing **F8**. Today's date and Rec ID are filled in automatically.

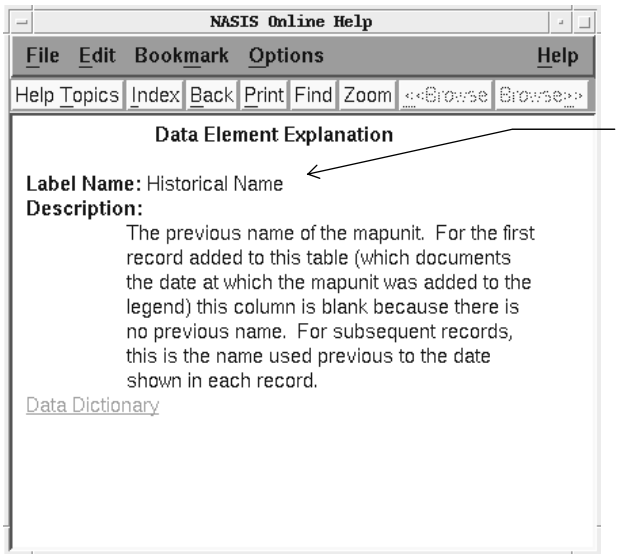
14. To understand how to complete the correlation notes, you need to understand the Mapunit History table and its columns. Click the **Help** button, then click the **Mapunit History** table name. In the help window, read the table explanation.

The first record in the Mapunit History table documents the date at which the mapunit was added to the legend

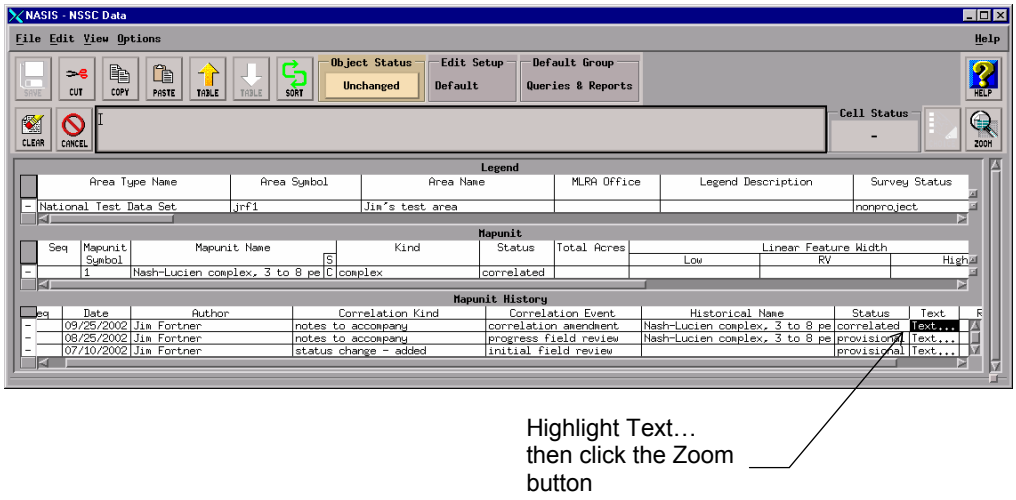
Subsequent records document changes in mapunit name or status



15. Leaving the Help window open, click the **Help** button again, then click the **Historical Name** column. Read the explanation.



16. Repeat step 15 for the other columns in this table.
17. In the **Mapunit History** table, use the **TAB** key to highlight the **Text...** column, then click the **Zoom** button on the toolbar.



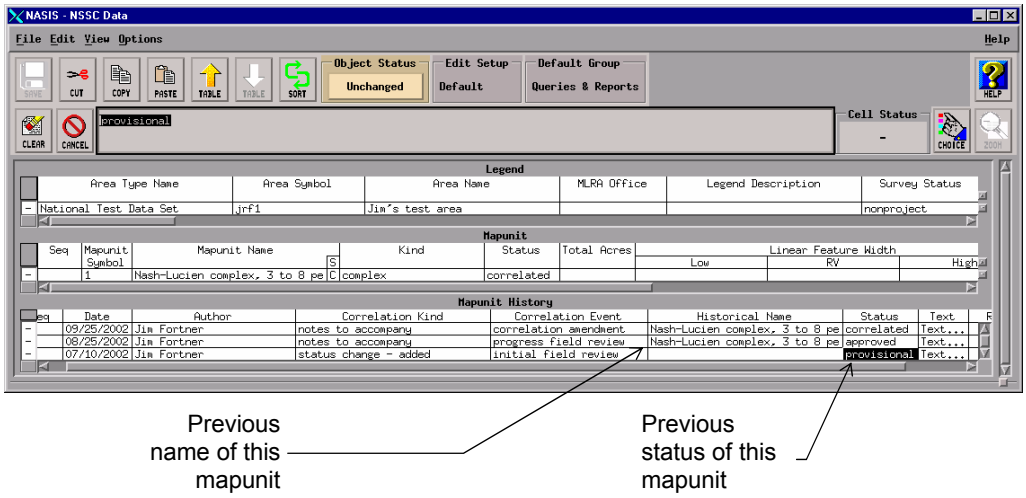
Note: The text field is where you store your correlation notes, such information as which mapunits were correlated, what changed and why.

18. In the text field editor, type your correlation notes (as shown in step 24), then click **Apply.**

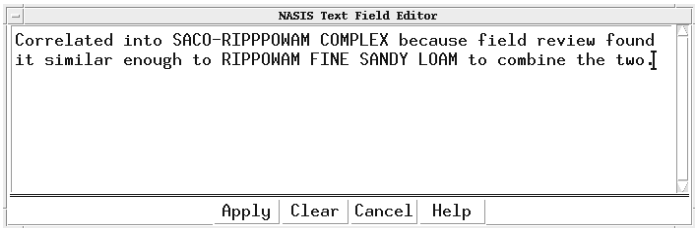
19. You can also enter correlation notes for Mapunits 5 and 6 that you correlated into Mapunit Symbol 7. In the Mapunit table, select **Mapunit 6**.

    Note: The Mapunit History table has one row that documents the time at which Mapunit 6 was added to the legend. Notice the date. Since the status for Mapunit 6 has changed to additional, you need to record the *previous* name and status as a new record in the Mapunit History table.

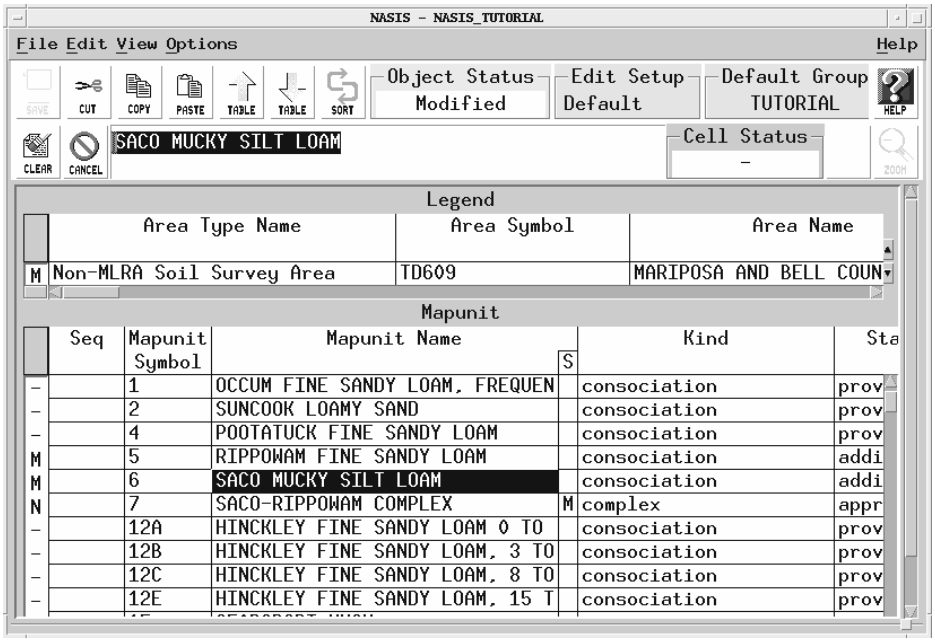
20. With the cursor in the **Mapunit History** table, insert a new row by pressing **F8**. Today's date is filled in automatically.
21. Fill in the name of the person who wrote the note, not necessarily the person who is entering data in NASIS, in the Author column. Also fill in the Correlation Kind and Correlation Event from the choice lists provided.
22. For Historical Name in the Mapunit History table, type **SACO MUCKY SILT LOAM**, its previous name.
23. In the status column, from the choice list select **provisional**, its previous status.



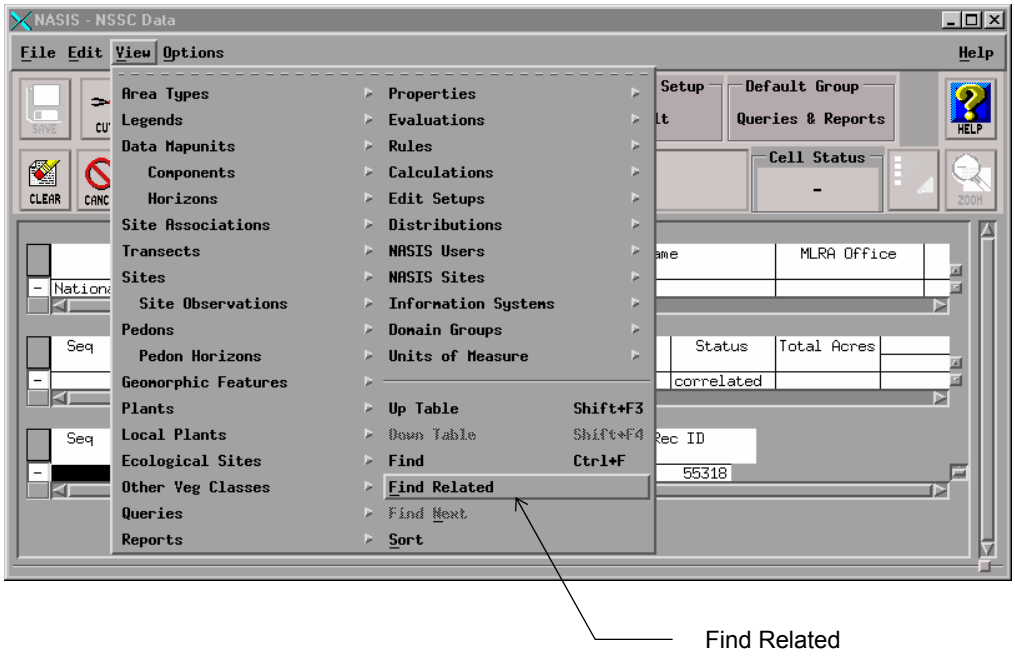
24. Scroll to the right, and open the text editor by selecting the **Text** field, then clicking the **Zoom** button.
25. Type the notes.



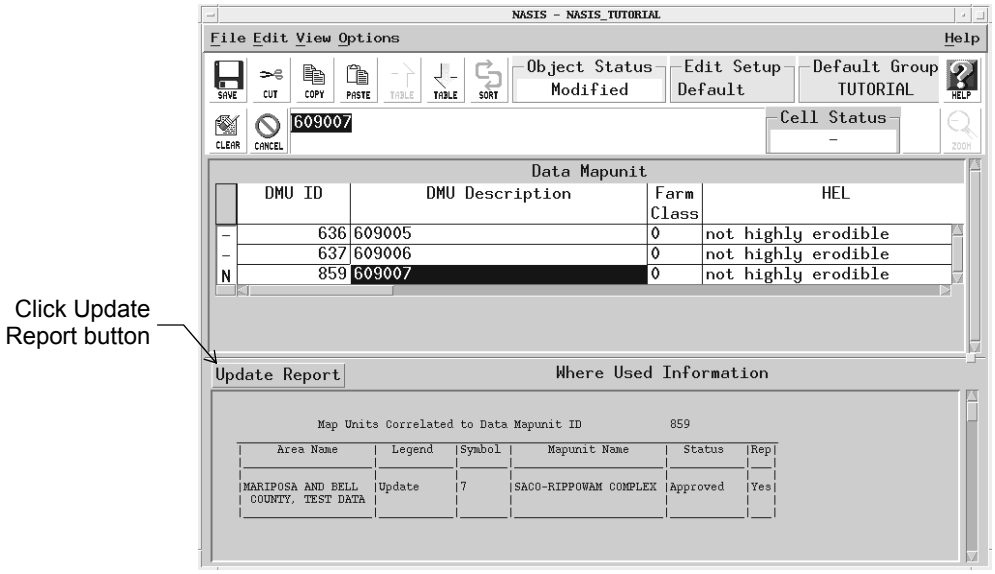
26. Click **Apply** to close the text editor.
27. To record correlation notes for **Mapunit Symbol 5**, repeat steps 19-25.
28. After you have finished recording correlation notes, look at the new legend by selecting **View**, **Legends**, and **Mapunit**. The screen should look similar to the following sample.



29. Next, you will look at the new mapunit's data in the Data Mapunit table. The link is stored in the Correlation table, so select the **View** menu, **Legends**, then click **Correlation** to open it.
30. With your cursor in the Correlation table, highlight the record that contains the link to the representative Data Mapunit **7**.
31. On the **View** menu, select **Find Related**.



32. On the Find Related submenu, click **Data Mapunit**. The Data Mapunit table opens with the cursor on the linked data mapunit.
33. The first time you checked the Where Used report for the new data mapunit, it indicated that the data mapunit was not correlated with any mapunits. Again, raise the **sash** and click **Update Report**.



Note: The report indicates that Mapunit Symbol 7, your new mapunit, is correlated with the new data mapunit. At this point, you have completed this lesson. In using the NASIS program, you would need to Save these changes, however, Save is disabled in the tutorial. Following is a lesson review.

Reviewing This Lesson

You may wonder "what did I just do?" This section provides a brief review of the "Managing Soil Survey Data" lesson to help you pull it all together.

You began with two existing consociations, mapunits 5 and 6. You made a correlation decision that the two were so intricately mixed that they should be a complex. Your goal was to create a new mapunit 7, and correlate mapunits 5 and 6 into the new mapunit 7.

First you created the new data mapunit called "609007." The two consociations already had data mapunits filled out, so you copied the SACO and RIPPOWAM components from an existing data mapunit into the new data mapunit.

Next, you created a new mapunit symbol 7. You linked the new mapunit to your new data mapunit 609007 through the correlation table.

You then constructed the overlaps for this new mapunit by entering mapunit 7 in the Mapunit Area Overlap table of each of the other areas that have a coincidence with the legend.

Finally, you correlated mapunits 5 and 6 into mapunit 7 by linking their data mapunits to mapunit 7 and flagging them as non-representative. You decided not to delete the old mapunits but instead to flag them as additional symbols. You documented your correlation decisions using the text field editor.

Figure 12-1 below shows that after correlation, Mapunits 5 and 6 are additional symbols to Mapunit 7. Mapunit 7 includes Mapunits 5 and 6 because it is linked to their data mapunits. Mapunit 5 can be converted to 7 because both mapunits are linked to the same data mapunit. Likewise, Mapunit 6 can be converted to 7. The representative DMU indication is shown by a bold arrow in this example.

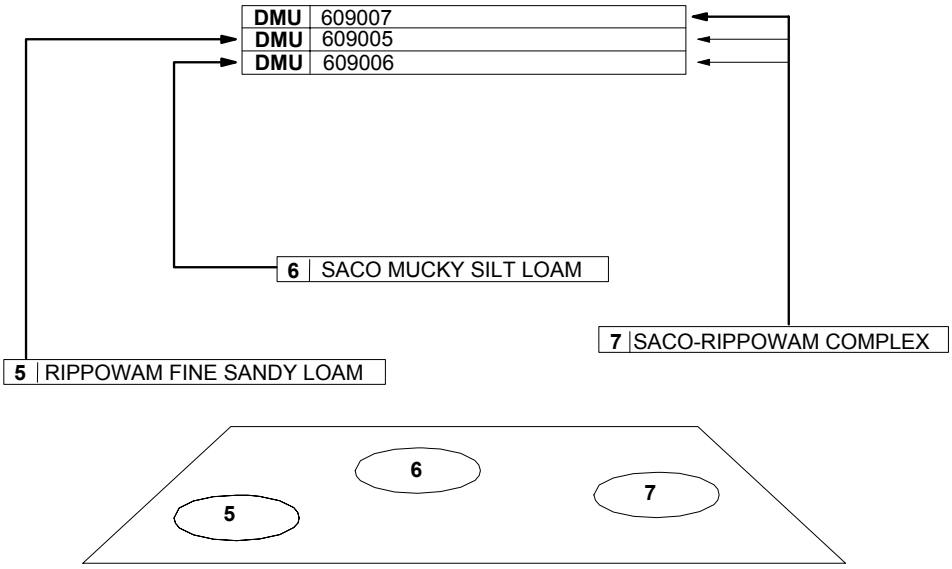


Figure 12-1. Correlated Mapunits