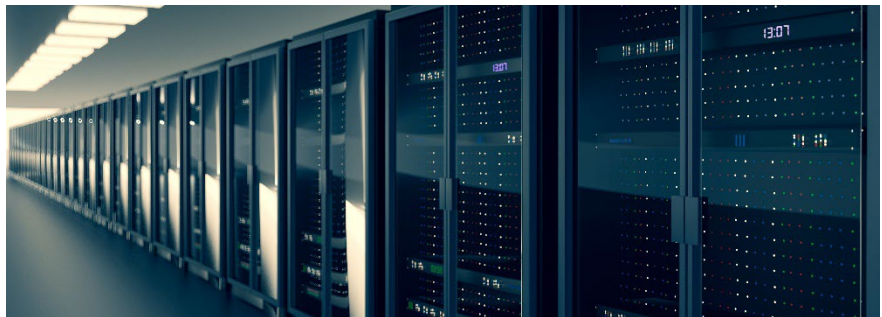
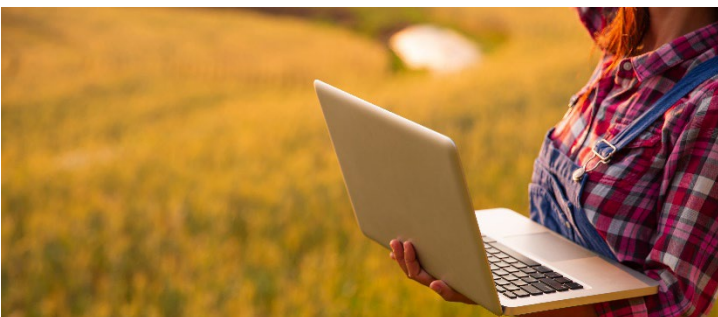
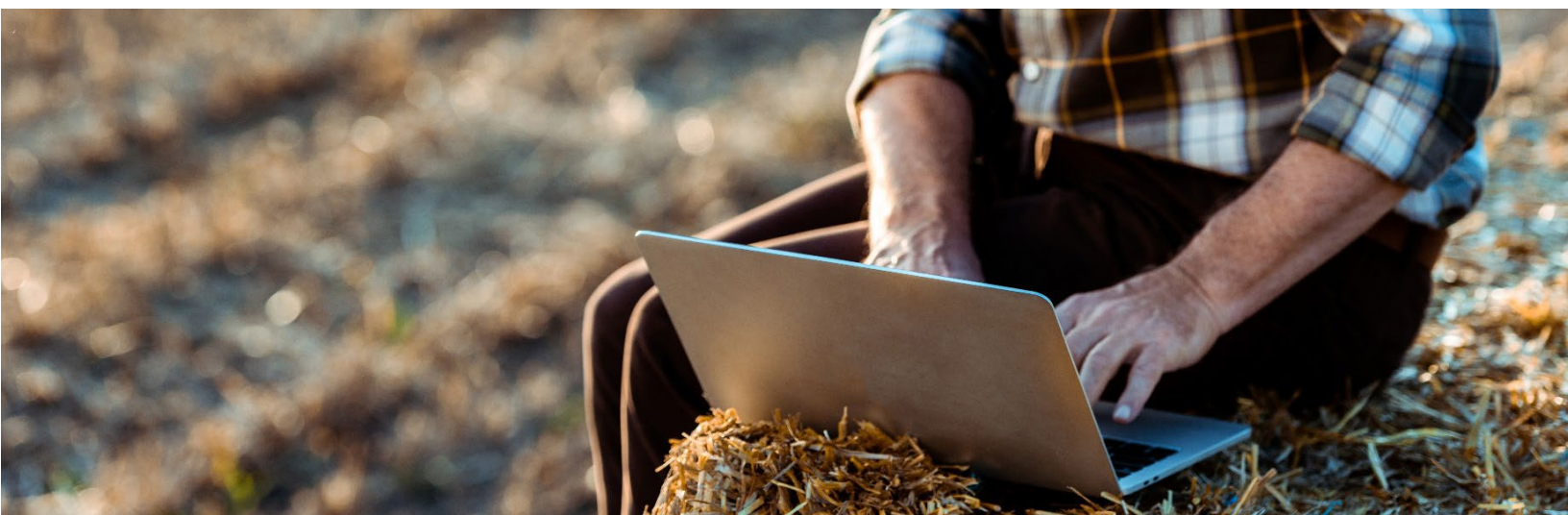




United States Department of Agriculture



Instructions for Annual Soils Refresh



[National Soil Survey Center]

**Natural
Resources
Conservation
Service**

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Annual Soils Refresh (ASR) Instructions

Version 1.2; July 18, 2025

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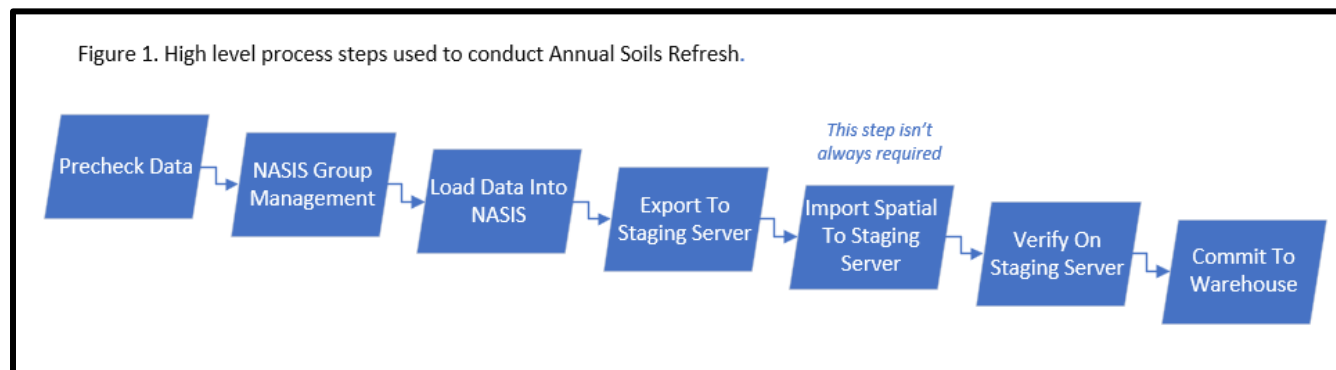
I. Introduction

Once a year, the Soil and Plant Science Division (SPSD) oversees the process to update the publicly available, official USDA-NRCS soil survey data. This process is referred to as the Annual Soils Refresh (ASR). The objective of the ASR is to incorporate updates to currently published soil survey areas, to publish new soil survey information for previously unmapped soil survey areas, to ensure all published soil survey areas include the same set of required national interpretations, and to ensure all published data is current. State Soil Scientists (SSSs) are responsible for refreshing the published soil survey information within their State or island territory. SPSP Regional Office (RO) staff are responsible for providing technical support and performing some ASR processes.

This document provides a general overview of the refresh process, identifies roles and responsibilities for SSSs and RO staff, describes the national databases used in the process, discusses applications used in the refresh process steps, discusses NASIS precheck reports designed to locate critical errors in soils data, and most importantly, provides step-by-step instructions for completing the ASR.

II. High-Level Outline of ASR Process

Below is an outline of the high-level process steps needed to conduct the ASR (figure 1). Detailed process steps are discussed further below.



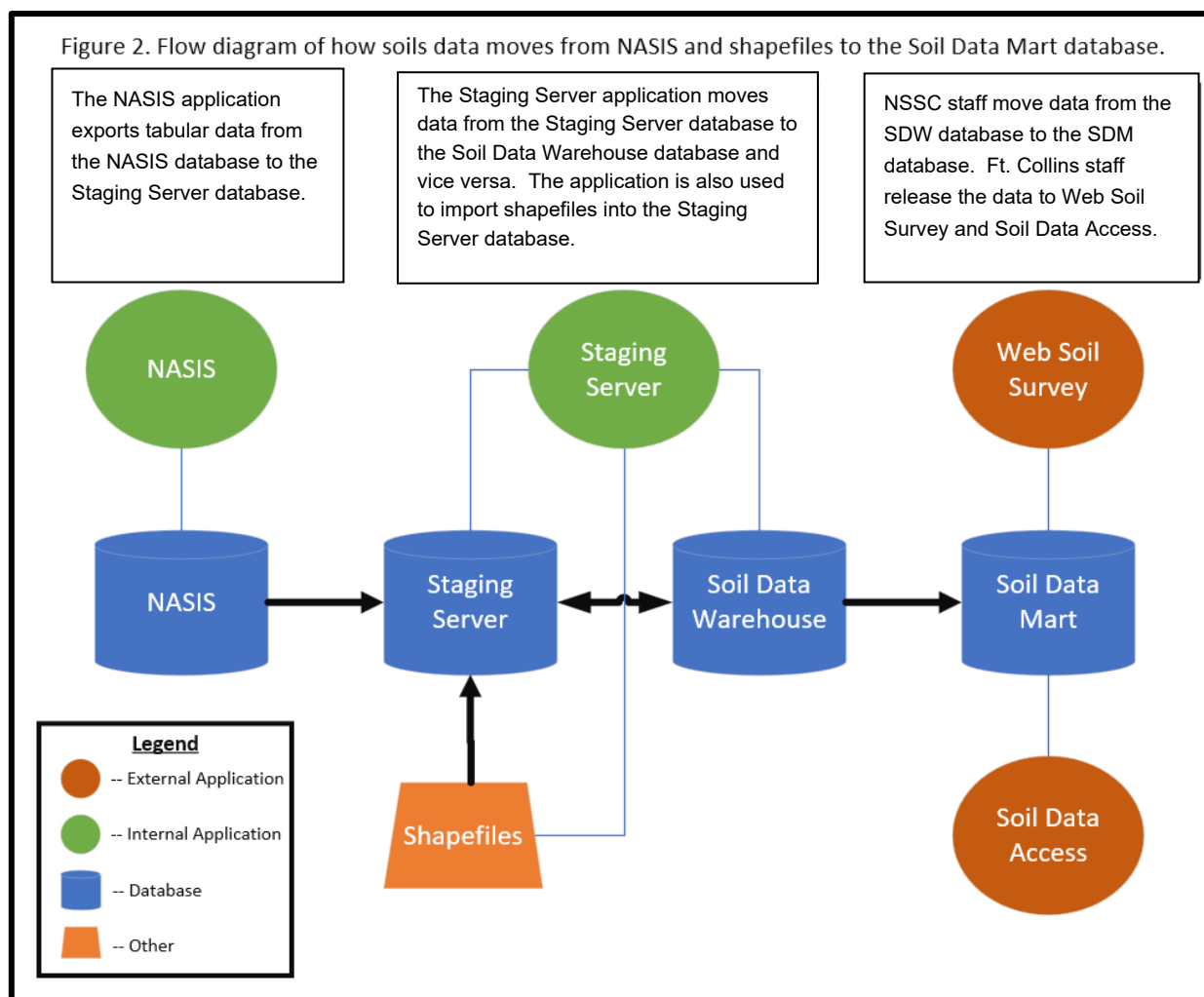
III. Overview of Soils Refresh

Historically, the process for updating soil information was handled on an ad hoc basis; that is, new data was published whenever a regional office decided it was appropriate. “Published” in this case means that the latest data in the working database was certified and released to the public as official data. As the SPSP moved away from initial soil survey work and moved towards MLRA update projects, the need for greater data stability became apparent. The increased number of MLRA projects resulted in a steady stream of updates, which was undesirable for some key customers. Major internal NRCS partners needed a stabilized version of soil information for programs and for conservation planning. As a result, the National Soil Survey Center (NSSC) changed from the continual, regional, ad hoc updates to an annual, national, complete update.

The term “SSURGO” is often misused to refer to the official USDA-NRCS soil survey database. SSURGO is actually a derivative product of the database. The official soil information resides in a Microsoft SQL Server database named the Soil Data Mart (SDM). This SQL database is what the State Soil Scientists update during the ASR. Both Web Soil Survey (WSS) and Soil Data Access (SDA) are connected to the SDM database and deliver official soil survey information to the public. The SDM database is updated once a year, ensuring a stable version of soils data for our customers. This process has been referred to as both the Annual SSURGO Refresh and the Annual Soils Refresh. The National Soil Survey Center uses the term “Annual Soils Refresh” (ASR).

The ASR process involves moving data through four databases, using two applications. The databases are the NASIS database, Staging Server database, Soil Data Warehouse database, and Soil Data Mart database. The applications are the NASIS application and Staging Server application. See figure 2.

“NASIS” refers to a Microsoft SQL Server *database* and a desktop client *application*, and both together are called NASIS. “Staging Server” also refers to both a Microsoft SQL Server *database* and an *application*. Many, perhaps most, users only think of the applications when they hear the terms NASIS or Staging Server. The color coding in figure 2 distinguishes between the applications and databases.



For every Soil Survey Area published in the SDM, the tabular information must be exported out of NASIS at least once a year. This process ensures all tabular data published to SDM adheres to the same data quality standards. This requirement includes NOTCOM and NOTPUB SSAs.

Because SPSP does not have a national spatial transactional database we don't require all spatial data to be updated each year. Instead, only new and updated spatial data are posted as part of the ASR. Spatial data in SDM that were not edited during the year do not need to be posted to the Staging Server. Tabular-only soil surveys in the Staging Server are connected to the most recent version of spatial data that is in the Soil Data Warehouse (SDW) when the verify and commit process is done.

IV. Roles and Responsibilities

Below are the critical roles and responsibilities for the Annual Soils Refresh. SPSP recognizes that a person other than the State Soil Scientist may execute certain functions. In such cases, the SSS designee assumes some or all the duties listed for the SSS.

1) State Soil Scientist

- Notify the Soils Hotline (SoilsHotline@usda.gov) if a designee will be completing the ASR or assisting with the ASR.
 - This allows the NSSC staff to know who to contact about ASR activities and to add the designee to the appropriate eAuthentication roles.
- Identify all Soil Survey Areas (SSAs) within their State or island territory that need to have their **tabular data** refreshed or that will have tabular data posted for the first time as part of the ASR.
 - Contact the RO(s) if they have questions or need assistance in identifying the SSAs to be included in the ASR.
- Identify all SSAs within their State or island territory that need to have their **spatial data** refreshed as part of the ASR.
 - Contact the RO(s) to acquire a list of SSAs that will have spatial data refreshed or that will have spatial data posted for the first time.
- Identify National, Regional, or State interpretations that are not part of the required national set but that need to be included in the ASR.
- Identify any special concerns about minor components included in the ASR.
- Run NASIS to Staging Server precheck reports for all soil surveys areas in their State or island territory.
- Export the tabular data for all official soil survey areas for their State or island territory from NASIS to the Staging Server.
- Verify and commit all official soil survey areas for their State or island territory to the Soil Data Warehouse.

2) NCSS Staff

- Establish ASR timeline and create National Bulletin.
- Communicate ASR timeline and expectations to SSSs and ROs.
- Provide technical support and training.
- Monitor ASR status and send status updates to SSSs and ROs.

3) Regional Office GIS Staff

- Communicate with State Soil Scientists about which soil survey areas will have new or updated spatial data and when the spatial data will be uploaded to the Staging Server.
- Ensure map unit symbols for new or updated spatial data match the corresponding tabular data.
- Upload the new or updated spatial data to the Staging Server.

4) Regional Office Soil Staff

- Provide technical support to State Soil Scientists, regional office GIS staff, and regional office ESI staff during the refresh.
- Assist with correcting errors identified throughout the ASR process.

5) Regional Office ESI Staff

- Correct issues with ecological sites that are correlated to components included in the ASR.

V. Step-by-Step Soils Refresh Instructions

1) Run “NASIS to Staging Server Precheck” Reports

Five reports have been created to check soil survey data before it is exported from NASIS to the Staging Server. **The Fatal Errors Precheck must be run before exporting data.** The other reports are optional, but NSSC encourages their use. The descriptions of the reports below are purposefully vague. You should run the report and read the output to understand the specific errors and potential errors identified by the reports.

These reports can be run from the [NASIS web reports webpage](#) (under the Annual Soils Refresh Precheck section) or directly from NASIS. The only difference between the webpage reports and NASIS reports are the parameters selected prior to running the report. Web reports have fewer options but are easier to run. The NASIS reports have more parameters, which means they can control the data being analyzed more precisely. Most users, however, prefer the web reports.

[Appendix A](#) is instructions for the Fatal Error Precheck Report. We currently do not have detailed instructions for the other Precheck reports. If you can understand how the Fatal Error report works, however, you should be able to understand how the others work.

i. NASIS Export to Staging Server: Fatal Errors Precheck

- Required
- Must be run on each soil survey area before exporting data from NASIS to the Staging Server.
- Checks soil survey area for errors that will cause an export from NASIS to the Staging Server to fail.
- Identifies errors that must be addressed before soils data can be successfully exported from NASIS to the Staging Server.

ii. NASIS Export to Staging Server: Ecological Site Precheck

- Optional
- Checks for potential issues with ecological sites correlated to official published components.

iii. NASIS Export to Staging Server: Warnings

- Optional
- Mainly checks for errors that were part of the CART error correction initiative; includes a few additional checks.

iv. NASIS Export to Staging Server: Brief Soil Description Precheck

- Optional
- Checks for discrepancies between the stored brief soil description and the calculated version. Important in case a user forgot to rerun the brief soil description calculation when component information was updated in NASIS.
- The web-based version of this report times out for larger States. If the web-based version fails, run the report in the NASIS Client Editor. It is recommended to run it “Offline Against National Database” for best results.

The following image shows a screenshot of the web-based version of the precheck reports (https://nasis.sc.egov.usda.gov/NasisReportsWebSite/lmsreport.aspx?report_name=WEB-Masterlist).

Annual Soils Refresh

NASIS to Staging Server Export - Fatal Error Precheck

As a soil survey is exported from NASIS to the Staging Server, a Fatal Error script is automatically executed. This script checks the survey area for 21 fatal errors. If even one of these errors is identified, the export fails and the user receives a notification via email. The NASIS to Staging Server Export Fatal Error Precheck report is run in advance of the export process. It identifies errors before starting the time-consuming export procedures. It prechecks all soil survey areas in a State for 15 of the fatal errors. It does not include the 6 fatal errors that are related to the non-MLRA symbol and interpretations, because those issues are out of the users control.

- Runs on an entire State
- Includes both major and minor components
- Includes approved, provisional, and correlated map units in the analysis
- Excludes additional map units
- Only includes representative Data Mapunits (DMUs)
- Only includes legends with a geographic applicability of "current wherever mapped"

NASIS to Staging Server Export - Warnings Precheck

This report mainly checks the survey area for issues that were addressed as part of the CART and NCCPI error data correction initiatives. It also includes a few additional checks. It issues warnings if these errors are found. These warnings will not stop a survey area from exporting from NASIS to the Staging Server, but they indicate data population issues that should be addressed.

- Runs on entire State
- Includes both major and minor components
- Excludes additional map units
- Only includes representative DMUs

NASIS to Staging Server Export - Ecological Site Precheck

This report checks for potential issues with ecological sites correlated to official published map unit components. It reviews ecological site status, looks for components not correlated to an ecological site, and checks for instances of more than one ecological site being linked to a component. It issues warnings based on these checks. These warnings will not stop a survey area from exporting from NASIS to the Staging Server, but they indicate data population issues that should be addressed.

- Runs on entire State
- Excludes additional map units
- Only includes representative DMUs

NASIS to Staging Server Export - Generated Brief Soil Description PreCheck

When a soil survey area is exported from NASIS to the Staging Server, a script is run to ensure a generated brief soil description exists for each component. The script, however, cannot ensure that the generated brief soil description is current. This report solves that problem by comparing the stored description to a calculated description. Differences are identified, and a list of component record IDs is generated to assist with correcting the errors. These warnings will not stop a survey area from exporting from NASIS to the Staging Server, but they indicate data population issues that should be addressed. This web based version of the report may timeout for larger states. If that occurs, you can run the identical report directly out of NASIS. Its titled NASIS to Staging Server Export - Brief Soil Descrip PreCheck and is located in the NSSC Pangaea folder.

- Runs on an entire State
- Includes both major and minor components
- Includes approved, provisional, and correlated map units in the analysis
- Excludes additional map units
- Only includes representative DMUs
- Only includes legends with a geographic applicability of "current wherever mapped"



The following image is a screenshot of the NASIS-client version of the precheck reports, which are in the NSSC_Pangaea folder.



2) Ensure Correct NASIS Group Assignment

Anyone who is exporting from NASIS to the Staging Server or is committing data to the Soil Data Warehouse needs to be in the correct NASIS groups and have the proper eAuth roles.

- Contact RO staff to be added to Staging Sever and Soil Data Warehouse groups.
- Contact SoilsHotline@usda.gov to be added to eAuth roles or to be added to the NASIS group for uploading spatial data to the Staging Server.

i. NASIS Group for Exporting from NASIS to Staging Server

You must be a member of a “Staging XX” group to conduct exports. You need to be in a group that corresponds to the State or island territory of the soil survey area. For example, to export SSA OR021 – Gilliam County, Oregon, you need to be a member of a “Staging OR” NASIS group. It does not matter which RO (or NASIS Site) owns the group. Where more than one RO has areas of responsibility within a State, there can be more than one “Staging XX” group for a State. In Oregon, there is a Staging OR group in the MLRA01_Portland and MLRA02_Davis NASIS Sites. It does not matter which one you are in, and it does not matter if you are in more than one.

The eAuth role for this step is NRCS_SOILS-STAGING_USERS.

ii. NASIS Group for Committing Data to Soil Data Warehouse

You must be a member of a “Warehouse XX” group to commit data from the Staging Server to the Soil Data Warehouse. You need to be in a group that corresponds to the State or island territory of the soil survey area. For example, to commit SSA OR021 - Gilliam County, Oregon, to the Warehouse, you need to be a member of a “Warehouse OR” NASIS group. It does not matter which RO owns the group. Where more than one RO has areas of responsibility within a State, there can be more than one “Warehouse XX” group for a State. In Oregon, there is Warehouse OR group in the MLRA01_Portland and MLRA02_Davis NASIS Sites. It does not matter which one you are in, and it does not matter if you are in more than one.

The eAuth role for this step is NRCS_SOILS-STAGING_USERS.

iii. NASIS Group for Importing Spatial

You must be a member of the Warehouse DU NASIS group to import spatial data into the Staging Server. This group is in the Staging Server site.

The eAuth role for this step is NRCS_SOILS-STAGING_USERS.

3) Load Data into Your NASIS Selected Set

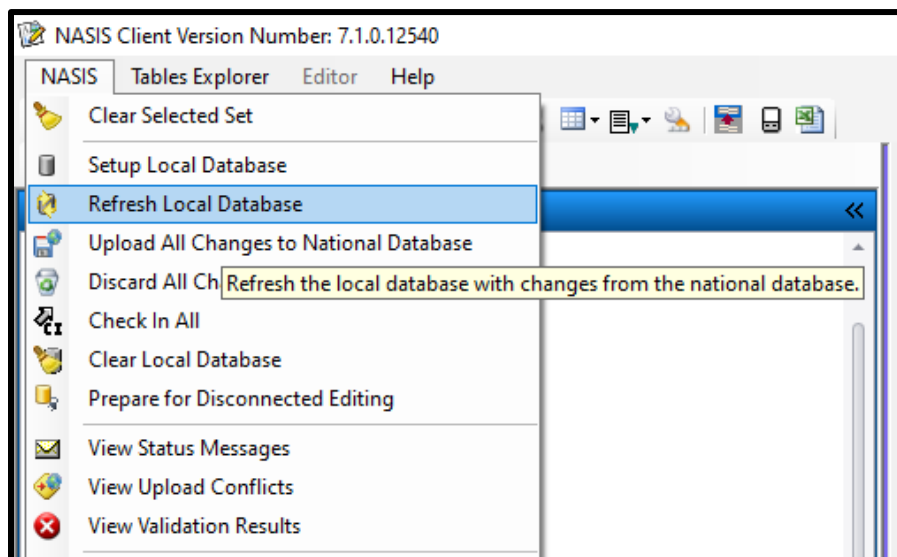
The cleanest way to export data from NASIS to the Staging Server is to load all of the data you want to export into your selected set. It is also possible to load just some data into your selected set, such as a legend, and then use options in the Export window (discussed below) to control which data associated with your legend is exported. This is more complicated.

The following directions reference queries in the NSSC_Pangaea query folder. State Soil Scientists are welcome to use other queries in addition to the ones referenced in this document. If you decide to use your own queries,

however, you need to understand the query and know what data is being loaded into the local database and selected set.

i. Refresh Your Local Database

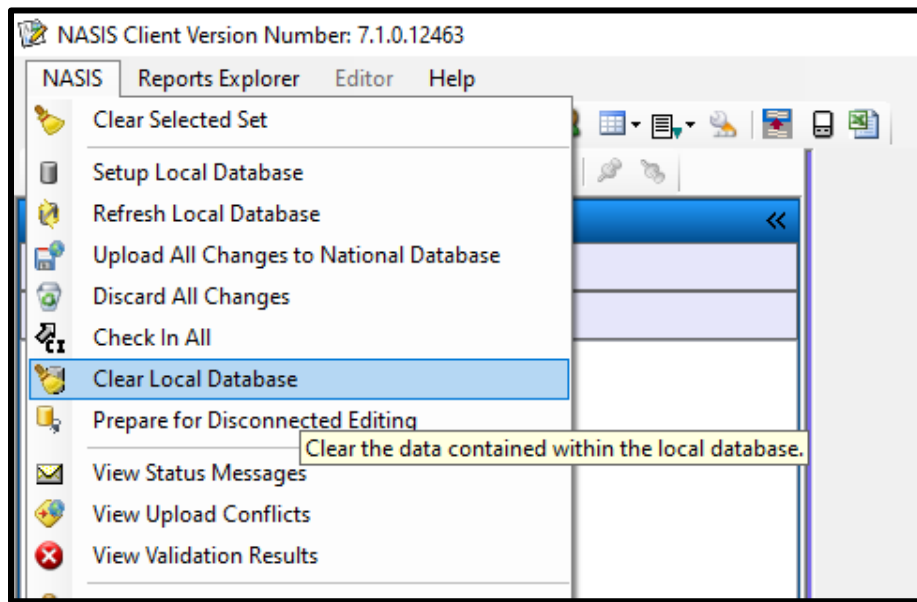
There is always data in your local database, even if you think you have an empty local database. For example, all Ecological Sites are always in your local database. To ensure you are exploring the most up-to-date information, always refresh your local database.



ii. Clear Your Local Database

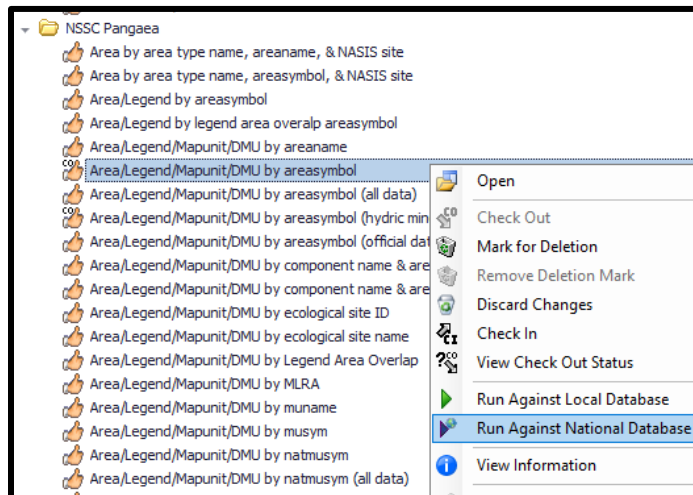
This step is optional but recommended.

You will be loading a large volume of data into your local database. Starting with an empty local database should improve processing time. Decreased performance has been reported in some cases when the local database contained too much data.



iii. Load Data into Local Database

- Open NASIS and run the NSSC_Pangaea query **Area/Legend/Mapunit/DMU by areasymbol** against the national database to add the symbols to your local database.
- Right-click the query and select **Run Against National Database**.



- In the example below, the selected query parameters load all soil surveys in the State of Oregon into the local database.
 - If you don't want to load all the soil surveys for a State into your local database, or if you are having problems doing so, just enter the specific survey area symbol instead of using a combination of the State symbol and wildcard.
 - The process of loading all soil surveys into your local database for the entire State may initially take a long time, but it ultimately saves you time because you only have to run one query against the national database.
- The necessary parameters may be different depending on your State.
- Below are parameters selected for the State of Oregon. This query loads more SSAs than will be exported, but it ensures that all of the needed SSAs are added to the local database.

Selections for Running Query Area/Legend/Mapunit/DMU by areasympol

Target Tables: ☒ Legend ☐ Mapunit ☐ Data Mapunit

Objects to Download: ☒ Legend ☒ Mapunit ☒ Data Mapunit ☐ Pedon ☐ Site

Area Symbol: OR%

Survey Status (1 or more): ☒ extensive revision ☒ initial ☒ nonproject ☒ out-of-date ☒ published ☒ update ☒ update needed

Geographic Applicability (1 or more): ☒ current for part of area ☒ current wherever mapped ☒ not current

Status (1 or more): ☐ additional ☒ approved ☒ correlated ☐ provisional

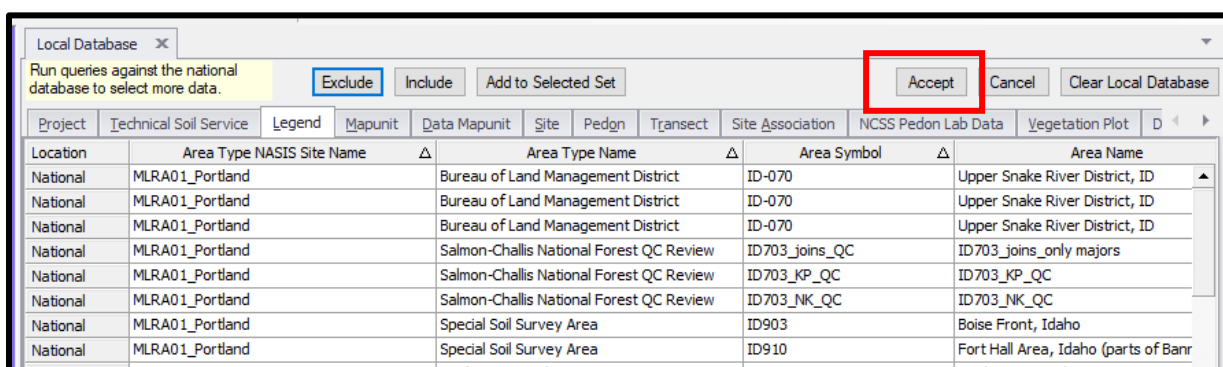
Major Component (1 or more): ☒ True ☒ False

Description: NATIONAL DATABASE: Set target table to LEGEND and download at least LEGEND, MAPUNIT, DATA MAPUNIT.
LOCAL DATABASE: Set target table to AREA, LEGEND MAPUNIT, CORRELATION, and COMPONENT.

Query: 1 FROM area

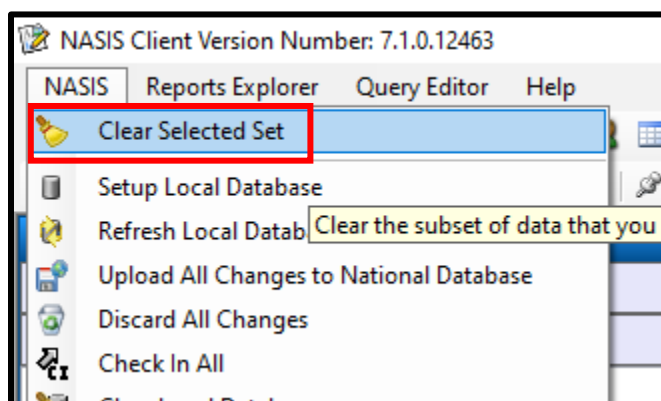
Run Cancel

- After the query has run, the **Local Database** tab opens.
- Click **Accept** to download data from the national database into your local database.
- This process may be lengthy if you queried all soil survey areas in your State.



iv. Clear Selected Set

It is essential that you have the correct data loaded into your selected set before exporting data from NASIS to the Staging Server. To help ensure that you don't export the incorrect information, clear your selected set before moving to the next step.



v. Populate Selected Set, All Components

Run the same NSSC_Pangaea query **Area/Legend/Mapunit/DMU by areasymbol**, but this time run it against the local database to add a single soil survey area into your selected set.

- OR021 is used in the example below.
- It is the responsibility of the SSS to know the correct soil survey status, geographic applicability, map unit status, and major component status to select.
- Work with your local regional office staff if you need assistance in determining the correct parameters.

- If you want to export only major components and hydric minor components, use the query in *section vi* below: [Populate Selected Set, Hydric Minors](#).

Selections for Running Query Area/Legend/Mapunit/DMU by areasympol

Target Tables:

- ☒ Area
- ☐ Legend
- ☒ Legend Mapunit
- ☐ Mapunit
- ☒ Correlation
- ☒ Data Mapunit
- ☐ Component

Area Symbol: OR021

Survey Status (1 or more):

- ☐ extensive revision
- ☐ initial
- ☐ nonproject
- ☐ out-of-date
- ☒ published
- ☐ update
- ☐ update needed

Geographic Applicability (1 or more):

- ☐ current for part of area
- ☒ current wherever mapped
- ☐ not current

Status (1 or more):

- ☐ additional
- ☐ approved
- ☒ correlated
- ☐ provisional

Major Component (1 or more):

- ☒ True
- ☒ False

Description:

NATIONAL DATABASE: Set target table to LEGEND and download at least LEGEND, MAPUNIT, DATA MAPUNIT.

LOCAL DATABASE: Set target table to AREA, LEGEND MAPUNIT, CORRELATION, and COMPONENT.

Query:

```

1 FROM area
2 INNER JOIN legend by default
3 AND area.area symbol LIKE ?

```

Run

Cancel

☐ Check Out

- After the query has run, you should see a message that indicates how many records were added to your selected set.
- Click **Yes**.

Query Results

?

Your query was run against the local database.

1 record was selected for table Area

100 records were selected for table Legend Mapunit

100 records were selected for table Correlation

100 records were selected for table Data Mapunit

Would you like to add these to your selected set?

Yes

No

NOTE: Although it is possible to load more than one SSA into your selected set and export more than one SSA to the Staging Server, it is not recommended. This is because:

- The export process can time out if too much data is exported at once, and it's difficult to know how many SSAs can successfully export at once due to variable SSA size.
- If even one SSA fails the export, the entire export fails.

vi. Populate Selected Set, Hydric Minors

- Follow the guidance in this section if you need to create a selected set that only has major components and hydric minor components.
- After loading data into your local database as outlined in *step iii*, run NSSC_Pangaea query **Area/Legend/Mapunit/DMU by areasympol (hydric minors)** against the local database to add data into to your selected set.
- OR021 is used in the example below.
- You need to select the correct soil survey status, geographic applicability, map unit status, and major component status.
- **NOTE:** Select **Component** in the Target Table to ensure only hydric minors are loaded.

Selections for Running Query Area/Legend/Mapunit/DMU by areasympol (hydric minors)

Target Tables:

- ☒ Area
- ☐ Legend
- ☒ Legend Mapunit
- ☐ Mapunit
- ☒ Correlation
- ☐ Data Mapunit
- ☒ Component

Area Symbol: OR021

Survey Status (1 or more):

- ☐ extensive revision
- ☐ initial
- ☐ nonproject
- ☐ out-of-date
- ☒ published
- ☐ update
- ☐ update needed

Geographic Applicability (1 or more):

- ☐ current for part of area
- ☒ current wherever mapped
- ☐ not current

Status (1 or more):

- ☐ additional
- ☐ approved
- ☒ correlated
- ☐ provisional

Description:

NATIONAL DATABASE: Set target table to LEGEND and download at least LEGEND, MAPUNIT, DATA MAPUNIT.

LOCAL DATABASE: Set target table to AREA, LEGEND MAPUNIT, CORRELATION, and COMPONENT

Query:

```
1 FROM area
2 INNER JOIN legend by default
3 AND area.area_symbol LIKE ?
4 AND legend.soil_survey_area_status IN (?)
5 AND legendsuituse IN (?)
```

Buttons: Run, Cancel, Check Out

vii. Populate Selected Set, NOTCOM Areas

- Follow the guidance in this section if you need to create a selected set that only has the NOTCOM map unit.



- After loading data into your local database as outlined in *step iii*, run NSSC_Pangaea query **Area/Legend/Mapunit/DMU by NOTCOM** against the local database to add data into to your selected set.
- This query ensures only the single NOTCOM map unit is exported for those initial soil survey legends that contain both NOTCOM map units and approved or provisional map units.
- You need to select the correct soil survey status, geographic applicability, and map unit status.

Selections for Running Query Area/Legend/Mapunit/DMU by NOTCOM

Target Tables:

- ☒ Area
- ☐ Legend
- ☒ Legend Mapunit
- ☐ Mapunit
- ☒ Correlation
- ☒ Data Mapunit

Area Symbol:

OR618

Survey Status (1 or more):

- ☐ extensive revision
- ☒ Initial
- ☐ nonproject
- ☐ out-of-date
- ☐ published
- ☐ update
- ☐ update needed

Geographic Applicability (1 or more):

- ☒ current for part of area
- ☐ current wherever mapped
- ☐ not current

Status (1 or more):

- ☐ additional
- ☒ approved
- ☐ correlated
- ☐ provisional

Description:

NATIONAL DATABASE: Set target table to LEGEND and download at least LEGEND, MAPUNIT, DATA MAPUNIT.

LOCAL DATABASE: Set target table to AREA, LEGEND MAPUNIT, CORRELATION, and DATAMAPUNIT.

Query:

```

1 FROM area
2 INNER JOIN legend by default
3     AND area.area_symbol LIKE ?
4     AND legend.soil_survey_area_status IN (?)
5     AND legendsuituse IN (?)
6 INNER JOIN lmapunit by default

```

Run

Cancel

☐ Check Out

viii. Populate Selected Set, NOTPUB Areas

- Follow the guidance in this section if you need to create a selected set that only has the NOTPUB map unit.
- After loading data into your local database as outlined in *step iii*, run NSSC_Pangaea query **Area/Legend/Mapunit/DMU by NOTPUB** against the local database to add data into to your selected set.
- This query ensures only the single NOTPUB map unit is exported for those soil surveys that should not have other information published.
- Use the NSSC_Pangaea query **Area/Legend/Mapunit by musym** if a mixture of NOTPUB and other correlated mapunits should be published.
- You need to select the correct soil survey status, geographic applicability, and map unit status.



Selections for Running Query Area/Legend/Mapunit/DMU by NOTPUB

Target Tables:

- ☒ Area
- ☐ Legend
- ☒ Legend Mapunit
- ☐ Mapunit
- ☒ Correlation
- ☒ Data Mapunit

Area Symbol: WA676

Survey Status (1 or more):

- ☐ extensive revision
- ☐ initial
- ☐ nonproject
- ☐ out-of-date
- ☒ published
- ☐ update
- ☐ update needed

Geographic Applicability (1 or more):

- ☐ current for part of area
- ☒ current wherever mapped
- ☐ not current

Status (1 or more):

- ☐ additional
- ☐ approved
- ☒ correlated
- ☐ provisional

Description:

NATIONAL DATABASE: Set target table to LEGEND and download at least LEGEND, MAPUNIT, DATA MAPUNIT.

LOCAL DATABASE: Set target table to AREA, LEGEND MAPUNIT, CORRELATION, and DATAMAPUNIT.

Query:

```

1 FROM area
2 INNER JOIN legend by default
3 AND area.area_symbol LIKE ?
4 AND legend.soil_survey_area_status IN (?)
5 AND legendsuituse IN (?)
6 INNER JOIN lmapunit by default

```

Run Cancel

☐ Check Out

ix. Add a New Record to Legend Export Certification History Table

This table records information about the data exported from NASIS to the Staging Server. You can also include a list of changes made to the data. For example, you may want to include information about map unit symbol changes or changes in an important soil property or interpretation, such as T factor, LCC, or farm class.

Area								
	Area Type NASIS Site Name	Area Type Name	Area Symbol	Area Name	Area Acres	Survey Status	Correlation	
E	NSSC Pangaea	Non-MLRA Soil Survey Area	OR021	Gilliam County, Oregon	782630	published	03/1978	
Legend Mapunit Legend Area Overlap Legend Certification History Legend Export Certification History Legend Text								
	Reviewer							
Seq	NASIS User Name	Export Cert Date	Export Certification Status	Export Metadata	Record When Last Upd			
E	Winter, Jericho	09/17/2021	certified, all components	Exported as part of 2021 ASR. S...	09/17/2021 16:36:20			
E	Stephens, Kyle	08/16/2012	certified, all components	This survey was exported to the gei...	08/16/2012 17:09:30			
E		01/27/2003	fully cer					
*								

Export Metadata

Exported as part of 2021 ASR. Some surveys in Oregon have only hydric minor components exported, others have custom minors exported, and others have all minors exported.

☒ Wrap text

Find/Replace Spell Check OK Cancel

Prior to each export from NASIS to the Staging Server, a new record should be added to this table. The following four fields should be populated:

- NASIS User Name – The name of the person certifying the data for export. This may not be the person who is creating the export in NASIS.
- Export Cert Date – Date the export will be created.

- Export Certification Status – Please refer to the NASIS Help menu for full definitions of choices, but most people choose “certified, all components.”
- Export Metadata – You can enter any text associated with the certification. This is where you could record lists of musym changes or other major changes to the data being exported. You can also simply note that the legend is being exported as part of the ASR and no major changes were made to the data. There are no national requirements for what content should be added but some regions and States may have their own standards.

Some State Soil Scientists rely on the [Legend Export Certification History Report](#) to generate the content of the Export Metadata.

State Soil Scientist

[NRCS Application Reports - Web Soil Survey Metrics](#)
 (Eauth) This is the web link for the WSS metrics page. Placed here so you will remember

[Farm Class Inconsistencies](#)
 Identifies national musyms used in more than one legend that have different farm class

[State Correlation Report](#)
 This report identifies the old and new map unit correlation information. It prompts for

[Legend Export Certification History Report](#)
 This is a condensed report from the one above. This narrative format provides the three
 then pasted into the Legend Export Certification History table prior to the Legend cert
 History table to supplement this report.

If the report times out with an error, it can be run offline in NASIS.

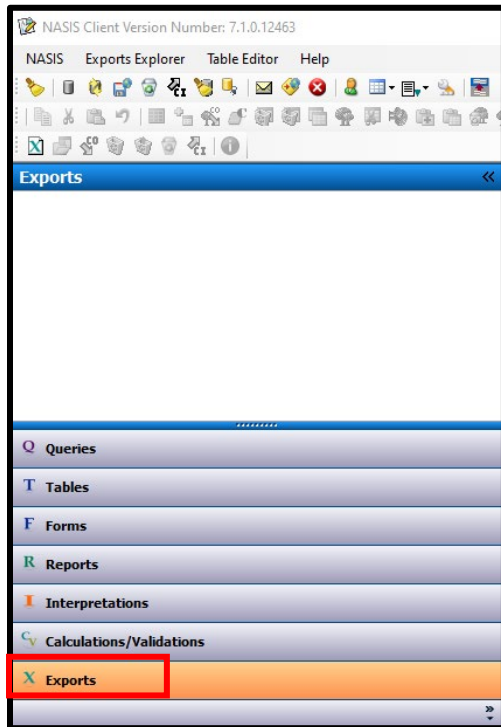


4) Export from NASIS to Staging Server

After data for a soil survey area has been loaded into your selected set, you can export the data to the Staging Server.

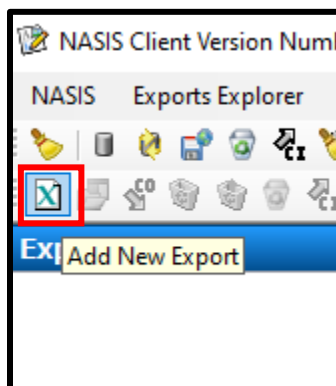
i. Open Exports

Click **Exports** at the bottom left of the NASIS explorer panel.

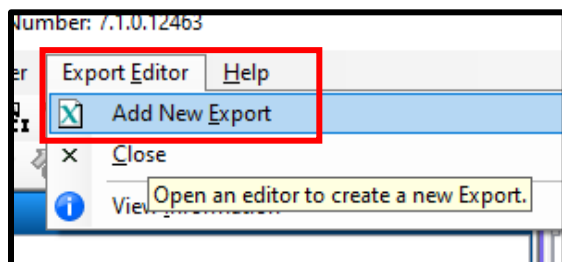


ii. Add New Export

Click the green X in your toolbars to add a new export.



If you don't see the green X icon in your toolbars, click **Add New Export** from the Export Editor drop-down menu.



iii. Select Export Parameters

After you “Add New Export,” the following export parameters dialogue box appears.

Each tab and subsection of a tab within the box is addressed below.

A screenshot of a software window titled 'X (new) #1'. It has four tabs: 'Legend', 'Select Criteria', 'Select/View Interps', and 'Run Export'. The 'Select Criteria' tab is active. It contains several sections with radio buttons and checkboxes. The 'Export Target' section has 'SSURGO' and 'Staging Server' (selected). The 'Choose mapunits for legends in the selected set based on:' section has 'Legend Mapunits in the selected set, whether or not the Mapunit is in the selected set.' (selected) and 'Legend Mapunits in the local database whose Mapunit has a status of:' (unchecked). Below this are checkboxes for 'Provisional', 'Approved', 'Correlated', and 'Additional'. The 'Choose data mapunits based on:' section has 'Data mapunits in selected set' (selected), 'All data mapunits from local database' (unchecked), and 'Data mapunits from local database with certification status of:' (unchecked). Below this are checkboxes for 'Not For Distribution', 'Not Certified', 'Partially Certified, Minimal Data', 'Partially Certified, Major Components', 'Partially Certified, All Components', 'Partially Certified', 'Certified, Minimal Data', 'Certified, Major Components', 'Certified, All Components', and 'Certified'. The 'For mapunits with additional status:' section has 'Use representative data mapunit to which correlated' (selected) and 'Use representative data mapunit for additional mapunit' (unchecked). The 'Choose components based on:' section has 'Components in selected set' (selected), 'All components from selected data mapunits' (unchecked), 'Major components from selected data mapunits' (unchecked), and 'Components from selected data mapunits with % comp greater or equal to 0 percent' (unchecked).

Select Criteria Tab

This tab selects the destination for the export and the criteria for selecting mapunits.

Export Target:

- ► For the ASR, always choose Staging Server as your export target. ◀
- NASIS allows data to be exported two ways.
 - **Staging Server.**—Sends data from the NASIS database to the Staging database. (See figure 1 for reference.)
 - **SSURGO.**—Sends standalone text files to an email recipient or to the SSURGO text file format.

Choose mapunits for legends in the select set based on:

- ► Most SSSs choose “Legend Mapunits in the selected set, whether or not the Mapunit is in the selected set.” ◀
- **Legend Mapunits in the selected set, whether or not the Mapunit is in the selected set.**
 - Only includes those legend mapunits that are loaded into the selected set.
- **Legend Mapunits in the local database whose Mapunit has a status of:**
 - Allows users to export all legend mapunits linked to legend, regardless of whether they are in the selected set. The user can control which are exported based on legend mapunit status.

Choose data mapunits based on:

- ► Most SSSs choose “Data mapunits in selected set.” ◀
- **Data mapunits in selected set**
 - Only includes those data mapunits loaded into the selected set.
- **All data mapunits from local database**
 - Includes all data mapunits linked to map units, regardless of whether they are in your local database.

For mapunits with additional status:

- ► Accept the default: “Use representative data mapunit to which correlated.” ◀
- **Use representative data mapunit to which correlated**
 - Only exports the data mapunit for the map unit that the additional map unit is correlated to, not the representative data mapunit that is linked to the additional map unit.
- **Use representative data mapunit for additional mapunit**
 - Exports the data mapunit that is linked to the additional map unit, as opposed to exporting the data mapunit linked to the map unit the additional map unit is correlated to.

Choose components based on:

- ► Most SSSs choose “Components in selected set.” ◀
- **Components in selected set**
 - Only exports the components within your selected set.
- **All components from selected data mapunits**
 - Exports all components within data mapunits included in the export as identified in the “Choose data mapunits based on” section above, regardless of whether or not the components are in the selected set.
- **Major components from selected data mapunits**
 - Exports all major components within data mapunits included in the export as identified in the “Choose data mapunits based on” section above, regardless of whether or not the components are in the selected set.



- **Components from selected data mapunits with % comp greater or equal to XX percent**
 - Exports components, based on their RV component percent within data mapunits, that are included in the export as identified in the “Choose data mapunits based on” section above; exports components regardless of whether or not they are in the selected set.

[Select/View Interps Tab](#)

This tab allows NASIS users to specify which interpretations are included in a data export.

► *For the export to the Staging Server, all interpretations in the NSSC_Pangaea NASIS Site that are marked as “ready to use” will be included, regardless of whether they are selected. These are the “**required national interpretations**”. They are added to the Select/View Interps Tab by default and they will be included in the export even if you remove them from the list. ◀*

Other interpretations besides the required national interpretations can be added as needed. Most States and island territories include other national, State, or regional interpretations with their exports.

Typically, all interpretations exported the prior year will be exported again. It’s essential to verify the previous year’s interpretations to ensure you are not omitting any of the non-required interpretations. Soil survey areas within a State can have different list of interpretations.

Contact your regional office if you need assistance in determining which interpretations are normally added to exports for soil surveys in your State. You can also see the list of interpretations included in previous refreshes by reviewing information about past NASIS exports. This data is recorded in the NASIS Distribution Metadata object. Reports are available that list the interpretations included in the previous exports. You can also use the Distribution Metadata records to preload interpretations as a starting point, prior to exporting. [Appendix B](#) explains how to use NASIS reports that look at Distribution Metadata. The appendix provides instructions about how to query Distribution Metadata records and how to use them as a starting point prior to exporting data from NASIS.

[Select/View Text Tab](#)

This tab allows NASIS users to choose which text notes to add from several critical text note tables.

► *“Component Text - Nontechnical description” is selected by default, and it must be included in all exports to the Staging Server. ◀*

These text notes store the generated brief soil description. Every published component must have a generated brief soil description populated in NASIS, and this brief soil description must be exported. If a component is missing a generated brief soil description, the export from NASIS to Staging Server will fail. The precheck report checks whether or not the brief soil description exists.

All other text notes are optional. The NSSC encourages SSSs to only export high quality text notes that have been thoroughly reviewed.

NOTE: If you use a Distribution Metadata record as a starting point for your export, the text notes selected for inclusion with that Distribution Metadata export are automatically included in your new export. Appendix B contains more information about understanding and working with Distribution Metadata.

[Run Export Tab](#)

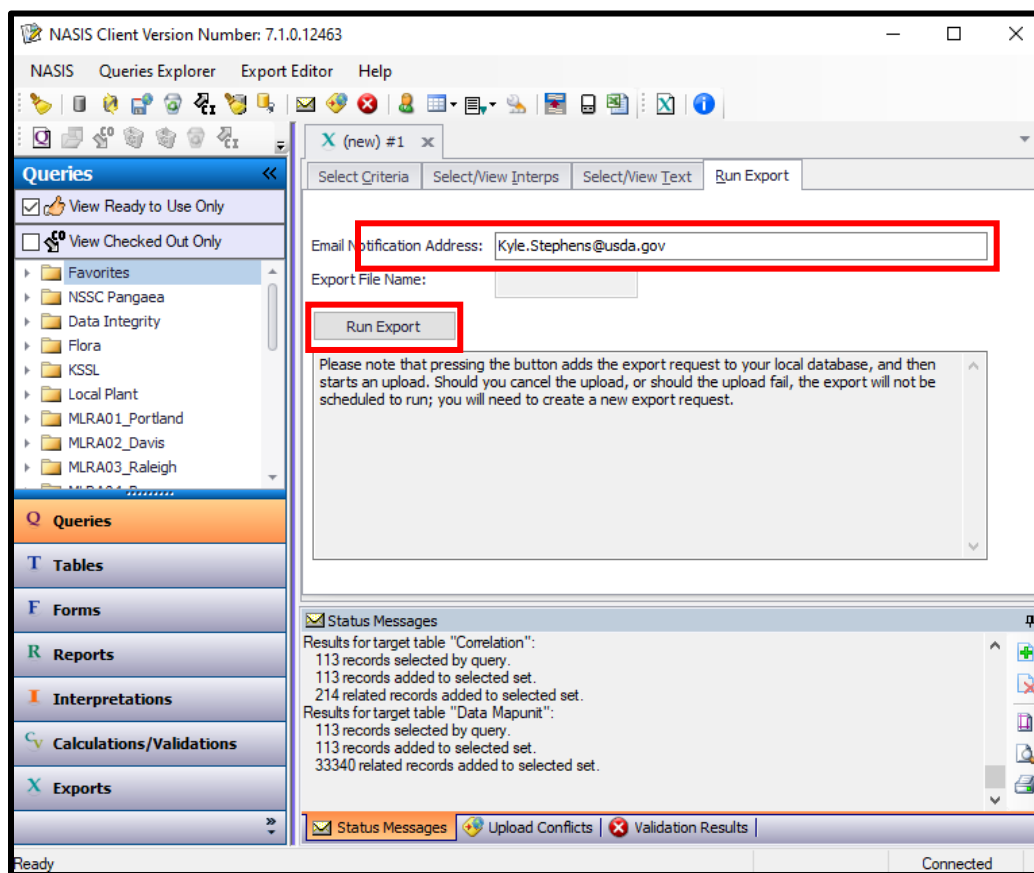
This tab allows you to enter the email address that will receive a message indicating if the export was successful or failed.

iv. Run Export

After you choose the data to be exported, add any interpretations, and add any text notes, you are ready to run the export.

- Enter your email address to receive a status notification.
- Click **Run Export** to initiate the export.

As a reminder, you must be in the “Staging XX” group for the State in which the survey occurs. Refer to the section above titled “Ensure Correct NASIS Group Assignment” for additional guidance.



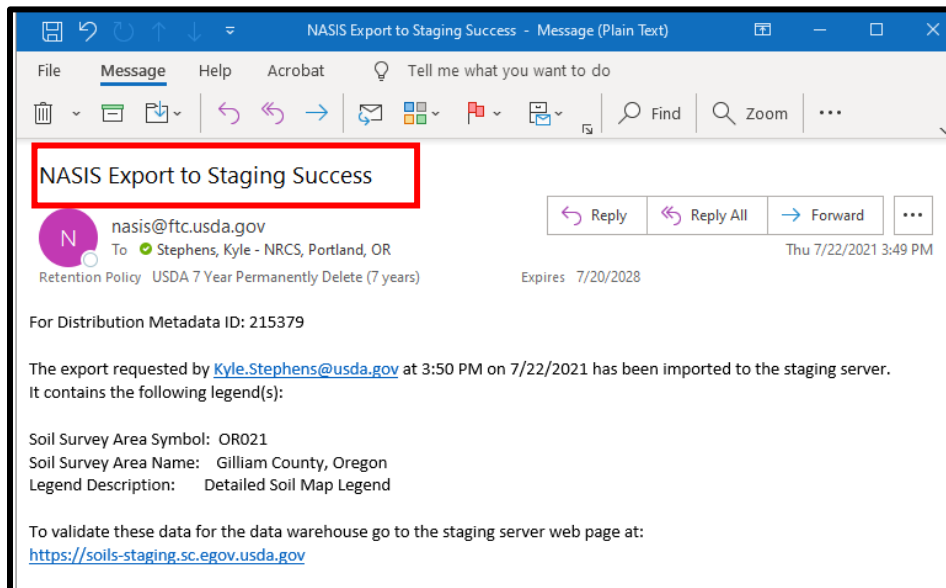
v. Verify Export Was Successful

You will receive an email message indicating if the export (1) was successful, (2) was successful but has warnings, or (3) failed.

NOTE: ► During the ASR, email notifications may be delayed by up to 2 days ◀ because numerous SSAs are being processed simultaneously. If you are unsure about the status of your export, contact the Soils Hotline for assistance.

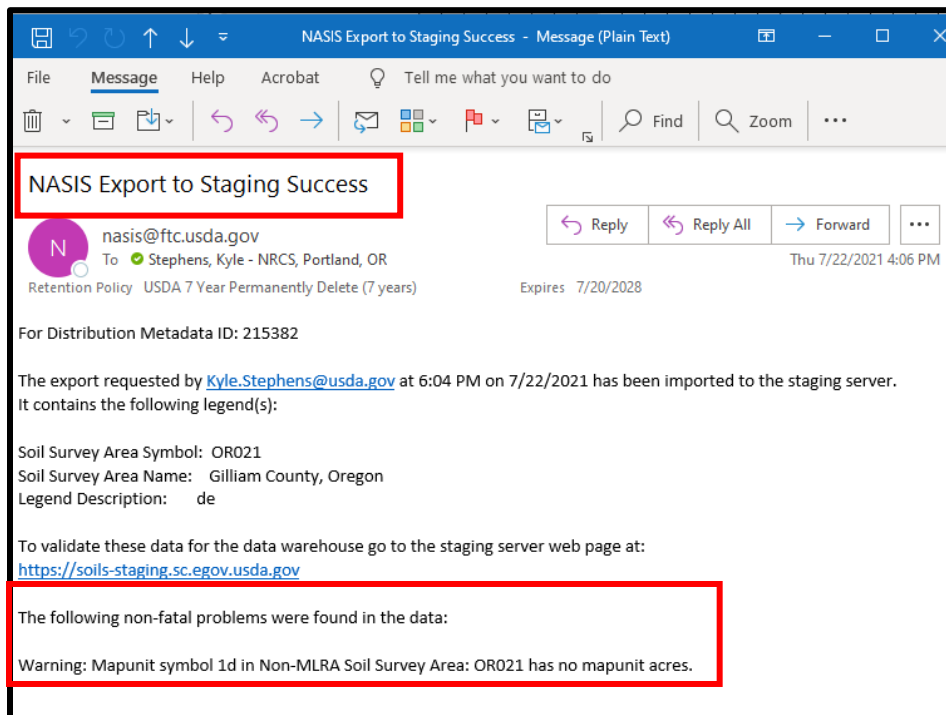
Successful Export

If the export was successful, you will see a message like this:



Successful Export, With Warning

In some cases, the email may state that the export was successful but also include warnings about data quality issues. You aren't required to make changes based on these warnings, but you should review them and consider if any of the potential errors should be corrected. Work with your regional office to understand the issue and decide if a correction is needed. Below is an example email:

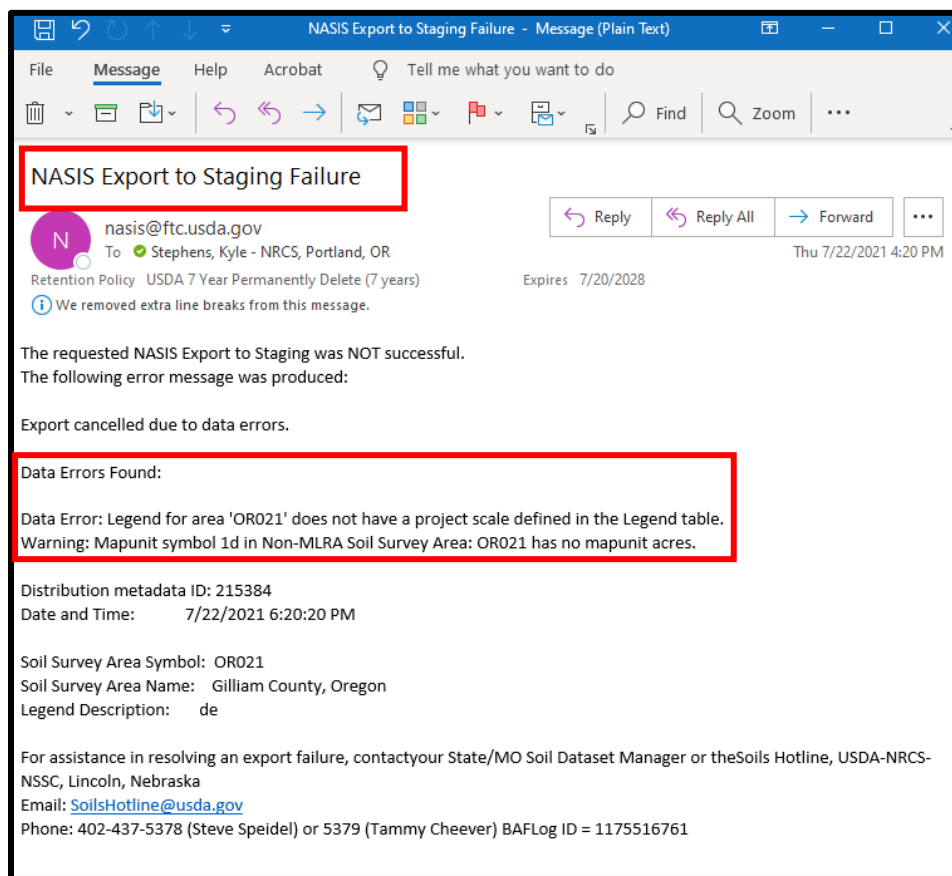


Successful Export, But With Incomplete Data

In rare cases, the export is successful but you receive a message about incomplete data. For example, you may be notified that an interpretation did not run correctly for a component. You aren't required to correct such issues, but the data should be reviewed. Work with your regional office to understand the issue and decide if a correction is needed.

Export Failed

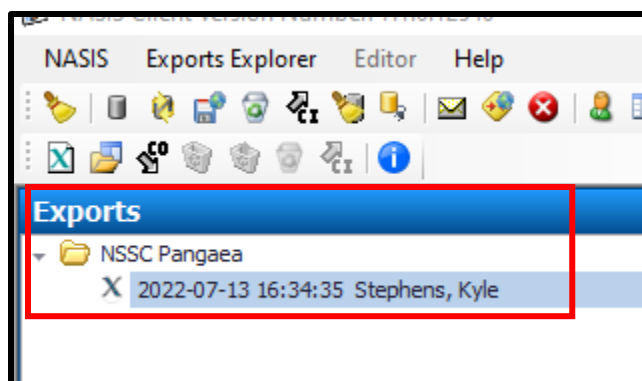
If the export fails, the email identifies possible reasons for the export failure. You will need to work with your regional office to identify and correct the error that is stopping the export. The "NASIS Export to Staging Server – Fatal Errors Precheck" report should also easily locate all errors that cause an export to fail. Below is an example of a message where the export failed due to a missing project scale.



vi. How to Reuse Export Parameters

Export parameters from previous exports can be reused in new exports. This allows for consistency in exports and improves efficiency. The same settings, interps, and text notes will be included in the export. For example, you will be exporting 100 soil surveys. You can create the first export and manually enter the Export Parameters. Then you can use the same settings for the subsequent 99 exports, which saves time, creates consistency, and is a form of quality control.

Each time you create a new export, you will see a record of that export in the Exports window.



If you want to reuse the parameters from a prior export, you can simply double-click on a record in the “Exports” explorer panel (see image above) and it will open a new export window that contains all the same parameters in the selected record. This is as opposed to clicking Add New Export and manually entering the parameters again, which is covered in *step 4) ii* above.

Each time you create an export, a new record is added to the Distribution Metadata table. These records reside in your local database until they are removed. All Distribution Metadata records in your local database will appear in the “Exports” explorer panel (see image above). If you attempt to reuse a previous export, and multiple records appear in the “Exports” explorer panel, you must ensure you are selecting the correct record. You can use the date, time, and username to identify the correct export.

5) Import Spatial Data into Staging Server

This step is required if:

- the existing spatial data for an already published soil survey has been edited, or
- the data is being posted for a soil survey area for the first time.

This step can be skipped if:

- there have been no edits to already published spatial data, and
- the soil survey area isn’t being published for the first time.

Importing the spatial data is the responsibility of the regional GIS specialist. This document does not include step-by-step instructions for importing the spatial data. Contact your RO GIS specialist if you need assistance.

6) Run Verification

After you receive an email notification that the SSA was successfully exported to the Staging Server, open the Staging Server application and verify the data.

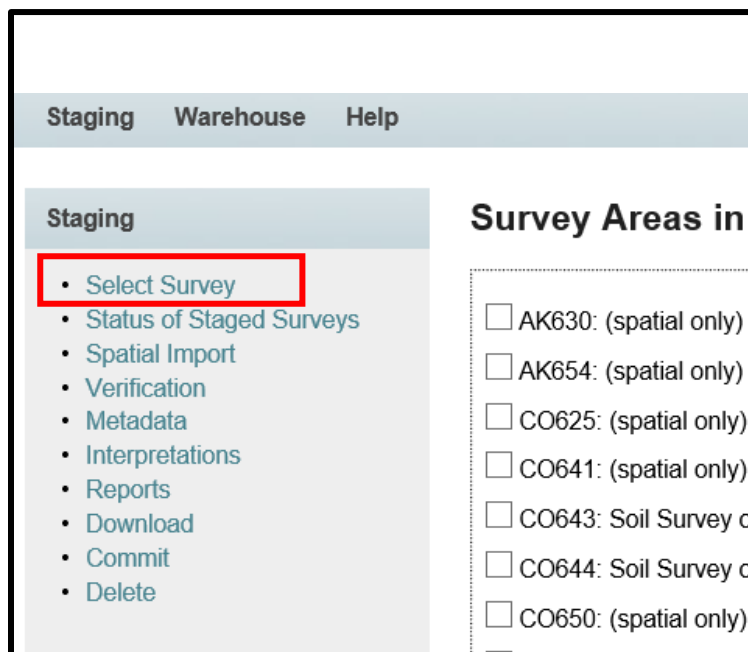
i. Open the Soil Data Warehouse Staging Site (aka Staging Sever)

Link: [Staging Server](#).

This document you are reading may not address every single scenario or message received. The Help menu in the Soil Data Warehouse Staging Site contains concise, well written information. Please consult the Help menu for additional guidance.

ii. Select Your Soil Survey Area

- a. Click **Select Survey** for a list of SSAs currently on the Staging Server.



- b. Check the box next to your SSA, and then click **Apply Selection**, which is at the bottom of the window.

Staging Warehouse Help

Staging

- Select Survey
- Status of Staged Surveys
- Spatial Import
- Verification
- Metadata
- Interpretations
- Reports
- Download
- Commit
- Delete

Selected Surveys

No survey area selected

Survey Areas in Staging Server (pick one or more)

- ☐ NC197: (spatial only)
- ☐ NM656: (spatial only)
- ☐ NM670: (spatial only)
- ☒ OR021: Gilliam County, Oregon (tabular only)
- ☐ PA001: (spatial only)
- ☐ PA017: (spatial only)
- ☐ PA133: (spatial only)
- ☐ SC083: (spatial only)
- ☐ SC085: (spatial only)
- ☐ SC089: (spatial only)
- ☐ SC602: (spatial only)
- ☐ UT625: (spatial only)
- ☐ UT645: (spatial only)
- ☐ UT646: (spatial only)
- ☐ UT647: (spatial only)
- ☐ VA019: Soil Survey of Bedford County, Virginia (spatial only)
- ☐ VA065: (spatial only)
- ☐ VA079: (spatial only)
- ☐ VA085: Soil Survey of Hanover County, Virginia (spatial only)
- ☐ VA109: Soil Survey of Louisa County, Virginia (spatial only)
- ☐ VA111: Soil Survey of Lunenburg County, Virginia (spatial only)

Apply Selection Check All Clear All

This opens the “Status of Staged Surveys” page. You should see your SSA. Notice that the Verification Status is “None.”

United States Department of Agriculture
NRCS Natural Resources Conservation Service

Soil Data Warehouse
Staging Site

Staging Warehouse Help You are logged in as: Stephens, Kyle

Staging

- Select Survey
- Status of Staged Surveys
- Spatial Import
- Verification
- Metadata
- Interpretations
- Reports
- Download
- Commit
- Delete

Selected Surveys

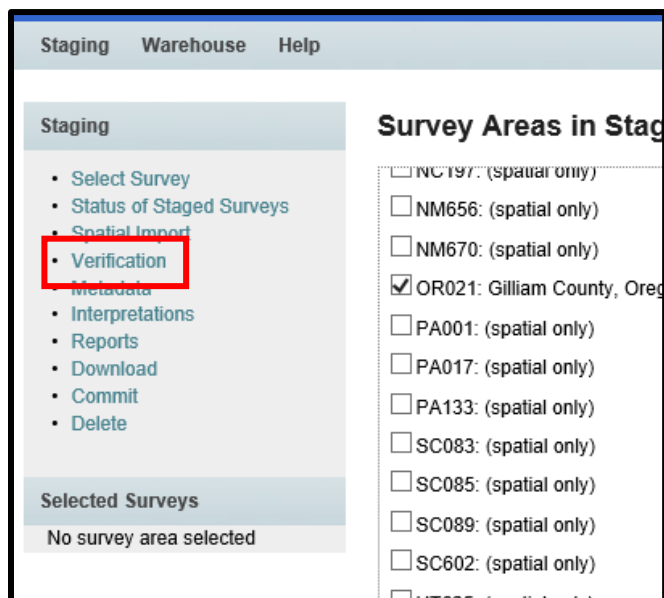
- OR021: Gilliam County, Oregon

Status of Staged Surveys

Area Symbol	Tabular Data		Spatial Data		Verification Status
	Status	Date	Status	Date	
OR021	Recalled	07/23/2021 Stephens, Kyle	Not Imported	n/a	None

iii. Start the Verification

- c. Click **Verification**.

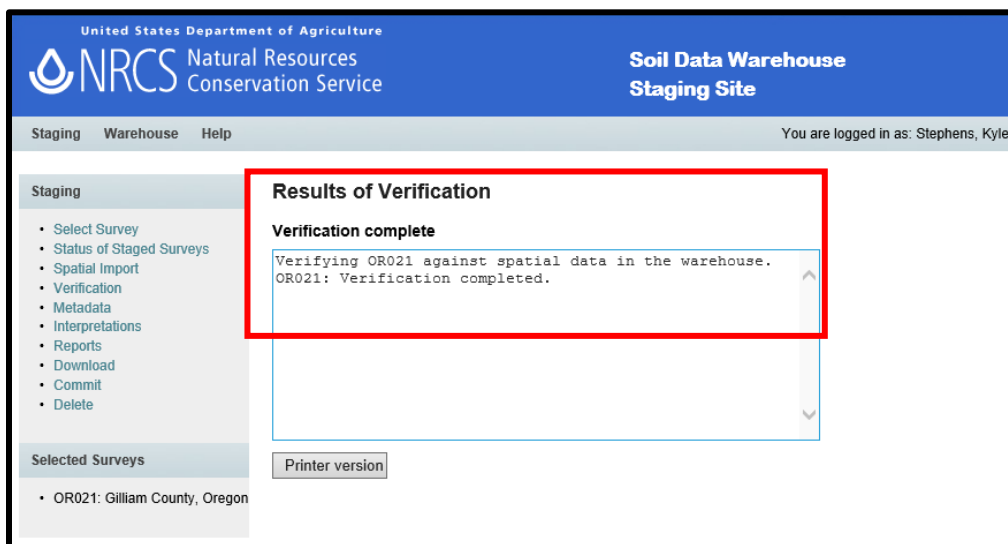


This opens the Verification page.

- d. Click **Begin**.



You will receive a message indicating that either the verification was successful or there was an issue. If the verification fails, you will need to correct the problem before attempting to verify again. Corrections typically require an edit to the spatial data, tabular data, or both. Any data that was edited needs to be exported and uploaded to the Staging Server again before trying to reverify.



The example above demonstrates verification for a soil survey area that has only tabular data in the Staging Server. The verification process compares the tabular data to the spatial data in the Warehouse to ensure the data sets are synchronized for this SSA. You use the exact same process steps for SSAs that have spatial data edits or that are brand new sets of spatial and tabular data.

In special cases that are not part of the ASR, only spatial data is uploaded to the Staging Server. These cases can happen throughout the year. In these cases, you need to recall the tabular data from the Warehouse before verifying.

NOTE: Do not recall data from the Warehouse during the ASR.

7) Commit to Warehouse

After successfully verifying the data, you are ready to commit your SSA to the Soil Data Warehouse, which is the final step.

i. Review/Update Contact Information

This only must be done one time during the ASR.

The contact information needs to be correct for each State. To review the contact information, click **Warehouse** and then click **Contact Info**. Choose your State from the drop-down list and then review and modify the information as needed. Click **Update** if you make changes.

The screenshot shows the 'Soil Data Warehouse Staging Site' interface. At the top, there's a blue header with the NRCS logo and 'United States Department of Agriculture Natural Resources Conservation Service'. Below the header, there's a navigation bar with 'Staging', 'Warehouse' (highlighted with a red box), and 'Help'. On the right of the navigation bar, it says 'You are logged in as: Stephens, Kyle'. On the left, there's a sidebar with 'Warehouse' and a list of links: 'Warehouse Recall', 'Template DBs', and 'Contact Info' (highlighted with a red box). The main content area is titled 'Contact Info' and contains the text 'Update contact information for State Soil Scientist'. Below this, there's a form with a 'State' dropdown menu set to 'AL'. The form fields include: 'Name' (Christopher Davis), 'Phone *' (334-887-4559), 'TDD/TTY' (800-877-8339), 'Fax' (334-887-4551), 'E-mail' (christopher.davis@usda.gov), 'Address' (3381 Skyway Drive), 'City *' (Auburn), 'State *' (AL), and 'Zip *' (36831-0311). At the bottom of the form, there's an 'Update' button highlighted with a red box.

ii. Open Commit Page and Start Validations

Click **Commit** to open the Commit page. Click **Continue** to start a series of validations against the data. You will be notified if an issue needs to be corrected. You must correct any issues in the data before trying the re-commit. Such issues may require you to re-export data from NASIS, upload spatial data to the Staging Server, or both.

United States Department of Agriculture
NRCS Natural Resources Conservation Service

Soil Data Warehouse
Staging Site

Staging Warehouse Help You are logged in as: Stephens, Kyle

Staging

- Select Survey
- Status of Staged Surveys
- Spatial Import
- Verification
- Metadata
- Interpretations
- Reports
- Download
- **Commit**
- Delete

Commit

Preparing to commit data to the warehouse

A series of validation checks will be performed and the results will be displayed before moving the survey area(s) to the Soil Data Warehouse.

(This may take a minute or two.)

Selected Surveys

- OR021: Gilliam County, Oregon

If the validations are successful, you receive the message “OK to commit.”

Commit

Results of Validation Tests

```
OR021: Spatial data unchanged, using existing spatial version
OK to commit.
```

Further options appear on the Commit page. Your further selections depend on if there is a change to the area symbol (which is uncommon) or there is no change to the area symbol (which is common).

iii. No Change to Area Symbol

Changes to area symbols are uncommon. If you have not changed the area symbol for your SSA, ensure the correct email address is listed and click **Commit**.

United States Department of Agriculture
NRCS Natural Resources Conservation Service

Soil Data Warehouse
Staging Site

Staging Warehouse Help You are logged in as: Stephens, Kyle

Commit

Results of Validation Tests

OR021: Spatial data unchanged, using existing spatial version
OK to commit.

Indicate those survey areas that are a replacement (complete or partial) for an archived SSURGO with a different area symbol:
☐ OR021

Enter old area symbols (separated by commas) that should be removed from the data mart:

After copying the data to the warehouse, they will be removed from the staging site. You will receive a notice by email when the process is complete.

Email address:

The following page appears. It does not indicate that the commit was successful, only that it was submitted. You need to wait for an email message to indicate if the commit worked.

NOTE: ►During the ASR, email notifications may be delayed by up to 2 days◀ because numerous SSAs are being processed simultaneously. If you are unsure about the status of your committed SSA, contact the Soils Hotline for assistance.

United States Department of Agriculture
NRCS Natural Resources Conservation Service

Soil Data Warehouse
Staging Site

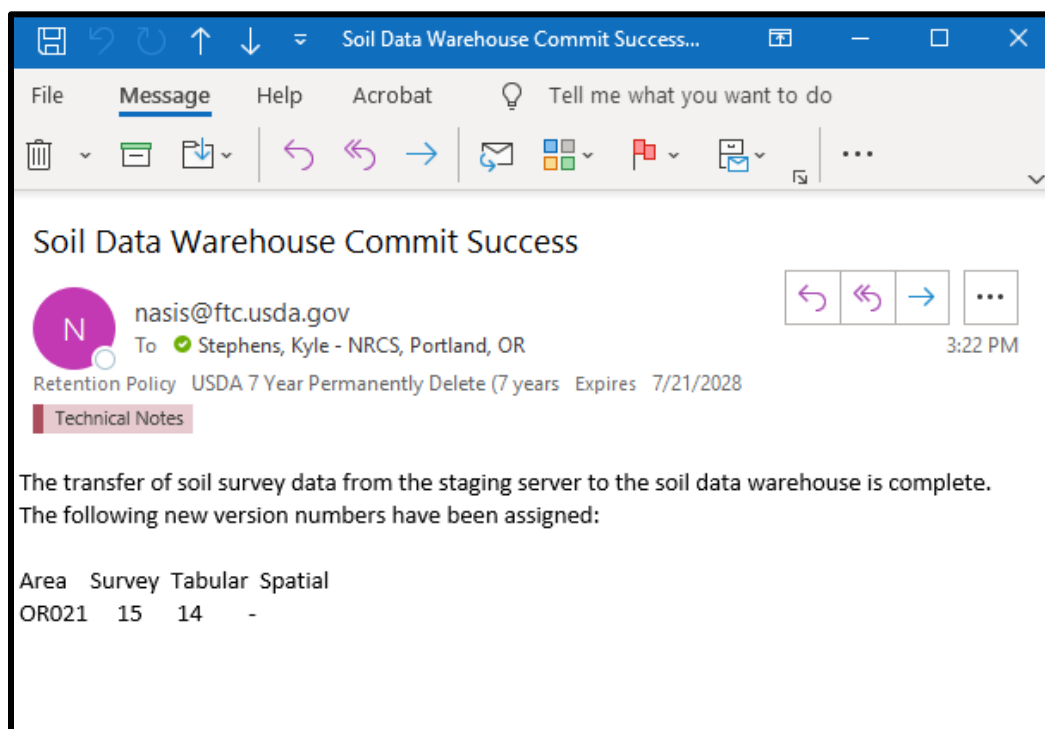
Staging Warehouse Help You are logged in as: Stephens, Kyle

Commit

Commit to Warehouse Submitted!

Data for these area(s) will be copied from the staging site into the data warehouse, and you will receive an email message when it is complete. The data will not appear in Web Soil Survey until the next database refresh.

The following message indicates success; that is, the SSA has been committed as part of the ASR.



iv. Change to Area Symbol (Special Case Scenario)

In rare cases, the area symbol for a soil survey area is changed. This can occur for a variety of reasons. Additional information is then necessary for the Warehouse to associate data using the old area symbol with data using the new area symbol. This information is added from the Commit page.

When a symbol is changed, check the box next to any symbol that changed from a previously saved SSA. The box is under the heading **“Indicate those survey areas that are a replacement (complete or partial) for an archived SSURGO with a different area symbol.”**

- Don't check the box if this is a normal update to an existing survey area.
- Don't check the box if the area being replaced was non-SSURGO (tabular only).

A text box follows the heading **“Enter old area symbols (separated by commas) that should be removed from the data mart.”** In this box, enter one or more symbols using a comma between each (no spaces). These survey areas are marked as “retired” in the data warehouse and no longer appear in the data mart.

NOTE: It is best to check in all survey areas with new symbols at the same time to avoid overlapping datasets. If, however, you are splitting a survey area but need to check in only one of the new survey areas, mark the new area as a replacement but do NOT request removal of the old symbol. Wait to make that designation until you check in the last survey area that finishes the replacement.

In the hypothetical example below, OR021 would be a new area symbol that is replacing the old symbol OR999. These settings would retire OR999 in the Warehouse and add the new symbol OR021.

United States Department of Agriculture
NRCS Natural Resources Conservation Service

Soil Data Warehouse Staging Site

Staging Warehouse Help You are logged in as: Stephens, Kyle

Staging

- Select Survey
- Status of Staged Surveys
- Spatial Import
- Verification
- Metadata
- Interpretations
- Reports
- Download
- Commit
- Delete

Selected Surveys

- OR021: Gilliam County, Oregon

Commit

Results of Validation Tests

```
OR021: Spatial data unchanged, using existing spatial version
OR021: Tabular data unchanged, using existing tabular version 14
OK to commit.
```

Indicate those survey areas that are a replacement (complete or partial) for an archived SSURGO with a different area symbol:

☒ OR021

Enter old area symbols (separated by commas) that should be removed from the data mart:

OR999

After copying the data to the warehouse, they will be removed from the staging site. You will receive a notice by email when the process is complete.

Email address: Kyle.Stephens@usda.gov

Commit

END OF ASR PROCESS STEPS

Appendix A: Instructions for Using “NASIS Export to Staging Server Fatal Error Precheck” Reports

1) Introduction

When a soil survey is exported from NASIS to the Staging Server, a behind-the-scenes "Fatal Error" script is automatically run. This script checks the survey area for 29 fatal errors (table 1). If any of these errors occurs, the export fails and the user receives a notification via email.

The export process is time consuming. Users must:

- Load soil survey areas into NASIS.
- Export soil surveys areas from NASIS to the Staging Server.
- Wait for email notification indicating export success or failure.
- Fix errors and try again.

This process is even more tedious during the Annual Soils Refresh (ASR), when over 3,500 soil surveys are exported from NASIS to the Staging Server in a matter of weeks. This mass export overwhelms the system, causing significant delays (up to 2 days) in the email notifications.

In an effort to make the ASR more efficient, the Database Focus Team has created a NASIS report that replicates 23 of the 29 fatal errors (table 1). It doesn't include the 6 fatal errors that are related to either the:

1. Formatting of the non-MLRA symbol
 - a. This is outside the control of the regions and States.
 - b. There should be no errors in the formatting of these symbols.
2. Errors in NASIS interpretations
 - a. National interpretations are outside of the control of regions and States, and there should be no errors in the national interpretations.
 - b. Errors may exist in regional interpretations, but the use of these cannot be predicted; therefore, we can't determine which regional interpretations to check with the report.

Table 1.—Fatal Errors Check

[List of errors that are checked for when a survey area is exported from NASIS to the Staging Server. Errors in *red* are not included in the NASIS precheck report.]

	Errors Checked for During Export	In NASIS Report	NASIS Table
1	Area symbol in legend is not a Non-MLRA SSA that is owned by the NSSC_Pangaea NASIS Site.	Yes	Legend
2	<i>Badly formed area symbols.</i>	<i>No</i>	<i>Area</i>
3	<i>Area symbols more than 7 characters long.</i>	<i>No</i>	<i>Area</i>
4	<i>Areas with name or acres missing.</i>	<i>No</i>	<i>Area</i>
5	No State is populated in the Legend Area Overlap table.	Yes	Legend Area Overlap
6	No county is populated in the Legend Area Overlap table that corresponds to the State. For example, if the state is Oregon, a county in Oregon must also be in the Legend Area Overlap table.	Yes	Legend Area Overlap
7	No corresponding State exists in the Legend Area Overlap table for the county that is populated. For example, if a county in Wisconsin is populated, the State of Wisconsin must also be populated.	Yes	Legend Area Overlap
8	NULL project scale.	Yes	Legend
9	Duplicated map unit symbols exist. This can occur if the map unit status is different.	Yes	Legend Mapunit
10	NULL map unit name.	Yes	Mapunit
11	Data map unit used more than once in the correlation table as representative.	Yes	Correlation
12	NOTCOM map unit symbol is not capitalized.	Yes	Legend Mapunit
13	NOTCOM map unit symbols are not linked to the national NOTCOM map unit.	Yes	Legend Mapunit
14	National NOTCOM map unit is used in the legend but is not using a NOTCOM map unit symbol.	Yes	Legend Mapunit
15	NULL component name.	Yes	Component
16	Components that have data in the component month table but at least one record in the table has a NULL month.	Yes	Component Month
17	Entries in the Component Text table have a component text kind of nontechnical description but have a NULL category.	Yes	Component Text
18	Components that don't have a record in the Component Text table with a component text kind of nontechnical description.	Yes	Component Text
19	<i>Interpretations don't meet SDV requirements.</i>	<i>No</i>	<i>Rule</i>

	Errors Checked for During Export	In NASIS Report	NASIS Table
20	<i>Primary rule is not marked "ready to use."</i>	No	Rule
21	<i>National interpretations use rules not owned by Pangaea.</i>	No	Rule
22	Legends that have either a NULL geographic applicability or a geographic applicability not equal to "current wherever mapped."	Yes	Legend
23	Mapunits that do not have a single data mapunit flagged as representative in the Correlation table.	Yes	Correlation
24	Data mapunits that have a sum of RV component percentages greater than 100%.	Yes	Datamapunit
25	Data mapunits that do not have any component records.	Yes	Datamapunit
26	Components that are flagged as major but have a RV component percent less than 10 or have a NULL RV component percent.	Yes	Component
27	Components that have a duplication of both the horizon top and bottom RV depth.	Yes	Horizon
28	Components that have a NULL horizon RV top or bottom depth.	Yes	Horizon
29	Components with horizon top and bottom RV depths that have gaps or overlaps.	Yes	Horizon

The report is designed as a precheck to be run in advance of exporting a survey area. It allows the State Soil Scientist to identify survey areas that will fail the export. It can be run on a single survey area or an entire State.

2) Report Overview

The fatal errors precheck report has two versions. The outputs are identical. The only differences are the locations from which you run the report and the parameters that can be selected prior to running the report.

v. Web-based Report

- Can be run in a browser via URL.
- Only has one parameter, which means more assumptions are made about what survey areas should be included.
- Includes a slim chance that data could be excluded.
- Includes a chance that undesirable data may be included.
- Can only be run on an entire State.

vi. NASIS-based Report

- Must be run from within NASIS.
- Has four parameters, which give the user more control over the output.
- Can be run on a single soil survey area or entire State.

3) Web-Based Version of the Report

The web-based version can be run outside of NASIS, and it has only one parameter as an option. It makes more assumptions than the NASIS version, but it works well for most of the country. There is a chance that a survey area could accidentally be excluded or that extra surveys errors could be included in the report output.

Name: NASIS Export to Staging Server - Fatal Error Pre-Check

Location: On the web-based [master list of NASIS reports](#), under the heading Annual Soils Refresh Precheck.

Annual Soils Refresh Precheck

[NASIS Export To Staging Server - Fatal Error Pre-Check](#)

When a soil survey is exported from NASIS to the Staging Server, a Fatal Error script is automatically identified, the export will fail, with the user receiving notification via e-mail. This report is designed to identify fatal errors that are related to the non-MLRA symbol and interpretations, because those issues are often caught during the export process, allowing errors to be identified before moving through the time-consuming export process.

- Runs on entire state
- Includes both major and minor components
- Includes approved, provisional, and correlated map units in the analysis
- Excludes additional map units
- Only includes representative DMUs
- Only includes legends with a geographic applicability of current wherever mapped



i. **How to Use Web-Based Report**

- 1) Click **NASIS Export to Staging Server – Fatal Error Pre-Check**. ([Direct link to report here](#))
- 2) Choose your State from the drop-down list.

Staging Server Checks

Select the state symbol below to run report

Select State Submit

AK

AL

- 3) Report runs against the national NASIS database. All surveys for the selected State are included in the output. The upper part of the report output includes the list of fatal errors being checked and information about how the report works.
- 4) The survey areas are listed on the left.

<i>Area Symbol</i>	<i>Area Name</i>	<i>Survey Status</i>	<i>Geographic Suitability</i>
OR003	Benton County, Oregon	Published	current wherever mapped
OR007	Clatsop County, Oregon	Published	current wherever mapped
OR009	Columbia County, Oregon	Published	current wherever mapped



- 5) Each survey area is evaluated in the column “STAGING SERVER EXPORT PASS/FAIL CHECK.”

Area Symbol	Area Name	Survey Status	Geographic Suitability	STAGING SERVER EXPORT PASS/FAIL CHECK
OR003	Benton County, Oregon	Published	current wherever mapped	PASS
OR007	Clatsop County, Oregon	Published	current wherever mapped	FAIL
OR009	Columbia County, Oregon	Published	current wherever mapped	FAIL
OR011	Coos County, Oregon	Published	current wherever mapped	FAIL
OR015	Curry County, Oregon	Published	current wherever mapped	PASS

- **PASS** indicates that the survey area passed all 15 fatal error prechecks. The survey should successfully export. (You could still have problems if there are errors related to local regional office interpretations.)
- **FAIL** indicates that the survey failed at least one of the 15 checks. The survey will not successfully pass the export process.

Important Note: The web-based report includes minor components, provisional map units, and approved map units. These map units and minor components may not be part of your intended export, and they could cause false errors.

- 6) The 15 fatal errors are checked for each survey and are numbered 1 through 15 in the second row. These numbers correspond to the list at the top of the report.

Important Note: Only errors are displayed. Empty cells mean no error.

Area Symbol Not Valid	State Missing	State Missing County	County Missing State	Project Scale NULL	MUSYM Duplicated	DMU Duplicated	Mapunit Name NULL	NOTCOM Error 1	NOTCOM Error 2	NOTCOM Error 3	Component Name NULL	Component Month NULL	Brief Soil Description Error 1	Brief Soil Description Error 2
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
													ERROR: Click For Details	
													ERROR: Click For Details	
													ERROR: Click For Details	

- 7) A red **ERROR** is related to the legend. You will need to load that legend in NASIS and correct the error.

Area Symbol Not Valid	State Missing	State Missing County	County Missing State	Project Scale NULL	MUSYM Duplicated	De
1	2	3	4	5	6	
ERROR: Must Use NSSC Pangaea Owned Non-MLRA SSA	ERROR: No State or Territory in Legend Area Overlap Table			ERROR: Missing Project Scale		
ERROR: Must Use NSSC Pangaea Owned Non-MLRA SSA	ERROR: No State or Territory in Legend Area Overlap Table			ERROR: Missing Project Scale	ERROR: Click For Details	

- 8) **ERROR: Click For Details** is related to map units or data map units. Clicking the error opens a subreport that displays the offending data.

MUSYM Duplicated	DMU Duplicated	Mapu Nam NUL
6	7	8
	ERROR: Click For Details	

Click the link and a subreport opens.

DMU Records Used More Than Once As Rep		
To copy into Excel: select all (Ctrl+A) then copy (Ctrl+C).		
AREASYMBOL	Area_Name	Duplicated_DMU_record_ID
*149A	149A Work Site	446856
*149A	149A Work Site	455308
*149A	149A Work Site	497323

- 9) Some subreports contain a comma-delimited list of component record ids. This list can be used to quickly load the offending components into your selected set. The subreport also references the query required to load the data.

Below are the component record ids, separated by commas. You can copy and paste them into the MLRA01_Portland query "Area/Legend/Mapunit/DMU by COIID" t

(72259, 72353, 72359, 72626, 72614, 72478, 72610, 72631, 72262, 72313, 72322, 72267, 72242, 72247, 72340, 72346, 72349, 72355, 72363, 72433, 72436, 72491, 72376, 72382, 1526474, 1526498, 72300, 72306, 72661, 72666, 72423, 72430, 72442, 72437, 72223, 72316, 72268, 72269, 72413, 1535025, 72688, 72510, 72604, 72607, 72284, 72294, 72286, 72405, 72580, 72504, 72686, 1535023, 72234, 72375, 72381, 72387, 1526472, 1526496, 72522, 72529, 72541, 72243, 72248, 72339, 72347, 72350, 72354, 72362, 72635, 72329, 72334, 72371, 72445, 72508, 72253, 72427, 72674, 72485, 72492, 72499, 72468, 72480, 72357, 72222, 72318, 72366, 72361, 72352, 72678, 72497, 72630, 72324, 72501, 72235, 72296, 72302, 72308, 72410, 72416, 72451, 72456, 72461, 72466, 72520, 72527, 72540, 72471, 72483, 72490, 72548, 72552, 72562, 72566, 72639, 72645, 72664, 72670, 72660, 72675, 72403, 72681, 72680, 72682, 72292, 72418, 72513, 72251, 72241, 72246, 72257, 72369, 72229, 72422, 72429, 72435, 72441, 72368, 72327, 72332, 72337, 72344, 72637, 72643, 72649, 72653, 72372, 72446, 72525, 72532, 1526510, 72609, 72632, 72278, 72283, 72617, 72605, 72608, 72512, 72408, 72297, 72303, 72309, 72374, 72380, 72386, 1526475, 72458, 72463, 72412, 72274, 72535, 1526517, 72638, 72644, 72650, 72654, 72542, 72684, 72523, 72530, 72299, 72305, 72311, 72377, 72383, 1526475, 1526517, 72536, 1526509, 1526508, 72524, 72531, 72425, 72432, 72444, 72439, 72402, 72275, 72521, 72528, 72543, 72310, 72547, 72551, 72561, 72565, 72293, 72578, 72569, 72573, 72591, 72596, 72228, 72424, 72431, 72443, 72438, 72317, 72224, 72270, 72271, 72282, 72517, 72279, 72599, 72602, 72634, 72622, 72564, 72343, 72449, 72454, 72459, 72464, 72469, 72481, 72488, 72475, 72495, 1526518, 72659, 72470, 72482, 72489, 72328, 72333, 72338, 72450, 72455, 72378, 72384, 1526476, 1526500, 72358, 72258, 72612, 72629, 72370, 72319, 72325, 72254, 72514, 72293, 72582, 72505)

4) NASIS-Based Version of the Report

This version can be run from within NASIS. Although it requires you to log into NASIS, it gives you more control of the output of data. It allows you to select several parameters that can assist with filtering the resultant data. It can be run on the national or local database. It's easier to run on the national.

Name: NASIS Export to Staging Server - Fatal Errors Precheck

Location: NSSC_Pangaea folder

i. How to Use NASIS Version of the Report

- 1) Open NASIS and refresh your local database.
- 2) Go to **Reports** > Open the **NSSC_Pangaea** folder > Right-click on **NASIS to Staging Server Export - Fatal Errors Precheck** and select **Run Against National Database**.



3) Choose the appropriate parameters and click **Run**.

Selections for Running Report !_NASIS to Staging Server Export - Fatal Errors Pre Check

Survey Symbol (wildcard use %
e.g. OR%):

Select one or more map unit status
(0 or more):

- ☐ additional
- ☐ approved
- ☒ correlated

Select one or more soil survey
status (0 or more):

- ☒ extensive revision
- ☒ initial
- ☐ nonproject
- ☐ out-of-date
- ☒ published

Select one or more geographic
applicability (0 or more):

- ☒ current for part of area
- ☒ current wherever mapped

Description: THIS REPORT WILL ASSIST WITH THE SSURGO EXPORT
PROCESS.
When a soil survey is exported from NASIS to the Staging Server, a

Report:

```
1 'ER area_sym ELEMENT areasymbol PROM
2 'ER mu_status ELEMENT lmapunit.musta
3 'ER survey_status ELEMENT legend.ssa
4 'ER major ELEMENT component.majcompf
5 'ER legend_suit_use ELEMENT legend.l
6
```

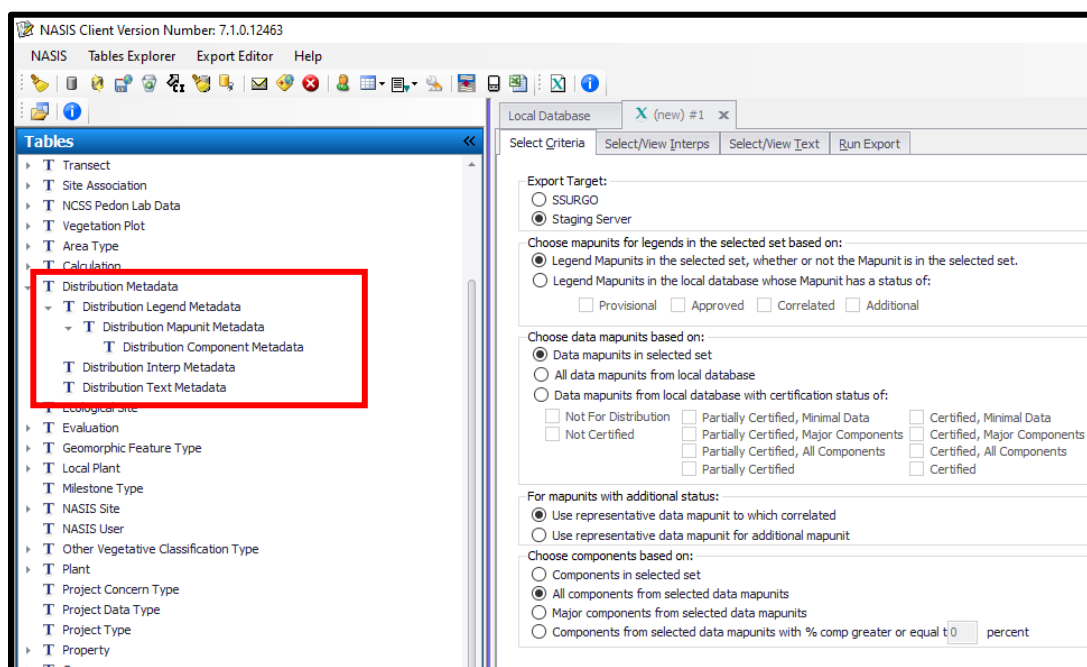
Run
Cancel

Appendix B: Interpretations Used in Past NASIS Exports

Identifying Interpretations Used in Previous NASIS Exports and
How to Use Distribution Metadata to Preload Interpretations for New Exports

1) Introduction

When a soil survey is exported from NASIS, a permanent record of what was exported is created and stored in the Distribution Metadata object. This object contains a set of tables that are viewable by all NASIS users. The tables can be queried and loaded into your selected set, just like any others in NASIS.

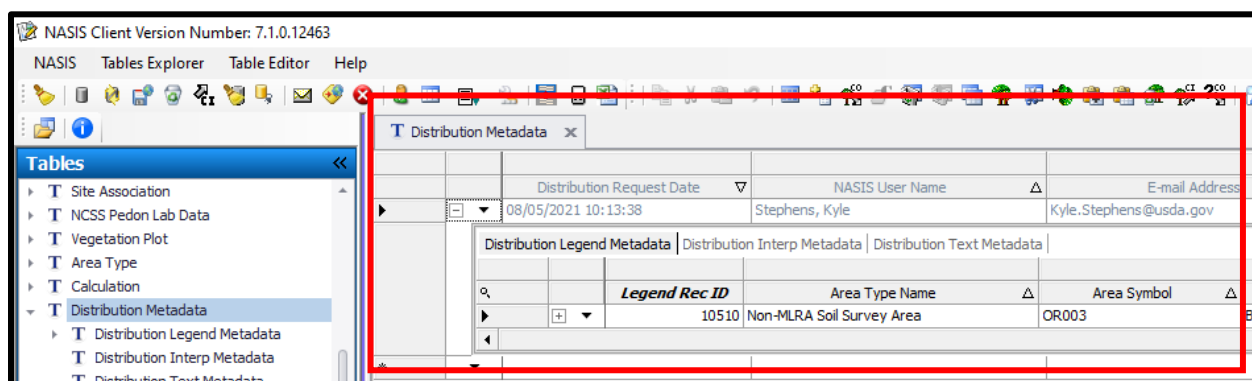


The Distribution Metadata object is a collection of tables that are used to document the following information about NASIS Exports.

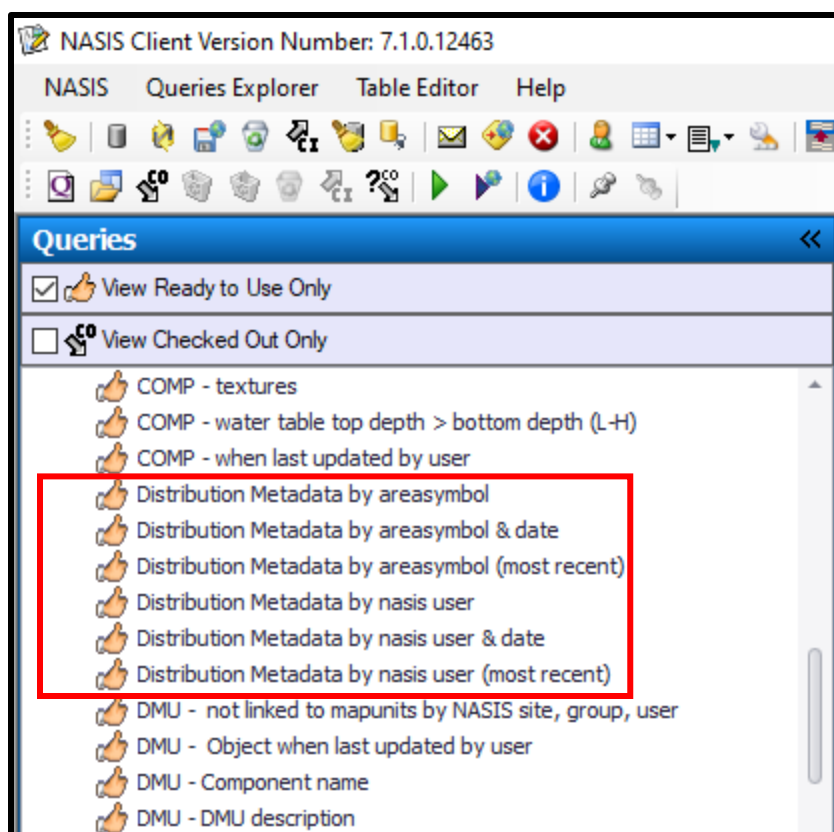
- Time and date of export
- NASIS user who conducted export
- Export type: SSURGO or Staging Server
- Area symbols exported (i.e., legends exported)
- Mapunits exported
- Data mapunits exported
- Components exported
- Interpretations exported
- Text notes exported

When data is exported from NASIS to either SSURGO or the Staging Sever, new Distribution Metadata tables are created. **These new tables are added to the national database, your local database, and your selected set by default.** You do not need to upload changes to the national database to save them. They are not checked out in your selected set, meaning you don't need to check them in. They stay in your selected set until you clear your selected set, and they stay in your local database until you clear your local database.

You can view the records after running an export by opening the Distribution Metadata table.



If you have removed the records from your selected set or your local database, or if you want to view other Distribution Metadata records, you can use the following queries in the NSSC Pangaea folder.



NASIS users typically don't have a reason to view the Distribution Metadata. It can, however, be very helpful, especially during the Annual Soils Refresh (ASR). This is especially true when you are trying to identify interpretations included in past exports.

One of challenging aspects of the ASR is identifying which interpretations to include with the soil survey areas. (This challenge is especially difficult for a person conducting exports from NASIS to the Staging Server for the first time.) The required set of interpretations, which are those marked "ready to use" in the NSSC Pangaea folder, are automatically included in the export. Most States and island territories, however, also include other national, regional, and State interpretations. Customers expect these non-required interpretations to be included each year, and delivering a consistent set of interpretations is essential. Distribution Metadata was in part designed to

assist with this process. The Distribution Metadata object provides information about the interpretations exported with each soil survey area. The object can be used to view interpretations included in the export and to preload interpretations prior to exporting.

Two main uses of Distribution Metadata are discussed below.

- 1) Running NASIS web reports that list interpretations included in the last export based on Distribution Metadata.
- 2) Querying Distribution Metadata to preload interpretations prior to exporting from NASIS to the Staging Server.

2) How to Use NASIS Web Report to Identify Interpretations Previously Included in NASIS to Staging Server Exports

The [Soil Plant Science Division NASIS Web Reports](#) site includes two reports in the Annual Soils Refresh section. They provide information about interpretations included in the most recent exports from NASIS to Staging Server. One report provides details about all interpretations included for each soil survey area. The other examines all soil survey areas in a State and lists all the unique, non-required interpretations for that State.

List Of Interpretations Included in Last Export to Staging Server

This report will provide a list of all interpretations included with the last successful export from NASIS to Staging Server for a given area or a wild card can be used to run it on all soil surveys areas in a state. It categorizes interpretations based on the NASIS Site they are categorized as State or Regional Office. The interpretations in the NSSC Regional Interpretations site are identified as NSSC Regional.

- Can be run on areasymbol or entire state
- Only includes exports to Staging Server
- Only includes last successful exports

Unique List Of State and Regional (Non-Required) Interpretations Included in Last Export to Staging Server For Entire State

This report is designed to be run on all soil survey areas in a state. It will generate a UNIQUE list of all NON-REQUIRED interpretations from the last export that was created. Use % as wild card to load all soil survey areas for state. For example, enter OR% to load all soil survey areas for Oregon.

- Can be run on areasymbol or entire state
- Only includes exports to Staging Server
- Only includes last successful exports
- Only includes NON-REQUIRED interpretations

Report 1: Lists of Interpretations Included in Last Export to Staging Server

This report examines the Distribution Metadata object and locates the last successful NASIS to Staging Server export for a given area symbol. The report output includes the required interpretations and any non-required interpretations.

In some cases, SSAs in a State may have been exported with different sets of interpretations. This report allows you to review each SSA.

How to Use Report

- 1) Click the report you want to run, and enter an area symbol in the box. Click **Submit**. ([Direct link to report here](#))

Parameters for Report:
WEB_ASR_Distribution_Metadata_Interpretation_List

Enter Soil Survey Area Symbol. For example, enter OR021 to identify all interpretations included in the last NASIS to Staging Server Export for OR021- Gilliam County, Oregon. Can use % as wild card, which means you can enter OR% to list all Soil Survey Areas last exported in Oregon

OR003

Submit

- 2) The report output appears, and it includes the following information:
 - a. Soil survey area symbol and name
 - b. Person who generated last export
 - c. Date the last export from NASIS to Staging Server was successfully executed for the soil survey area
 - d. Interpretations included with export
 - e. Interpretation category, which indicates if it was a required interpretation or not
 - f. NASIS Site that owns the interpretation

List of Interpretations Included with Last Successful NASIS to Staging Server Export

Report only displays last export for each areasymbol and it only looks as exports from NASIS to Staging Server that were successful.

Area Symbol	Area Name	NASIS User Who Created Export	Date Last Export Occured	Interpretations Included In Export	Interpretation Type	NASIS Site That Owns Interpretation
OR003	Benton County, Oregon	Owen, Whityn	6/11/2020 5:58:03 PM	AWM - Irrigation Disposal of Wastewater	Required National Interp	NSSC Pangaea
OR003	Benton County, Oregon	Owen, Whityn	6/11/2020 5:58:03 PM	AWM - Land Application of Municipal Sewage Sludge	Required National Interp	NSSC Pangaea
OR003	Benton County, Oregon	Owen, Whityn	6/11/2020 5:58:03 PM	AWM - Manure and Food Processing Waste	Required National Interp	NSSC Pangaea
OR003	Benton County, Oregon	Owen, Whityn	6/11/2020 5:58:03 PM	AWM - Overland Flow Process Treatment of Wastewater	Required National Interp	NSSC Pangaea
OR003	Benton County, Oregon	Owen, Whityn	6/11/2020 5:58:03 PM	AWM - Rapid Infiltration Disposal of Wastewater	Required National Interp	NSSC Pangaea



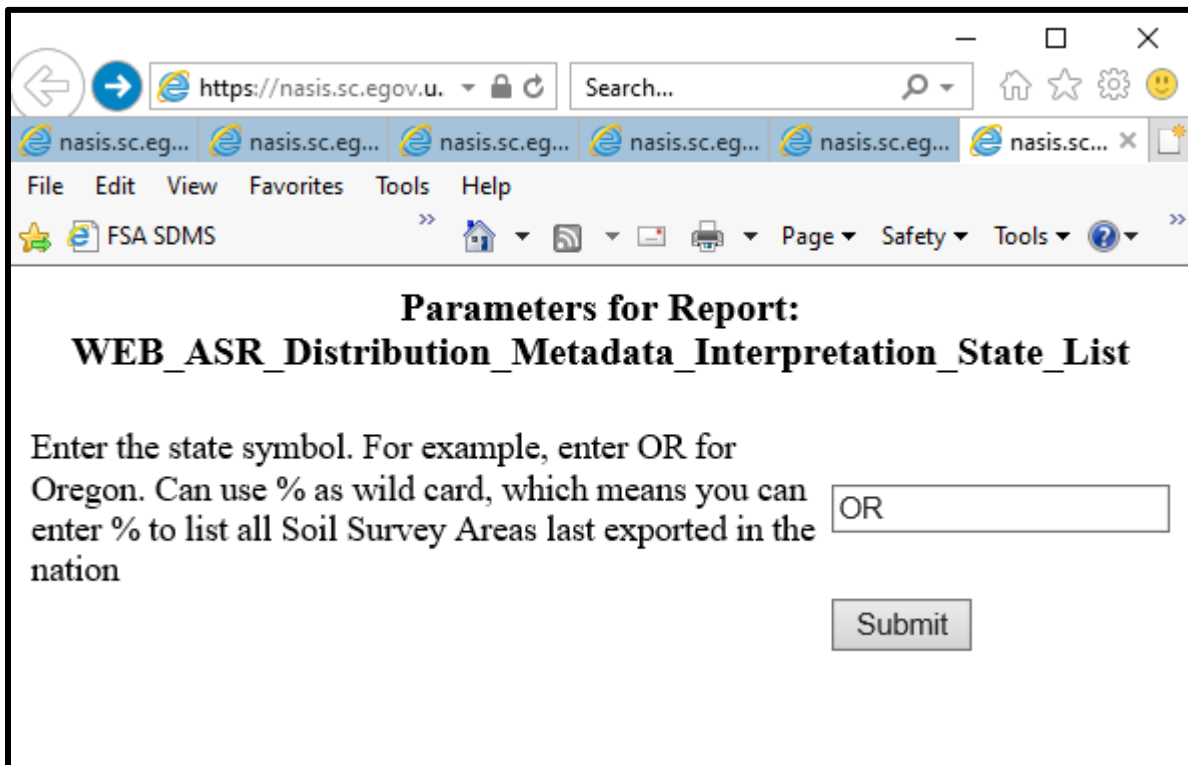
Report 2: Unique List of State and Regional (Non-Required) Interpretations Included in Last Export to Staging Server for Entire State

This report examines the Distribution Metadata object and locates ALL last successful NASIS to Staging Server exports for a given State. It ONLY includes a list of UNIQUE non-required interpretations.

In most cases, all SSAs in a State add the same set of non-required interpretations. This report lets you quickly identify the list.

[How to Use Report](#)

- 1) Click the report you want to run, and enter an area symbol in the box. Click **Submit**. ([Direct link to report here](#))



The screenshot shows a web browser window with the URL <https://nasis.sc.egov.u.>. The browser's address bar and tabs are visible at the top. Below the browser window, the web application interface is shown. It features a title "Parameters for Report:" followed by the report name "WEB_ASR_Distribution_Metadata_Interpretation_State_List". Below this, there is a text prompt: "Enter the state symbol. For example, enter OR for Oregon. Can use % as wild card, which means you can enter % to list all Soil Survey Areas last exported in the nation". To the right of the text is a text input field containing the value "OR". Below the input field is a "Submit" button.

- 2) The report output appears, and it includes the following information:
 - a. State code
 - b. List of non-required unique interpretations exported in the State
 - c. Interpretation category, which indicates if it was a required interpretation or not
 - d. NASIS Site that owns the interpretation

List of State and Regional Interpretations (Non-Required) Included with Last Successful NASIS to Staging Server Export by State

Report only displays last export for each areasympol and it only looks as exports from NASIS to Staging Server that were successful.

State Symbol	Interpretations Included In Export	Interpretation Type	NASIS Site That Owns Interpretation
OR	AGR - Nitrate Leaching Potential, Irrigated (WA)	State or Regional Office Interp	MLRA01_Portland
OR	AGR - Nitrate Leaching Potential, Nonirrigated (WA)	State or Regional Office Interp	MLRA01_Portland
OR	AWM - Land Application of Municipal Biosolids, spring (OR)	State or Regional Office Interp	MLRA01_Portland
OR	AWM - Land Application of Municipal Biosolids, summer (OR)	State or Regional Office Interp	MLRA01_Portland
OR	AWM - Land Application of Municipal Biosolids, winter (OR)	State or Regional Office Interp	MLRA01_Portland
OR	CPI - Alfalfa Hay, IRR - Klamath Valley and Basins (OR)	State or Regional Office Interp	MLRA01_Portland
OR	CPI - Grass Hay, IRR - Klamath Valleys and Basins (OR)	State or Regional Office Interp	MLRA01_Portland
OR	CPI - Grass Hay, NIRR - Klamath Valleys and Basins (OR)	State or Regional Office Interp	MLRA01_Portland
OR	CPI - Small Grains, NIRR - Palouse Prairies (OR)	State or Regional Office Interp	MLRA01_Portland
OR	ENG - Construction Materials; Gravel Source (OR)	State or Regional Office Interp	MLRA01_Portland
OR	ENG - Construction Materials; Sand Source (OR)	State or Regional Office Interp	MLRA01_Portland
OR	ENG - Construction Materials; Topsoil (OR)	State or Regional Office Interp	MLRA01_Portland
OR	FOR - Log Landing Suitability (OR)	State or Regional Office Interp	MLRA01_Portland
OR	FOR - Road Suitability (Natural Surface) (OR)	State or Regional Office Interp	MLRA01_Portland
OR	GRL - Western Juniper Encroachment Potential (OR)	State or Regional Office Interp	MLRA01_Portland
OR	FOR - Mechanical Planting Suitability	Other Interp	NSSC Data

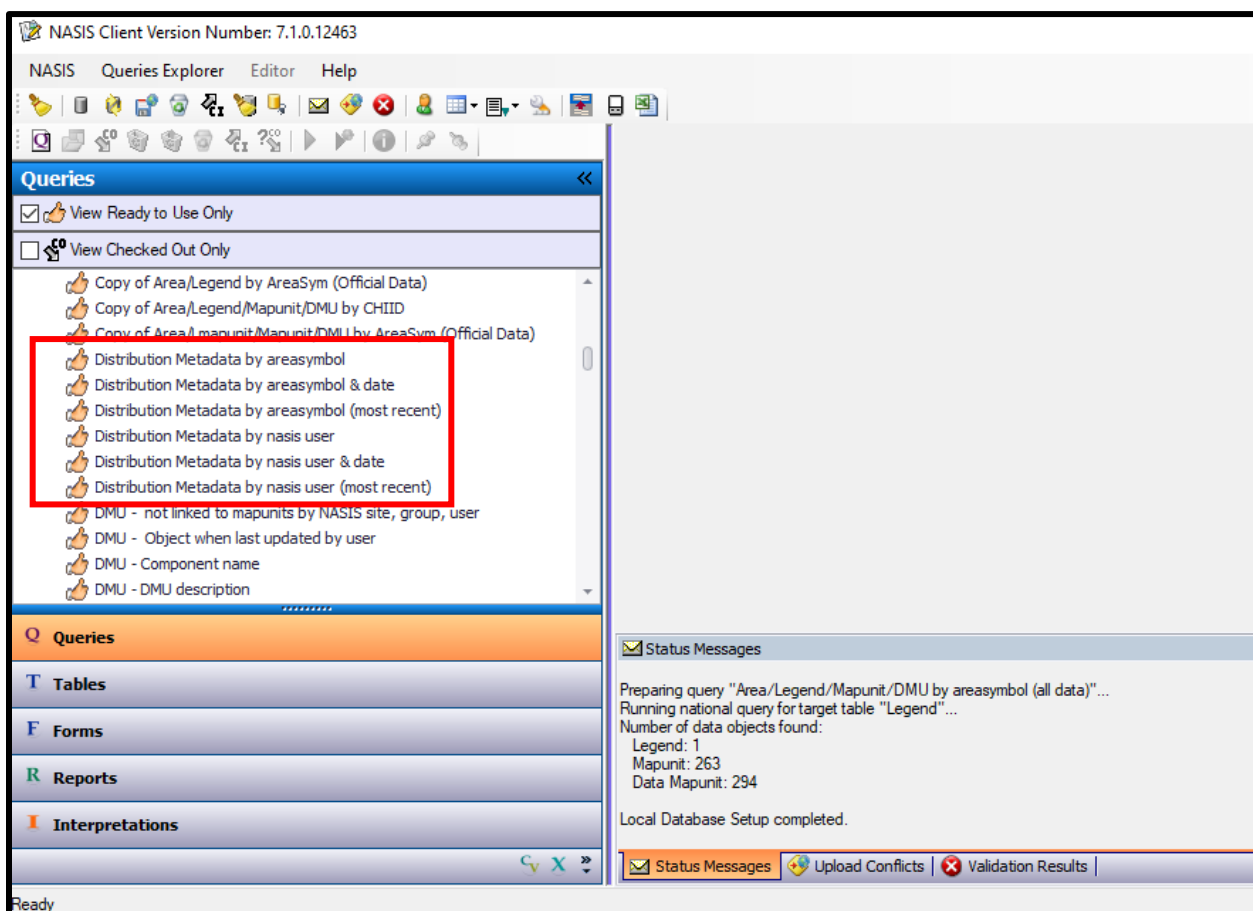
3) How to Use Distribution Metadata Records to Preload Interpretations Before Exporting

The Distribution Metadata can preload a set of interpretations prior to exporting data from NASIS. This means you can retrieve the Distribution Metadata from a prior export using a NASIS query, load it into your local database, and then use it as starting point for a new export.

Below are step-by-step instructions for how to use the Distributions Metadata to preload interpretations. **You must first have successfully loaded a soil survey area(s) into your selected set and be ready to conduct your export.** This example uses area symbol OR003.

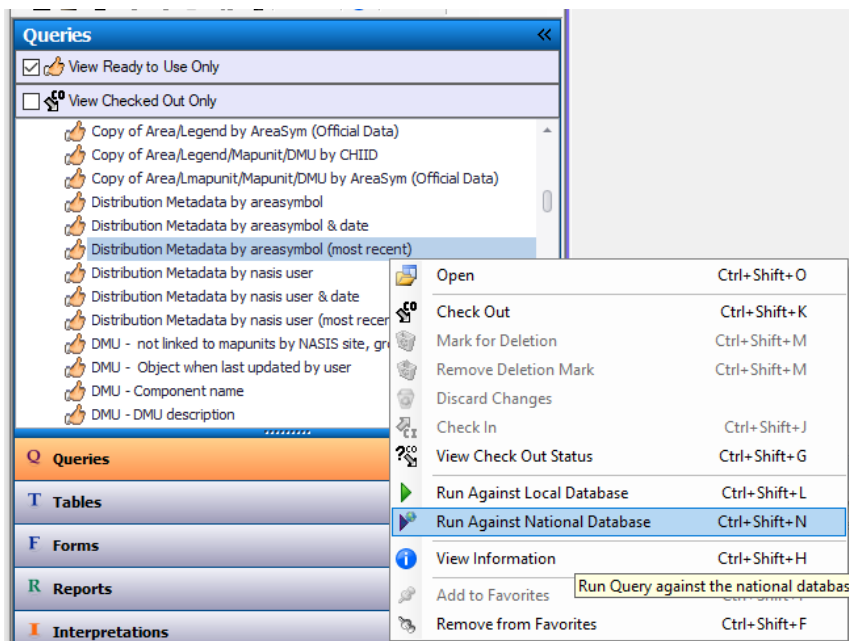
How to Use Query

- 1) In NASIS, open the NSSC Pangaea query folder. Browse to the queries that start with “Distribution Metadata...”



- 2) Right-click **Distribution Metadata by area symbol (most recent)**. Select **Run Against National Database**.





- 3) Enter an area symbol, check **staging server** as the export, and click **Run**.
 - a. Choose area symbol for an export that has the correct interpretations.
 - b. You can use the reports referenced above to see which interpretations were included with the exports.
 - c. You can also load Distribution Metadata for more than one area symbol by using wildcards (e.g., OR6% or OR%).

Selections for Running Query Distribution Metadata by areasymbol (most recent)

Target Tables: ☒ Distribution Metadata Run

Objects to Download: ☒ Distribution Metadata Cancel

Area Symbol, Wildcard use percent i.e. WI%:

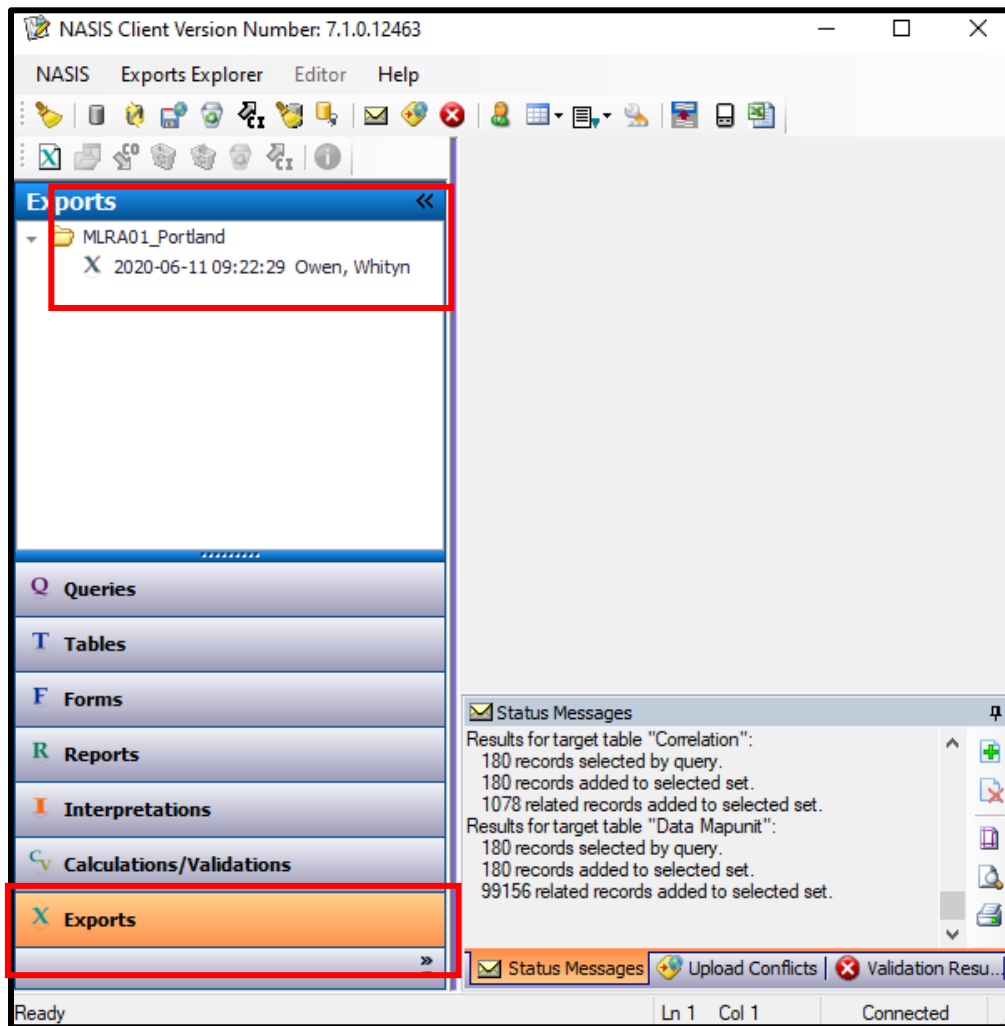
Export Target (1 or more): ☐ ssurgo ☒ staging server

Description: NATIONAL DATABASE: Set target table to DISTRIBUTION METADATA and download DISTRIBUTION METADATA
LOCAL DATABASE: Set target table to DISTRIBUTION LEGEND METADATA

Query:

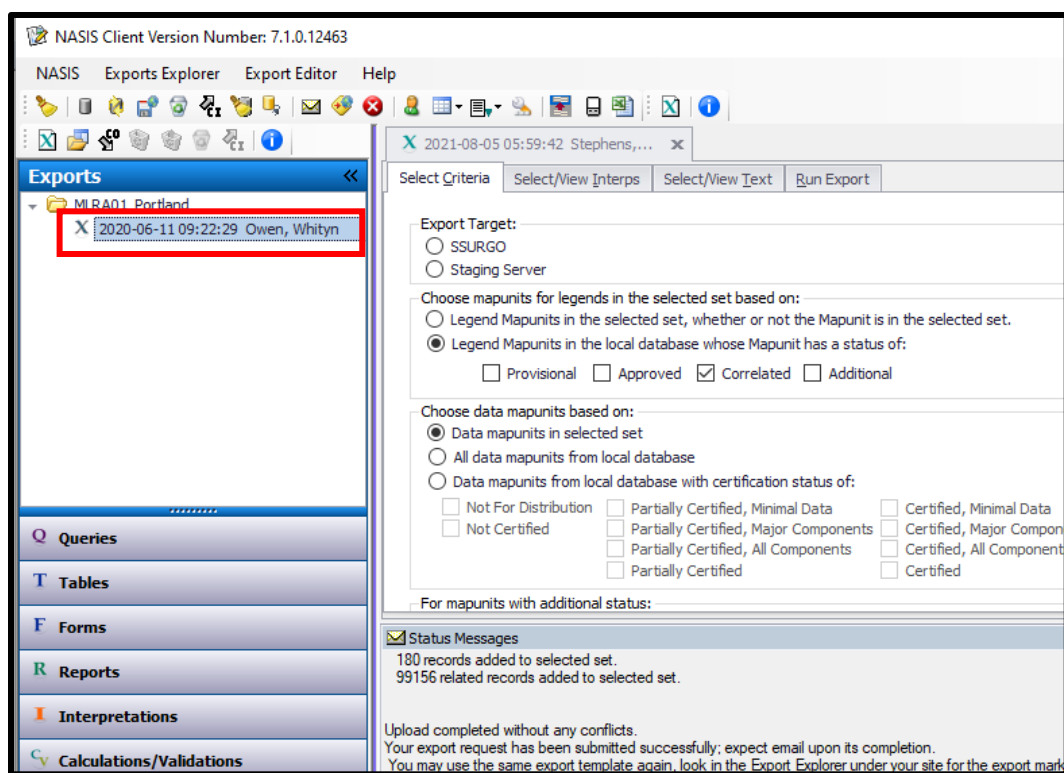
```
1 FROM distmd
2 INNER JOIN distlegendmd ON distlegendmd.distmd.
3 AND distlegendmd.areasymbol LIKE ? 'Area Symbo.
4 AND exporttarget in (?)
```

- 4) Accept results into your local database, and click **Exports** on the left in the explorer panel.
 - a. The Exports panel includes a folder named after the NASIS Site that owns the Distribution Metadata.
 - b. Expand this folder to see a date-and-time stamp and the username.
 - i. This stamp indicates when the Distribution Metadata record was created, and the username is the person who created the record by conducting an export.



- c. You may notice additional folders and additional exports in the panel.
 - i. This occurs if you have recently conducted any exports from NASIS to Staging Server or to SSURGO and the Distribution Metadata is still in your local database.
 - ii. If you have numerous exports records, and are unsure about which one you need, you can clear your local database and start the process over again; that is, querying the SSA and Distribution Metadata again.

- 5) Double-click the export (e.g., 202-06-11 09:22:29 Owen, Whityn).
 - a. The export panel opens. It contains ALL settings of the last export, except for the Export Target.
 - b. Review the settings in the Select Criteria to ensure they are correct.
 - c. Select an Export Target.



Appendix C: Raster Soil Survey Refresh

1) Introduction

All published Raster Soil Surveys (RSSs) are required to have their tabular data refreshed as part of the Annual Soils Refresh (ASR). Because RSSs are not currently archived in the Soil Data Warehouse (SDW) and published to the Soil Data Mart (SDM), the process for refreshing an RSS is different than other ASR data. In the future, RSSs should be incorporated in the SDW and SDM databases but for now they must be managed outside the official database framework.

RSSs are organized by state (not individual areasymbols) so each RSS goes on the state legend in NASIS and the areasymbol is the state abbreviation. Each time a new RSS project is finished, the whole state needs to be exported to include all projects that have been completed in the past and all those that were completed in the current cycle (year).

Raster Soil Surveys are published on the Geospatial Gateway as ESRI file geodatabases and open source packages. These databases contain tabular data in the SSURGO format and gridded spatial data, with the spatial data existing as an ESRI raster layer or a GeoTiff. Refresh or initial publication of RSSs requires both tabular data from NASIS and a map unit raster layer. The big picture process for updating an RSS includes the following steps:

1. Add certification of RSS in NASIS – Regional Office and State Soil Scientist
2. Run precheck reports on RSS – State Soil Scientist
3. Export tabular data from NASIS to SSURGO – State Soil Scientist
4. Provide tabular data to Regional Office GIS Specialist – State Soil Scientist
5. Build new version of RSS ESRI file geodatabase and open source package using GIS toolbox – Regional GIS Specialist
6. Conduct quality assurance on RSS ESRI file geodatabase and open source package – Regional GIS Specialist
7. Upload ESRI file geodatabase and open source package to central file location – Regional GIS Specialist
8. Send email notifying NSSC that RSS is ready for publication – Senior Regional Soil Scientist
9. Validate RSS file geodatabase and open source package – NSSC
10. Publish RSS ESRI file geodatabase and open source package to Geospatial Gateway – NSSC

2) Add Certification in NASIS

Before a RSS SSURGO export can be created, certification of the project (MLRA or Initial) has to be completed by both the State Soil Scientist and Regional Office ([National Soil Survey Handbook](#), Part 648.1.D).

The State Soil Scientist needs to make an entry for the Legend Export Certification History and provide a description for the Export Metadata

Legend Certification History									
Area									
Area Type NASIS Site Name	Area Type Name	Area Symbol	Area Name	Area Acres	Survey Status	Correlation Date	Legend Map Unit	Legend Area Overlap	Legend Text
NSSC Pangaea	Raster Soil Survey Area	MIN	Minnesota	54017200	published	10/2019	Raster Soil Map		
Legend Export Certification History									
Reviewer	Export Cert Date	Export Certification Status	Export Metadata	Record When Last Updated	Record Last Updated By				
Kamara H.	12/03/2019	certified, all components	Official certification for export has been made by the State Soil Scientist	12/03/2019 15:24:39	Holmes, Kamara H.				
Joseph	08/15/2022	certified, all components	The following legend: MN Minnesota (Raster Soil Map Legend...	08/15/2022 21:56:59	Brennan, Joseph				
Joseph	09/01/2022	certified, major components	The following was updated in Fiscal Year 2022 for the Fiscal Year...	09/01/2022 10:10:20	Brennan, Joseph				

The Regional Office completing the quality assurance for the project needs make an entry in the Legend Certification History table and add a Cert Text note that serves as metadata for the project. See step (11) below for an example of the Cert Text entry.

T Legend Certification History										T Legend X		Local Database							
Area																			
Area Type NASIS Site Name Δ		Area Type Name Δ		Area Symbol Δ		Area Name		Area Acres		Survey Status Δ		Correlation Date Δ		Legend					
P ▾ NSSC Pangaea		Raster Soil Survey Area		MN		Minnesota		54017200		published		10/2019		Raster Soil Map					
Legend Mapunit Legend Area Overlap Legend Certification History Legend Export Certification History Legend Text																			
Q		eq Δ		Reviewer		NASIS User Name		Cert Date ▾		Cert Kind		Legend Certification Status		Cert Text		Record When Last Updated		Record Last Update	
P				Brennan, Joseph		08/11/2022		quality assurance		certified		The Project: "MLRA 90A - Grantsburg...		08/16/2022 22:10:49		Brennan, Joseph		NASIS User Na	
P				Brennan, Joseph		08/11/2022		quality assurance		certified		The Project: "MLRA 90A - Duxbury Mora...		08/16/2022 22:10:32		Brennan, Joseph			
P				Brennan, Joseph		08/11/2022		quality assurance		certified		The Project: "MLRA 88 - Agassiz Lake Pl...		08/16/2022 22:10:14		Brennan, Joseph			
P				Brennan, Joseph		10/11/2019		quality assurance		certified		The Project: "MLRA 88 - Glacial Lake Plai...		08/16/2022 22:10:01		Brennan, Joseph			
P				Brennan, Joseph		10/11/2019		quality assurance		certified		The Project: "MLRA 102A - Fergus Falls ...		08/16/2022 22:09:50		Brennan, Joseph			
P				Brennan, Joseph		10/08/2019		quality assurance		certified		The Project: "MLRA 90A - Mile Lacs Upla...		08/16/2022 22:09:16		Brennan, Joseph			
P				Brennan, Joseph		09/19/2019		quality assurance		certified		The Project: "Boundary Waters Canoe A...		08/16/2022 22:08:46		Brennan, Joseph			
P				Brennan, Joseph		09/19/2019		quality assurance		certified		The Project: "Boundary Waters Canoe A...		08/16/2022 22:08:46		Brennan, Joseph			

3) Run Precheck Reports

Because RSSs are being exported from NASIS to SSURGO, the hidden stored procedure on the Staging Server that checks data for fatal errors is not run against the RSS. That stored procedure only runs against data exported from NASIS to the Staging Server. However, the RSS tabular data should use the same standard as the data published to SDM and the RSS should be checked for errors before publication.

Refer to *section V. 1)* above for guidance on how to run precheck reports. You will need to use the NASIS Client version of the precheck reports for RSSs. The web-based reports will not work. You can ignore errors related to project scale and area type name.

4) Export Tabular Data from NASIS to SSURGO

Refer to *section V. 3)* above for guidance on how to add an RSS soil survey to your selected set. Don't forget to first clear your selected set and refresh your local database before adding an RSS to your selected set and exporting.

Once you have loaded the data into your selected set, create a new Export. Refer to *section V. 4)* for additional guidance, although some settings are different for RSS. Settings are discussed below.

i. Select Criteria

Set Export Target to SSURGO.

Legend

X (new) #1

Select Criteria

Select/View Interps

Select/View Text

Run Export

Export Target:

☒ SSURGO
 ☐ Staging Server

Choose mapunits for legends in the selected set based on:

☒ Legend Mapunits in the selected set, whether or not the Mapunit is in the selected set.
 ☐ Legend Mapunits in the local database whose Mapunit has a status of:

☐ Provisional
 ☐ Approved
 ☐ Correlated
 ☐ Additional

Choose data mapunits based on:

☒ Data mapunits in selected set
 ☐ All data mapunits from local database
 ☐ Data mapunits from local database with certification status of:

☐ Not For Distribution
 ☐ Not Certified

☐ Partially Certified, Minimal Data
 ☐ Partially Certified, Major Components
 ☐ Partially Certified, All Components
 ☐ Partially Certified

☐ Certified, Minimal Data
 ☐ Certified, Major Components
 ☐ Certified, All Components
 ☐ Certified

For mapunits with additional status:

☒ Use representative data mapunit to which correlated
 ☐ Use representative data mapunit for additional mapunit

Choose components based on:

☒ Components in selected set
 ☐ All components from selected data mapunits
 ☐ Major components from selected data mapunits
 ☐ Components from selected data mapunits with % comp greater or equal to percent

ii. Select/View Interps

When you export data from NASIS to the Staging Server all national required interpretations are included by default. In fact, even if you attempt to remove them, they will still be included in the export. In contrast, when exporting data from NASIS to SSURGO, none of the national required interpretations are added by default. You must manually add all interpretations.

All national interpretations are required to be included in the RSS. To include them, choose the NSSC Pangaea NASIS Site, select all interpretations, and then click **Add to List**. You can select all by clicking the first interpretation in the “Select Interpretations to Include” box, then holding down the “Shift” key, scrolling to the bottom of the list, and clicking the last one in the list.

X (new) #1
 Select Criteria Select/View Interps Select/View Text Run Export

NASIS Site: NSSC Pangaea ☒ Ready for Use Only

Select Interpretations to include:

- WMS - Irrigation, Micro (above ground)
- WMS - Irrigation, Micro (subsurface drip)
- WMS - Irrigation, Sprinkler (close spaced outlet dro)
- WMS - Irrigation, Sprinkler (general)
- WMS - Irrigation, Surface (graded)
- WMS - Irrigation, Surface (level)
- WMS - Pond Reservoir Area
- WMS - Subsurface Water Management, Outflow Qu
- WMS - Subsurface Water Management, System Ins
- WMS - Subsurface Water Management, System Per
- WMS - Surface Water Management, System

Rule Description:

Add to List Remove from List Clear List

NASIS Site Name	Rule Name
NSSC Pangaea	AGR - Industrial Hemp for Fiber and Seed Production
NSSC Pangaea	AWM - Irrigation Disposal of Wastewater
NSSC Pangaea	AWM - Land Application of Municipal Sewage Sludge
NSSC Pangaea	AWM - Manure and Food Processing Waste
NSSC Pangaea	AWM - Overland Flow Process Treatment of Wastewater
NSSC Pangaea	AWM - Rapid Infiltration Disposal of Wastewater
NSSC Pangaea	AWM - Slow Rate Process Treatment of Wastewater
NSSC Pangaea	DHS - Catastrophic Event, Large Animal Mortality, Burial
NSSC Pangaea	DHS - Catastrophic Event, Large Animal Mortality, Toxic Waste

Maximum Reasons: 5

Add any additional interpretation as needed.

If you are refreshing the data for an existing RSS, download the RSS file geodatabase or open source package and open the Sainterp table in ArcGIS Pro or ArcGIS Desktop. This will give you the list of all interps previously included in the export. Typically, you want to include all the interps from the previous export.

iii. Select/View Text

Refer to *section V 4) iii* for more information about adding text notes to the export. At a minimum, include “Component Text – Nontechnical description.” This will include the component generated brief soil description.

X (new) #1

Select Criteria Select/View Interps Select/View Text Run Export

Check Text Kinds to include: Uncheck All

Group	Kind
☐ Component Text	Certification notes
☐ Component Text	Correlation notes
☐ Component Text	Edit notes
☐ Component Text	Miscellaneous notes
☒ Component Text	Nontechnical description
☐ Component Text	SOI5 description
☐ Data Mapunit Text	Certification statements
☐ Data Mapunit Text	Correlation notes
☐ Data Mapunit Text	Edit notes
☐ Data Mapunit Text	Miscellaneous notes
☐ Data Mapunit Text	Nontechnical description
☐ Data Mapunit Text	SOI5 description
☐ Horizon Text	Certification notes
☐ Horizon Text	Correlation notes
☐ Horizon Text	Edit notes
☐ Horizon Text	Miscellaneous notes
☐ Horizon Text	Nontechnical description
☐ Horizon Text	SOI5 description

iv. Run Export

Enter your email and give the export a name of your choice.

X (new) #1

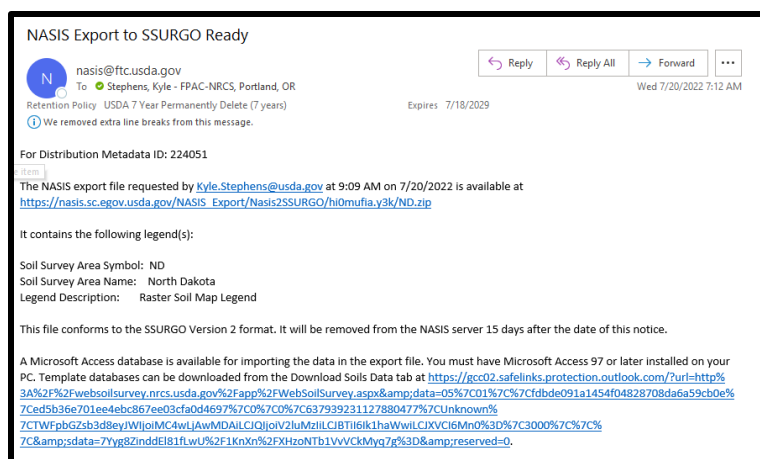
Select Criteria Select/View Interps Select/View Text Run Export

Email Notification Address:

Export File Name:

Run Export

Please note that pressing the button adds the export request to your local database, and then starts an upload. Should you cancel the upload, or should the upload fail, the export will not be scheduled to run; you will need to create a new export request.



v. Send Export to Regional GIS Specialist

The Regional GIS Specialist will need the export to create the RSS geodatabase and open source package. This step represents the conclusion of SSS role in publication of the RSS data.

5) Build New Version of RSS ESRI File Geodatabase and Open Source Package

The Regional GIS Specialist will use the text files from the NASIS export and the current map unit raster layer to build an updated version of the database and the open source package. The current map unit raster layer may be a newly created dataset that hasn't been published before or the raster layer from a previously published RSS dataset. This document does not provide step-by-step instructions for building the RSS file geodatabase and open source package, however a GIS toolbox called "Build-Raster-Soil-Survey-Database" is available [HERE](#) to assist in generating the database according to standards in the [National Soil Survey Handbook, Part 648](#). Instructions for using the toolbox are [HERE](#). Please contact the Soils Hotline if you have questions about this process.

6) Conduct Quality Assurance on RSS ESRI File Geodatabase and Open Source Package

The database should be reviewed by the Regional GIS Specialist to ensure it adheres to standards and does not contain errors. This document does not provide step-by-step instructions or any list of standards. Please refer to the National Soil Survey Handbook, Part 648, Section 648.1 for Raster Soil Survey standards. If the GIS toolbox called "Build-Raster-Soil-Survey-Database" is used to build the file geodatabase and open source package, many standards are hard coded into the tools. The toolbox instructions also contain some simple validation exercises. Please contact the Soils Hotline if you have questions about quality assurance or standards.

7) Upload RSS ESRI File Geodatabase and Open Source Package to Central File Location

The Regional GIS Specialist will upload the ESRI file geodatabase and the open source package to this location: [\\aiomokccc6na102\SMB04\Soil Plant Science Division\NSSC\Raster Soil Surveys](#). Navigate to the correct fiscal year and then state folder and upload two .zip files; one for the file geodatabase and one for the open source package. For example, the FY2024 refresh of the MN database has this the file location: [\\aiomokccc6na102\SMB04\Soil Plant Science Division\NSSC\Raster Soil Surveys\FY2024\MN](#). Please contact the Soils Hotline if you have questions about this process.

8) Submit RSS Geodatabase and Open Source Package for Publication

The Senior Regional Soil Scientist will email the National GIS Specialist to notify the NSSC that the RSS database is ready for publication.

9) Validate the RSS File Geodatabase and Open Source Package

The National GIS Specialist will validate the RSS file geodatabase and open source package using a GIS toolbox available [HERE](#) to ensure the database is formatted correctly and follows standards in the National Soil Survey Handbook, Part 648.

10) Publish RSS ESRI File Geodatabase and Open Source Package to Geospatial Gateway

The Soil Business staff will publish the database to the geospatial gateway.

11) Example of Legend Certification History – Cert Text Entry

The Project: "MLRA 90A - Grantsburg Sublobe Investigation" was certified in 2022 adding 301,041 acres to Raster Soil Survey Area: Minnesota.

I. Tabular Reference - Legend Area Overlap

Legend Area Overlap Type: Raster Soil Survey Project

Legend Area Overlap Symbol: GBSL_10-DUL22

Legend Area Overlap Name: MLRA 90A - Grantsburg Sublobe Investigation

Conversion Legend:

ID	Raster Value	Map Symbol	Correlated Mapunit Name
8	3108525 2lthb	Water	
18	3108536 2z58p	Cathro muck, 0 to 1 percent slopes, frequently ponded	
27	3108545 2z1b1	Seelyeville, occasionally ponded-Cathro, frequently ponded, complex, 0 to 1 percent slopes	
46	3314446 307cd	Alstad loam, 0 to 2 percent slopes	
47	3314447 307c1	Ricelake, Branstad, and Talmoon soils, 0 to 6 percent slopes	
48	3314448 307c2	Bluffton-Hamre complex, 0 to 1 percent slopes, frequently ponded	
50	3314449 307c5	Braham loamy sand, 12 to 35 percent slopes	
50	3314450 307c0	Braham-Cutaway loamy sands, 0 to 12 percent slopes	
51	3314451 307cb	Branstad loam, 2 to 6 percent slopes	
51	3314452 307cc	Branstad loam, 6 to 12 percent slopes	
54	3314454 307c7	Cushing loam, 15 to 35 percent slopes	
54	3314455 307c9	Cushing loam, 2 to 6 percent slopes	
54	3314456 307c8	Cushing loam, 6 to 15 percent slopes	
56	3314459 307cf	Talmoon-Alstad loams, 0 to 2 percent slopes	

II. Raster Soil Survey Level: Level II

III. Model Development

Data referenced for model training: 251 pedons (92 Contemporary Field Observations/159 Historical Observations). Additional virtual observations were utilized within a field observed radius relating to soil classes to augment knowledge-based classification.

Sample design: cLHS with purposive and offset descriptions

Digital environmental data: Terrain and Hydrology Derivatives from LIDAR; PRISM Climate Data; Spectral Indices from LANDSAT 7; Spectral Indices from LANDSAT 5; ; Spectral Indices from LANDSAT 8; LANDFIRE Biophysical Settings; Derivatives from National Hydrologic Dataset; Derviations from the National Wetland Inventory

Number of covariates evaluated for use: 45

Data resolution: 5m

Modelling methods: Knowledge-based fuzzy logic; linear regression; trend surface; logistic regression; random forest

IV. Map Accuracy

Error Matrix:

ID	8	18	27	46	47	48	50	51	54	56	Total	
8			10	0	0	0	0	0	0	0	0	10
18			0	10	0	0	0	3	0	0	0	13
27			0	1	3	0	0	2	0	0	0	6
46			0	0	0	11	0	0	2	2	1	16
47			0	0	0	5	2	0	3	1	0	14
48			0	3	0	3	0	9	0	0	0	17
50			0	0	0	0	2	0	9	2	2	16
51			0	1	0	2	0	1	1	16	0	21
54			0	0	0	0	0	0	0	3	10	13
56			0	0	0	5	0	1	0	0	0	12
Total	10		15	3	26	4	16	15	24	13	12	138

Validation data source: Contemporary Field Observation - 128 pedons; Remote Sensing & Ancillary Data - 10 random points (ID 8 Water)

Sample design: External validation, stratified random

Considerations of confidence and precision: Results published targeting 90% confidence (map accuracy)/10% precision (acceptable error)

Spatial Tolerance: - +/- 10m

Overall Accuracy 62%

Area Weighted Accuracy 67%

Khat (Kappa Coefficient) 58%

Appendix D: Instructions for refreshing soil survey areas that use the NOTPUB - Not Publicly Available national mapunit

1) Introduction

A national map unit symbol called NOTPUB – Not Publicly Available – was created for cases where official certified SSURGO data exists but, due to an agreement between the landowner and USDA-NRCS, that data is not made available to the public. This designation is intended for highly uncommon situations, most often involving tribally owned lands where privacy concerns are paramount.

Use of the NOTPUB symbol is only allowed when certified SSURGO data has been exported to the Soil Data Warehouse. These instructions clarify how to manage NOTPUB areas during the SSURGO refresh process so the certified data remains current in the warehouse while staying unpublished for public use. If you have an area where the landowner and USDA-NRCS have agreed not to publish SSURGO, but the certified SSURGO cannot be committed to the warehouse, then the NOTPUB symbol is not permitted. In such cases, the appropriate alternatives are NOTCOM – Not Completed Areas or ANS – Areas Not Surveyed, Denied Access.

For valid NOTPUB areas, it is essential to export SSURGO data to the warehouse annually, just like any other SSURGO area. This ensures the data is kept current and makes it possible for USDA-NRCS to provide landowners with the most recent internal SSURGO data package each year.

2) How to refresh areas with NOTPUB

To properly manage areas designated as NOTPUB, you'll need to commit the soil survey area to the Soil Data Warehouse twice during the ASR. Typically, you do the second commit immediately after the first.

During the first posting, you should export the entire set of SSURGO data to the warehouse, just like any normal soil survey area.

For the second posting, only the NOTPUB symbol should be exported. If the survey area is entirely composed of NOTPUB, then only that map unit will be exported and committed in the second round. However, if the survey includes both NOTPUB and public SSURGO map units, the second posting should include only the NOTPUB map units and SSURGO map units that you are authorized to release.

This process ensures that the SSURGO data is kept current and internally archived within the Soil Data Warehouse, while remaining excluded from Soil Data Mart—the database behind Web Soil Survey and Soil Data Access. Because Soil Data Mart takes the most recent version of a soil survey area from the warehouse, posting the NOTPUB symbol during the second round makes it the official latest version. This process also creates a certified SSURGO dataset that can be recalled from the warehouse to the staging server and subsequently downloaded in SSURGO format. You can download any version of a soil survey area from the warehouse and users can then utilize SSURGO Portal to generate a SQLite SSURGO database, and customers can analyze the data using Soil Data Viewer.

i. First time you commit to the warehouse

- Follow standard ASR procedures
- Export tabular from NASIS to staging server with the SSURGO mapunits (exclude NOTPUB)
- Upload spatial to staging server with SSSURGO mapunits (exclude NOTPUB)
- Commit data to the warehouse

ii. Second time you commit to the warehouse

- Export tabular from NASIS to staging server with only the NOTPUB or with only the NOTPUB map unit and those SSURGO map units you are authorized to publish
- Upload spatial to staging server with only the NOTPUB or with only the NOTPUB map unit and those SSURGO map units you are authorized to publish



- Commit data to the warehouse

iii. Notes

- If you posting a NOTPUB soil survey area for the first time, or if there are spatial changes to existing data, you will need to upload the spatial data into the staging server for each export and commit process. The first time will have all the SSURGO spatil mapunits and the second time will only have the NOTPUB.
- If you are refreshing a NOTPUB soil survey area symbol and there are no spatial changes, you can use the spatial data in the warehouse, but you most recall it to the staging server and you must ensure you recall the correct version.



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