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SC/OSD Maintenance Tool User's Guide

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Revision Information

Date	Version	Description	Author
11/2009	1 Draft	First attempt	Sal Magnotta
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12/2009	3	Added Appendix section	Sal Magnotta
12/2009	4	Jim F. changes	Sal Magnotta
01/2010	5	Defined eAuth role; updated diagrams	Sal Magnotta
02/2010	6	Changed document filename, replaced SC Update with SC/OSD Maintenance Tool in text and diagrams, and updated screen shots.	Sal Magnotta
02/2010	7	Added rename and delete updates	Sal Magnotta
03/2010	8	Fixes	Sal Magnotta
03/2010	9	Beta-Test changes	Sal Magnotta
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01/2011	14	Added paragraph in section 4.3.1.17 on updating series to add hyperlinks for other series in the HTML version of the OSD.	Joe Chiaretti
06/2012	15	Migrated SC database into NASIS database – update screen shots; explain new historical notes text field.	Rick Nesser
08/2013	16	Corrected some paragraph alignments to satisfy CoLab defects.	Rick Nesser
03/2015	17	Removed browser requirements for older versions of IE, updated all references of MLRA offices (MO) to Soil Survey Regional Offices (SSRO), updated pictures to show added HA-HT Material taxonomy class, updated OSD example.	Rick Nesser

SC/OSD Maintenance Tool User's Guide

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1.0 GENERAL INFORMATION

1.1 Document Organization

This document is the SC/OSD Maintenance Tool User's Guide. It is organized into five major sections. The first three sections contain general information, a system summary and specify system requirements. The fourth section describes how to use the system. The fifth section is the appendix which contains examples of the two Official Soil Series Description formats.

If you have met all the requirements of the system and wish to learn how to use the system, please skip to section four "Using the System".

1.2 Definition and Purpose

The SC/OSD Maintenance Tool is a web-based application that uses a Graphical User Interface (GUI) to make changes to the National Soil Information System (NASIS) database stored in a Microsoft SQL Server Database Management System (DBMS).

This application provides a secure user interface to make updates to the National Soil Information System (NASIS) database without the user having any SQL knowledge, ensures the NASIS database retains a level of integrity between its tables, and allows editing of Official Soil Series Description documents (OSDs).

1.3 Summary

Managing the NASIS database and the OSD documents is generally accomplished by Soil Data Quality Specialists (SDQSs). In order for a SDQS to add a new series or edit an existing soil series, he/she must have a Level 2 eAuth account with the eAuth role "NRCS_Citrix_Users", be a member of the "OSD" NASIS Group in the NASIS database, and be a member of the responsible Soil Survey Regional Office (SSRO) for that soil series.

The SC/OSD Maintenance Tool is a single, scrollable web form that allows the user to enter information via a user interface. On top of the web form is a main menu list that contains choices as follows:

> **Add Series** adds a soil series record to the NASIS database. The soil series name entered is validated with the NASIS database to ensure it does not exist. The taxonomic classification is validated according to a set of rules based on the keys to classes found in the current edition of the "*Keys to Soil Taxonomy*".

> **Update Series** updates a soil series record already in the NASIS database. The soil series name entered is validated with the NASIS database to ensure it does exist. The taxonomic classification is validated according to a set of rules based

on the keys to classes found in the current edition of the "*Keys to Soil Taxonomy*". If an OSD document exists for this series, it is updated with the new information. This option is also used to change the status of an existing series.

Delete Tentative Series deletes a soil series record from the NASIS database. This choice accepts a name for an existing, tentative soil series that is to be deleted from the NASIS database, and provides confirmation before the actual deletion takes place. Deleting a tentative series will also delete its associated OSD document, if it exists. In addition, a list of soil series that make a reference to the deleted soil series will be produced. The user can then remove the deleted soil series name in those referenced OSD documents.

Transfer Responsibility transfers responsibility or ownership of a series to a different SSRO. This choice accepts a name for an existing soil series and an SSRO. In order to successfully make the change, the user must be a member of the SSRO that currently has responsibility for the series, and must enter a different SSRO than the current one assigned to this soil series. If these two requirements are met, the NASIS database is updated with the newly provided SSRO.

Rename Series renames an existing soil series. This choice accepts a name for an existing soil series and a non-existent soil series name, and provides confirmation before the actual renaming occurs. The existing soil series name will be updated to the new soil series name in the NASIS database and its associated OSD document will be updated, if it exists. In addition, a list of soil series that make a reference to the renamed soil series will be produced. The user can then update the renamed soil series name in those referenced OSD documents.

The SC/OSD Maintenance Tool provides two functions for managing OSDs: "OSD Check" and "OSD Update".

"OSD Check" provides a convenient means for the SDQS to check the OSD document for compliance with the National Soil Survey Handbook (NSSH) standard. The user performs the "OSD Check" in the user interface by pressing the "Validate Description" button.

"OSD Update" checks the OSD document for compliance with the standard in the NSSH, Part 614, validates that the responsible SSRO is the one submitting the change, validates that the information in the document matches the information in the NASIS database, updates the NASIS database with the date the OSD document was changed, copies the OSD document to the directory of existing OSD documents, prepares an HTML version of the OSD document, and saves the HTML version of the OSD document to the directory of existing OSD documents. In addition, "OSD Update" will update the NASIS database with the date the OSD document was created for a new

OSD description. The user performs the "OSD Update" in the user interface by pressing the "Update Description" button.

The status of a soil series can be "Tentative", "Established" or "Inactive". An "Established" series can only have its status changed to "Inactive", an "Inactive" series can only have its status changed to "Established", and a "Tentative" series can be changed to "Established" only if its OSD is available. Only a "Tentative" series can be deleted from the NASIS database.

1.4   Points of Contact

1.4.1 Information

Questions should be directed to the Soils Hotline. The Soils Hotline, which resides at the USDA NRCS National Soil Survey Center in Lincoln, Nebraska, is staffed from 8:00 AM to 4:30 PM Central Time, and can be reached via email at: soilshotline@lin.usda.gov.

1.5   Acronyms, Abbreviations, Definitions

| Abbreviation	Meaning
NRCS	Natural Resources Conservation Service
USDA	United States Department of Agriculture
SC	Soil Classification
SC Update	Soil Classification Update
SDQS	Soil Data Quality Specialist
MLRA	Major Land Resource Area
SSRO	Soil Survey Regional Office
OSD	Official Soil Series Description
NSSH	National Soil Survey Handbook
eAuth	Electronic Authentication
NASIS	National Soil Information System
CCE	Common Computing Environment
FIPS	Federal Information Processing Standard
DB	Database
DBMS	Database Management System
SQL	Structured Query Language
web app	web application in an Internet browser
HTML	Hyper Text Markup Language
COTS	Commercial Off The Shelf
MS	Microsoft
PC	Personal Computer
GUI	Graphical User Interface
.NET	"Dot Net", Microsoft's proprietary framework
IE	Microsoft Internet Explorer

IIS	Microsoft Internet Information Server (web server)
BAF	Business Application Framework (used for logging)
KC	Kansas City
URL	Universal Resource Locator (e.g. http://www.site.gov)
ASP	Active Server Page
SC/OSD	Soil Classification/Official Soil Series Description

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

Files	Meaning
*.doc	OSD Microsoft Word document
*.html	OSD HTML document
*.aspx	.NET ASP web page

2.0 SYSTEM SUMMARY

2.1 System Overview
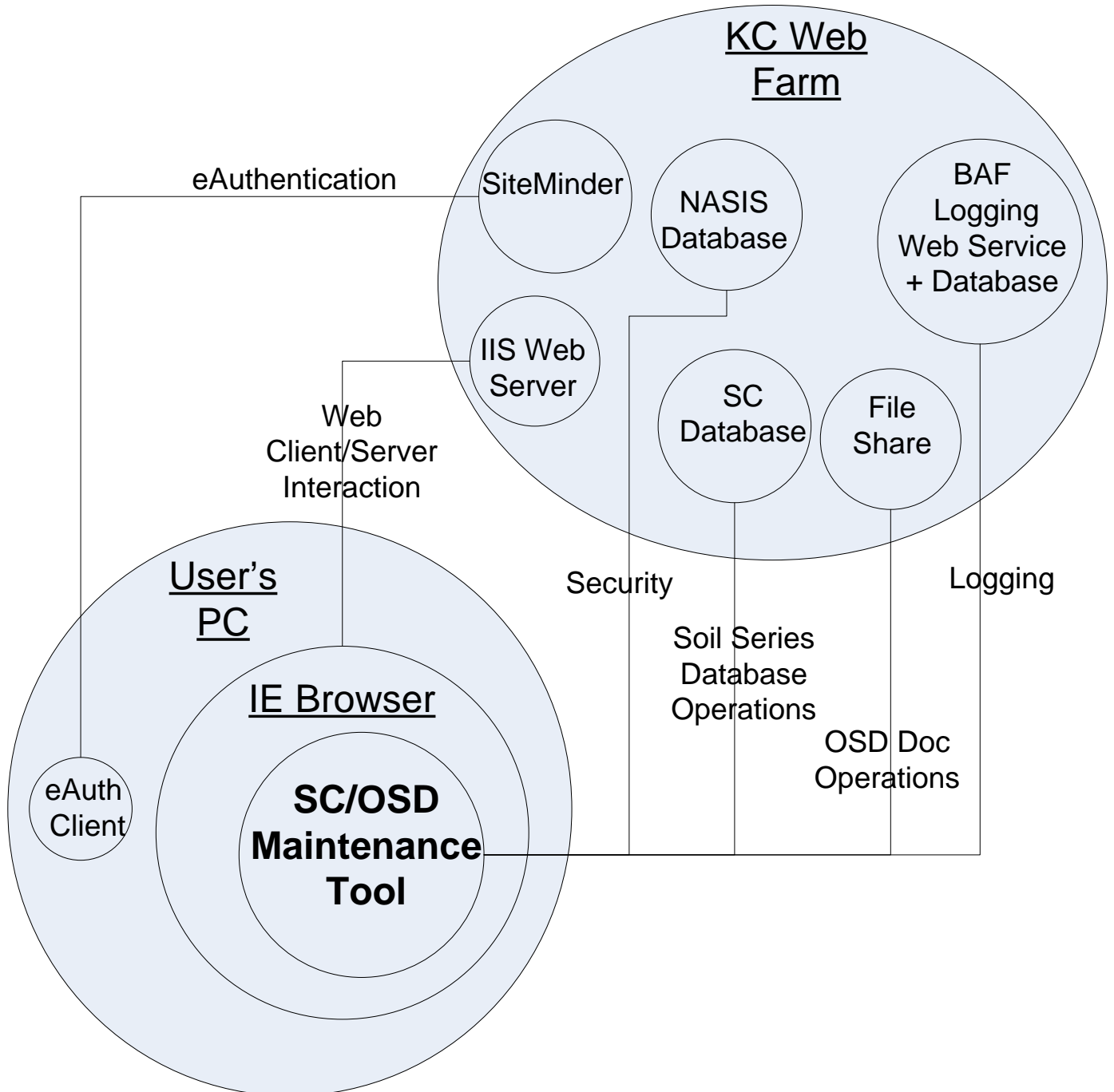
SC/OSD Maintenance Tool System Overview

Diagram One*. The SC/OSD Maintenance Tool is a front end web interface used for*

entering and updating data into an underlying, back end Microsoft SQL Server database called the NASIS database, and updating an OSD (Official Soil Series Description) document.

The top-level entities in which system interaction takes place are the Kansas City Enterprise Data Center (web farm) and the end user's personal computer. The Kansas City web farm consists of multiple servers containing the authentication service, web server, logging web service, file system and databases used in the SC/OSD Maintenance Tool. The end user's personal computer contains an eAuth client that communicates with the SiteMinder agent running in Kansas City and Microsoft Internet Explorer from which the SC/OSD Maintenance Tool is run. Web client/server communication takes place between the Microsoft Internet Information Server (web server) in Kansas City and Microsoft Internet Explorer (web browser/client) on the end user's personal computer.

There are two databases used by the SC/OSD Maintenance Tool: the NASIS database and the BAF database. The NASIS database is used as the main application database and for user authentication and SSRO membership, the BAF database is used for logging. Most of the SC/OSD Maintenance Tool's web form elements are tied to table fields in the NASIS database.

The Official Soil Series Descriptions (OSDs) are a national collection of more than 20,000 detailed soil series descriptions, covering the United States, Territories, Commonwealths, and Island Nations served by USDA-NRCS. The descriptions, in a text format, serve as a national standard. A file storage system is used in Kansas City to house all the OSDs.

Definition: A *web farm* is a group of two or more servers used to host the same site. Web farms increase the capacity of a web site, and improve availability by providing fail-over. Web farms are universally used for high-traffic and mission critical web sites.

Definition: A *web server* is a computer program that delivers or serves content such as a web page. A client, such as a web browser makes a request to the server and the server responds with the content requested.

Definition: A *web service* is a software system designed to support machine-to-machine interaction over a network. Web services are services that are made available from a business's web server for web users or other web-connected programs. Web services range from such major services as storage management and customer relationship management (CRM) down to much more limited services such as the furnishing of a stock quote and the checking of bids for an auction item.

Definition: *The Dot Net Framework* is a software framework that can be installed on computers running Microsoft Windows operating systems. It includes a large library of coded solutions to common programming problems and a virtual machine that manages the execution of programs written specifically for the framework. The .NET Framework is a Microsoft offering and is intended to be used by most new applications created for the Windows platform.

2.2 Data Flows
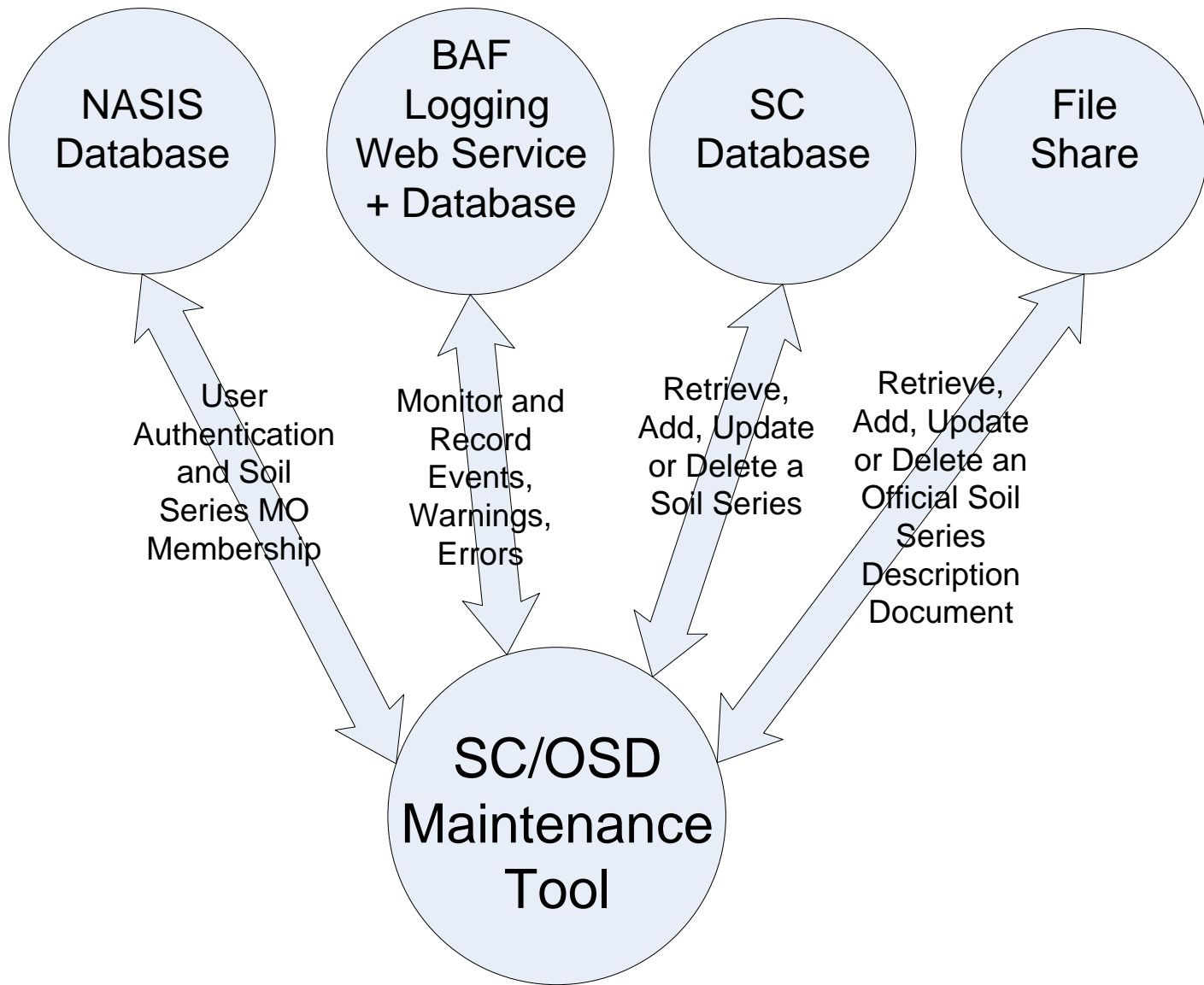
SC/OSD Maintenance Tool Data Flow

Diagram Two. *The SC/OSD Maintenance Tool data model displays the interaction between the application and various data stores. The NASIS (National Soil Information System) database is queried to find out if the current user is allowed access to the web application and is a member of the SSRO responsible for the soil series. The BAF (Business Application Framework) database is used to log important events, errors and warnings. The NASIS (National Soil Information System) database is used to retrieve, edit, add, update or delete a soil series, and is the main application database. A file share is used to store OSDs (Official Soil Series Descriptions). Each OSD is stored in two file formats: a Word document (*.Doc) and an HTML file (*.HTML). The SC/OSD*

Maintenance Tool allows the user to retrieve, edit, validate, add, update or delete an OSD.

The SC/OSD Maintenance Tool interacts with three databases and a file share. Upon the web application's invocation, eAuthentication is performed. Once eAuthentication has been verified, the user must pass an application verification test. The SC/OSD Maintenance Tool queries the NASIS database using the end user's eAuth credentials and determines if the user is permitted to use the SC/OSD Maintenance Tool. The database that is tied to the application's web form elements is the NASIS database. The SC/OSD Maintenance Tool allows the user to update data in the NASIS database. In addition, an Official Soil Series Description for a particular soil series may be viewed or updated and saved. The NASIS Database does not contain Official Soil Series Descriptions. The OSDs are files retrieved from and saved to a file share. An OSD's contents are displayed on the web form in text format, allowing the end user to make changes as needed and save them. The BAF (Business Application Framework) web service is used to log important events, warnings and errors, and uses its own database for storage. Logging to the BAF database does not occur for every application event, only for the ones deemed important.

3.0 GETTING STARTED

3.1 System Requirements

The SC/OSD Maintenance Tool requires the following:

1. A CCE compatible machine (desktop, laptop, tablet) connected to the USDA network, either directly or via VPN
2. Microsoft Windows operating system (current CCE OS version)
3. Microsoft Internet Explorer (current CCE IE version)
4. Internet Access
5. Level 2 eAuth account (login/password) with the eAuth role "NRCS_Citrix_Users"
6. A member of NASIS Site name "MLRAxx_Office" where "xx" is a two digit number between 01 through 12, and a member of the NASIS Group "OSD".

A typical USDA end user will most likely be using a CCE machine with Microsoft Windows and Internet Explorer on the USDA network, so the first four requirements should not require much effort. However, the fifth and sixth requirement will require the user to establish a Level 2 eAuth account, and become a member of the "OSD" NASIS group for their respective NASIS Site (SSRO).

USDA eAuthentication is the system used by USDA agencies to enable customers to obtain accounts that will allow them to access USDA Web applications and services via the Internet. This includes things such as submitting forms electronically, completing surveys online, and checking the status of your USDA accounts.

You can use an eAuthentication account to access a wide range of USDA applications. You gain the convenience of transacting business with USDA online, anytime, anywhere. Your eAuthentication account consists of a User ID, a password, and your customer profile containing information about you that will help USDA applications make decisions about your identity. Currently, USDA offers accounts with Level 1 Access and accounts with Level 2 Access.

The SC/OSD Maintenance Tool requires the end user to have an eAuth account with Level 2 Access. For further information, please access the USDA eAuthentication web site at:
http://www.eauth.egov.usda.gov/

NASIS (the National Soil Information System) is a tool to help you create and maintain soil survey data. It takes advantage of database technology to provide an automated means for storing all information about soil surveys. NASIS maintains the hierarchical structure of soil survey data through the use of table-oriented editors, but allows for new flexibility in creating and maintaining soil survey data.

The SC/OSD Maintenance Tool requires the user to become a member of one of the NASIS site names representing an SSRO, such as "MLRA01_Office" for SSR 1, and a member of the NASIS group name "OSD" within the particular NASIS site. For further information, please access the NASIS home page at:
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_053552

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

(402) 437-5378 - Steve Speidel
(402) 437-5379 - Tammy Cheever

e-mail: soilshotline@lin.usda.gov

3.1.1 Browser Requirements

JavaScript is a scripting language which enables web authors to design interactive web sites. Most of today's web pages require JavaScript in order to function properly. If JavaScript is disabled in your web browser some web pages will not function properly. Since the SC/OSD Maintenance Tool uses JavaScript for some functionality, it is important for the user to have JavaScript enabled.

3.2   Invoking the Program

The SC/OSD Maintenance Tool is invoked from a Microsoft Internet Explorer browser. Here are some ways to launch Internet Explorer:
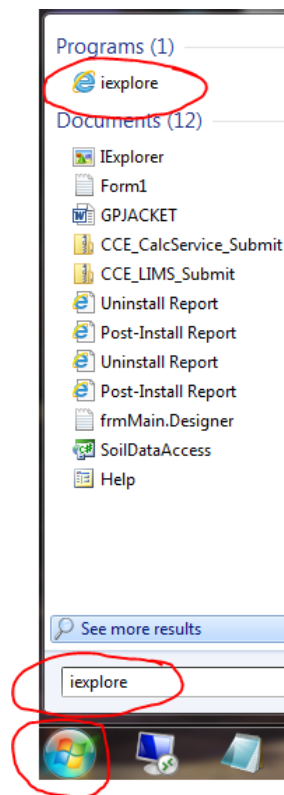
1. From the "Start" button: **Start >> All Programs >> Internet Explorer**
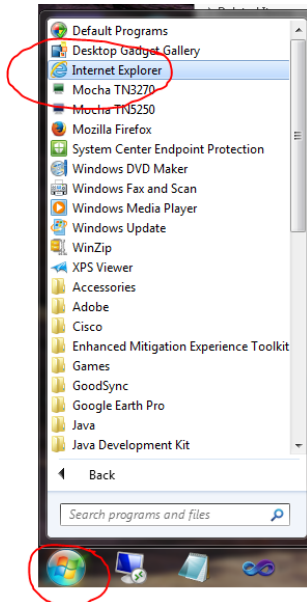
2. From the desktop: double click the **Internet Explorer** icon.

3. From the program explorer: **Start >> type iexplore >> Click the iexplore icon**

Once the Internet Explorer browser is up and running with JavaScript enabled, a URL is needed in order to run the SC/OSD Maintenance Tool, for example: https://soilseries.sc.egov.usda.gov/sc_update.aspx. The URL may be typed directly in a browser or bookmarked. Another way to access the tool is to go to the Soils Homepage > Soil Survey > Soil Classification at http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/class/ and click on the link to the SC/OSD Maintenance Tool.

4.0 USING THE SYSTEM

4.1 Logging into eAuth

After launching the SC/OSD Maintenance Tool in Internet Explorer, the eAuth log-in page will appear. Please enter your user id and password, and then press the "Login" or "Login with my LincPass" button, as appropriate.

After successfully passing the eAuth log-in screen and associated security pop ups, the main page of the SC/OSD Maintenance Tool will appear as seen below.

4.2 NASIS Group Membership

Although the main page of the SC/OSD Maintenance Tool appears, it may not be functional due to one more requirement. An end user must be a member of the NASIS Group "OSD" within one of the NASIS Sites named "MLRAxx_Office", where "xx" is a two digit number from 01 through 12, representing one of the Soil Survey Regional Offices (SSROs). The SC/OSD Maintenance Tool performs this check, and will display an access denied message if you do not meet this requirement.

4.3 The SC/OSD Maintenance Tool Main Form

Once the eAuth and NASIS Group requirements have successfully been met, the main form of the SC/OSD Maintenance Tool will be functional. Note that upon entering the main form, most of the data entry fields will be disabled, except for the horizontal main menu choices and the "Clear Screen" button.

4.3.1 The SC/OSD Maintenance Tool Main Form Sections

The SC/OSD Maintenance Tool has one main form. Vertical scrolling is available to view all the controls on the form. A user may enter or edit soil classification data for an official soil series and its associated OSD, all on the same form.

Like most data entry forms, the SC/OSD Maintenance Tool form has been organized into sections. An explanation of each section follows.

4.3.1.1 Main Menu

○ Add Series ○ Update Series ○ Delete Tentative Series ○ Transfer Responsibility ○ Rename Series

The main menu is the location where every user session begins. The main menu consists of five choices that are mutual exclusive, i.e. only one choice may be made at one time. The form is initially displayed with nothing chosen. To begin a session, a user chooses one of the main menu choices, as described below.

Add Series adds a soil series record to the NASIS database. The soil series name entered is validated with the NASIS database to ensure it does not exist. The taxonomic classification is validated according to a set of rules based on the keys to classes found in the current edition of the "*Keys to Soil Taxonomy*".

Note: When adding a new series, the soil classification data must be entered first and *saved* to the NASIS database before the OSD text is entered. Data is saved to the database when the "Add Series" button is pressed.

Update Series updates a soil series record already in the NASIS database. The soil series name entered is validated with the NASIS database to ensure it does exist. The taxonomic classification is validated according to a set of rules based on the keys to classes found in the current edition of the "*Keys to Soil Taxonomy*". If an OSD

document exists for this series, it is updated with the new information. This option is also used to change the status of an existing series.

Delete Tentative Series deletes a soil series record from the NASIS database. This choice accepts a name for an existing, tentative soil series that is to be deleted from the NASIS database, and provides confirmation before the actual deletion takes place. Deleting a tentative series will also delete its associated OSD document, if it exists. In addition, a list of soil series that make a reference to the deleted soil series will be produced. The user can then remove the deleted soil series name in those referenced OSD documents.

Transfer Responsibility transfers responsibility or ownership of a series to a different SSRO. This choice accepts a name for an existing soil series and an SSRO. In order to successfully make the change, the user must be a member of the SSRO that currently has responsibility for the series, and must enter a different SSRO than the current one assigned to this soil series. If these two requirements are met, the NASIS database is updated with the newly provided SSRO.

Rename Series renames an existing soil series. This choice accepts a name for an existing soil series and a non-existent soil series name, and provides confirmation before the actual renaming occurs. The existing soil series name will be updated to the new soil series name in the NASIS database and its associated OSD document will be updated, if it exists. In addition, a list of soil series that make a reference to the renamed soil series will be produced. The user can then update the renamed soil series name in those referenced OSD documents.

Membership within the Responsible SSRO

In order to perform any of the main menu operations, the user of the SC/OSD Maintenance Tool must be a member of the responsible SSRO. For example, the soil series "ZAAR" has SSRO 11 (Indianapolis, Indiana) as its responsible SSRO. If the current user is not a member of the "OSD" group in NASIS for SSRO 11 then they may view the data for the "ZAAR" series but may not make any changes.
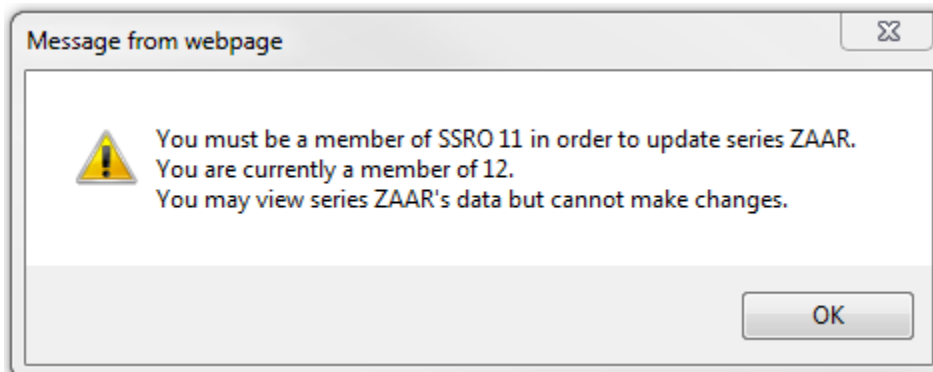
The SC/OSD Maintenance Tool will become read-only (view only), and will not allow any changes to occur, as shown in the picture below.

4.3.1.2 Clear Screen

The "Clear Screen" button returns the form to its initial state in which all controls are disabled, except for the main menu choice list and the "Clear Screen" button. All controls will be cleared of their contents, including the main menu choice list.

Note: The initial state of the form upon first entry is one in which the only two controls that are enabled are the main menu choice list and the "Clear Screen" button. This was designed to guide the user to begin a session at the main menu choice list. Once a main menu choice has been made, other controls will be enabled, further guiding the user to the next step.

4.3.1.3 Series Name and Retrieve Series Dynamic Button

The series name can only contain letters, spaces, periods, apostrophes (single quotes) and grave accent "`" characters. It is limited to a total of 25 characters.

The SC/OSD Maintenance Tool allows the "`" character for those soil series in Hawaii. The "`" character is located on the key next to the digit "1" on your keyboard. This key also has the tilde "~" character on it. The "`" character is known as the "grave accent" character (as in the Latin word "gravis", meaning "heavy"; rhymes with "have").
Note: The following are Microsoft reserved words and therefore CANNOT be used as series names: AUX, CON, NUL and PRN.

If the user enters a reserved word such as "CON" for a series name and presses the "Retrieve Series" button, the following message will be displayed.
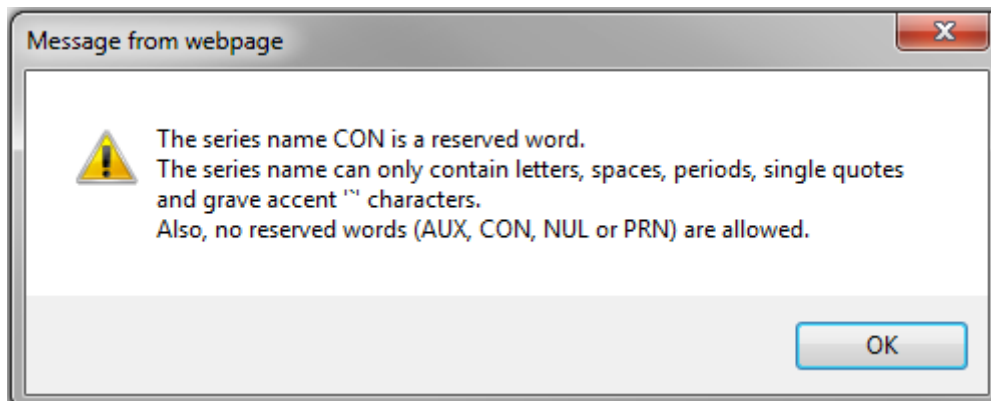
After a main menu choice item has been made, the next step is to enter a valid, soil series name in the "Series Name" text box. Capitalization automatically occurs for this text box entry. An example of a soil series name is "RAVENDOG". The button next to the "Series Name" textbox will be referred to as the "Retrieve Series dynamic button" from here on, because it can perform the retrieve series, add series, update series, delete tentative series, transfer responsibility, and rename series actions. This dynamic button will visually change its display text depending upon the previous actions taken by the user. The text displayed on this button will be one of the following: "Retrieve Series", "Add Series", "Update Series", "Delete Tentative Series", "Transfer Responsibility" or "Rename Series".

Retrieve Series will be displayed when one of the main menu choices has been selected. The user needs to enter a soil series name in the "Series Name" textbox and press the "Retrieve Series" button. Once this is done, the program will check whether or not the entered soil series name exists in the NASIS database, depending upon which main menu choice was selected. If the "Update Series", "Delete Tentative Series", "Transfer Responsibility" or "Rename Series" main menu choice was selected, then the program will check if the soil series name entered exists in the NASIS database, since the intention is to perform an operation on an existing soil series. If the "Add Series" main menu choice was selected, the program will check if the soil series name entered does not exist in the NASIS database, since the intention is to add a new, nonexistent soil series.

Add Series will be displayed after the following actions have taken place: the "Add Series" main menu choice has been selected, a new soil series name has been entered in the "Series Name" text box, the "Retrieve Series" button has been pressed, and the program has checked that the entered series name does not exist in the NASIS database. Thus, the dynamic button text will first display "Retrieve Series" and then "Add Series". Note that the same button is being used for the retrieve series and add series actions.

Note: After a successful "add series" operation occurs, the web form will be in "update series" mode. The user has the opportunity to continue updating the web form data or enter OSD text in the "Description" textbox.

Update Series can be displayed in two different situations. The first situation occurs after a successful insertion of a new soil series through the "Add Series" action. Thus, for this case, the dynamic button text will first display "Retrieve Series", then "Add Series", and finally "Update Series". Note that the same button is being used for the retrieve series, add series and update series actions. The second situation occurs after the following actions have taken place: the "Update Series" main menu choice has been selected, an existing soil series name has been entered in the "Series Name" text box, the "Retrieve Series" button has been pressed, and the program has checked that the entered series name does exist in the NASIS database. Thus, the dynamic button text will first display "Retrieve Series" and then "Update Series". Note that the same button is being used for the retrieve series and update series actions.

Delete Tentative Series will be displayed after the following actions have taken place: the "Delete Tentative Series" main menu choice has been selected, an existing soil series name has been entered in the "Series Name" text box, the "Retrieve Series" button has been pressed, and the program has checked that the entered series name does exist in the NASIS database and its status is set to "tentative". Thus, the dynamic button text will first display "Retrieve Series" and then "Delete Tentative Series". Note that the same button is being used for the retrieve series and delete tentative series actions.

Transfer Responsibility will be displayed after the following actions have taken place: the "Transfer Responsibility" main menu choice has been selected, an existing soil series name has been entered in the "Series Name" text box, the "Retrieve Series" button has been pressed, and the program has checked that the entered series name does exist in the NASIS database and the current user is a member of the soil series' current, responsible SSR Office. Thus, the dynamic button text will first display "Retrieve Series" and then "Transfer Responsibility". Note that the same button is being used for the retrieve series and transfer responsibility actions.

Rename Series will be displayed after the following actions have taken place: the "Rename Series" main menu choice has been selected, an existing soil series name has been entered in the "Series Name" text box, the "Retrieve Series" button has been pressed, a new soil series name has been entered in the "New Series Name" textbox, and the program has checked that the "Series Name" does exist in the NASIS database, the "New Series Name" does not exist in the NASIS database, and the current user is a member of the existent series name's current, responsible SSR Office. Thus, the dynamic button text will first display "Retrieve Series" and then "Rename Series". Note that the same button is being used for the retrieve series and rename series actions.

Note: After a successful "rename series" operation occurs, the web form will be in "update series" mode for the newly renamed soil series. The user has the opportunity to continue updating the web form data or enter/edit OSD text in the "Description" textbox.

Referenced OSD Files

The Delete Tentative Series and Rename Series operations have additional functionality due to the relationship between soil series.

For the Delete Tentative Series action, the existent tentative series entered will be removed from the NASIS database and its OSD file, if it exists. In addition, all OSD files will be searched for the deleted series name. If an OSD file contains this deleted series name, it will be added to a list containing the series name and its responsible SSRO in parentheses. These referenced OSD files will be displayed in a list in a message box and also in the "OSD Messages" textbox, so the user may copy and paste the message into a text document for future use as necessary.

In this example, the tentative series "CHAIN" was deleted using the "Delete Tentative Series" main menu option. A message box displays the results of this operation.
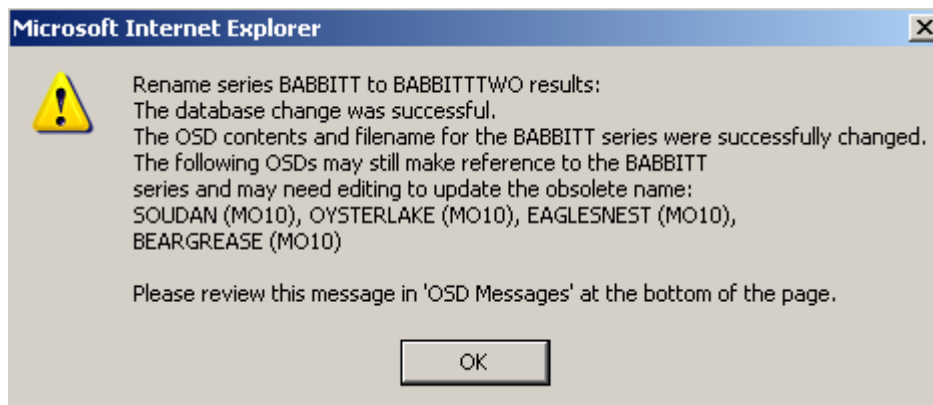
Once the user presses the "OK" button to dismiss the message box, the same message is duplicated in the "OSD Messages" textbox in the web form. This textbox is located at the bottom of the form, so vertical scrolling may be necessary to view its contents.

At this point, the user will have to use the "Update Series" main menu option to modify the contents of the OSD files for the soil series PUHIMAU, NAKANUI, KAHALII, KALAPANA, BLUE EARTH, AHIU and APUKI. The responsible SSROs for these soil series are SSRO2 and SSRO10. The user will either have to be a member of these SSROs or contact a member to perform the update operation.

For the Rename Series action, the existent series entered will be renamed to the new series name in the SC database and its OSD file, if it exists. In addition, all OSD files will be searched for the renamed series name. If an OSD file contains this renamed series name, it will be added to a list containing the series name and its responsible SSRO in parentheses. These referenced OSD files will be displayed in a list in a message box and also in the "OSD Messages" textbox, so the user may copy and paste the message into a text document for future use as necessary.

In this example, the series "BABBITT" was renamed to "BABBITTTWO" using the "Rename Series" main menu option. A message box displays the results of this operation.

Once the user presses the "OK" button to dismiss the message box, the same message is duplicated in the "OSD Messages" textbox in the web form. This textbox is located at the bottom of the form, so vertical scrolling may be necessary to view its contents.

At this point, the user will have to use the "Update Series" main menu option to modify the contents of the OSD files for the soil series SOUDAN, OYSTERLAKE, EAGLESNEST and BEARGREASE. The responsible SSRO for these soil series is SSRO10. The user will either have to be a member of this SSRO or contact a member to perform the update operation.

Rename Series

Series Name	BABBITT	Retrieve Series

Two steps are required for the rename series operation. The first step is to enter the name of the existent series to be changed and then press the "Retrieve Series" button.

Series Name	BABBITT	Rename Series
New Series Name		

Once the existent soil series is loaded onto the form, the second step is to enter the new name for the soil series and press the "Rename Series" button.

Synchronization

For any series, it is important that the web form field elements, the database and the OSD text contain the same information. In order to facilitate this, automatic synchronization is performed when the user presses the "Update Series" or "Transfer Responsibility" button. The following form fields can change the OSD text in the "Description" textbox.

- State Location
- Series Status
- Responsible SSRO
- Other States Using
- The Classification String (the following eleven form fields can affect this string)
  - Subgroup
  - Particle Size
  - Modifier (Particle Size Modifier)
  - Human Altered-Human Transported Material
  - Mineralogy (Mineralogy 1st term)
  - Field next to the text "Over" (Mineralogy 2nd term)
  - CEC Activity

- Soil Reaction
- Soil Temp (Soil Temperature)
- Other Family (Other Family 1st term)
- Field next to the comma (Other Family 2nd term)

If any of the following fields are changed to a value that is different from what is stored in the database, and the user presses the "Update Series" button, the OSD text in the "Description" textbox will be updated to match the form's field contents.

- State Location
- Series Status
- Other States Using
- The Classification String (there are ten form fields that can affect this string; see above list)

If the following field is changed to a value that is different from what is stored in the database, and the user presses the "Transfer Responsibility" button, the OSD text in the "Description" textbox will be updated to match the form's field contents.

- Responsible SSRO

Note: In the following examples, the OSD text changes will be shown in bold type.

1- <u>State Location</u>: This field will affect the first line in the OSD text, specifically the two characters that begin at column 33. For example, if the soil series "BABBITT" had its state location changed in the "State Location" user interface control from "MN" to "PA", then the following change would occur in its OSD text during synchronization.

```
LOCATION BABBITT                    MN
LOCATION BABBITT                    PA
```

2- <u>Series Status</u>: This field will affect the third line in the OSD text, specifically the word before "Series". For example, if a series' status were to change from "Tentative" to "Established" in the "Status" user interface control, then the following change would occur in its OSD text during synchronization.

```
Tentative Series
Established Series
```

Note that the major heading "SERIES PROPOSED" or "SERIES ESTABLISHED" will not be changed by the synchronization process, as this was done by design. The user will have to manually make that change. For example, if the series' status were changed from "Tentative" to "Established" then the user would have to manually make the following change by editing the text in the header. The establishment of a series by correlation actions for a survey area (county, state, MLRA, etc.) other than the originating one, and/or the year of the establishment, will also need a manual edit. In the example shown below, the Babbitt series was first proposed in 1997 and later established in 2005 for the same soil survey area.

```
SERIES PROPOSED: St. Louis County, Minnesota, 1997.
SERIES ESTABLISHED: St. Louis County, Minnesota, 2005.
```

3- <u>Responsible SSRO</u>: This field will affect the major heading labeled as "SOIL SURVEY REGIONAL OFFICE (SSRO) RESPONSIBLE". For example, if a series' responsible SSRO were to change from "St. Paul, Minnesota" to "Temple, Texas" in the "Responsible SSRO" user interface control, then the following change would occur in its OSD text during synchronization.

```
SOIL SURVEY REGIONAL OFFICE (SSRO) RESPONSIBLE: St. Paul, Minnesota
SOIL SURVEY REGIONAL OFFICE (SSRO) RESPONSIBLE: Temple, Texas
```

4- <u>Other States Using</u>: This field will affect the first line in the OSD text at the first state abbreviation after the state location. In the following example, the list starts with state "CT". If a series' other states using list were to change from "CT, MA, VT" to "CT, MA" in the "Other States Using" user interface control, then the following change would occur in its OSD text during synchronization.

```
LOCATION TACONIC                   NY +CT MA VT
LOCATION TACONIC                   NY +CT MA
```

5- <u>The Classification String</u>: This field will affect the "TAXONOMIC CLASS" major heading. For example, if a series' taxonomic class were to change from "Coarse-loamy, isotic, frigid Aquic Dystrudepts" to "Loamy, mixed, superactive, calcareous, frigid, shallow Ustic Torriorthents" due to changes to the ten classification user interface controls, then the following change would occur in its OSD text during synchronization.

```
TAXONOMIC CLASS: Coarse-loamy, isotic, frigid Aquic Dystrudepts
TAXONOMIC CLASS: Loamy, mixed, superactive, calcareous, frigid, shallow Ustic
Torriorthents
```

Note: The classification string is not shown in uppercase in the OSD text. It is formatted with a mixture of upper and lower case characters.

Note: If the OSD text is changed by the synchronization process such that it is different than what is currently stored on disk, the date on line 5 of the OSD will be updated to the current month and year automatically (e.g. MM/YYYY format as in 03/2010).

4.3.1.4 Responsible SSRO and State Location

Responsible SSRO [⌄] State Location [⌄]

The next section contains two drop down list controls. The "Responsible SSRO" drop down list represents the responsible MLRA Office for this soil series. Example choices include "1 Portland, Oregon" and "9 Temple, Texas". Each choice list string will contain the SSRO number, followed by the city, a comma, and then the state in which the responsible SSRO is located.

The "State Location" drop down list represents the state in which the type location of the soil series is located. Example choices include "AK Alaska" and "WY Wyoming". Each choice list string will contain the alpha FIPS code (e.g. "PA" for Pennsylvania), followed by the state name.

Note: There is a relationship between the "State Location" drop down list and the "Other States Using" list. The chosen "State Location" item will automatically be included in the "Other States Using" list.

Once a state is selected in "State Location", the same state will be automatically selected and added to the "Other States Using" field elements.

State Location [OR OREGON   ▼]

Other States Using (Please use the Ctrl or Shift key for multiple selections/deselections)

```
OH OHIO              ▲
OK OKLAHOMA
OR OREGON
PA PENNSYLVANIA
PB PACIFIC BASIN
PR PUERTO RICO       ▼
```

[Calculate State List]

```
OR
```

In the example above, "OR OREGON" was chosen as the State Location. Once this was done, the program automatically selected (highlighted) "OR OREGON" in the "Other States Using" drop down list and populated the "Other States Using List" textbox with the alpha FIPS code for Oregon: "OR".

At this point, if the user were to change their mind and select "PA PENNSYLVANIA" for the state location, then the Other States Using control would have *both* "OR OREGON" and "PA PENNSYLVANIA" highlighted and "OR, PA" in the "Other States Using List" textbox. States are *never* automatically de-selected or removed. It will be up to the user to de-select "OR OREGON" in the "Other States Using" drop down list, if that is the intention.

4.3.1.5 Status and Benchmark

Status [ESTABLISHED ▼]   Benchmark ☐

The next section contains two related user interface elements: a drop down list and a check box. The "Status" drop down list contains three choices for the status of the soil series: "Tentative", "Established" and "Inactive". An "Established" series can only have its status changed to "Inactive", an "Inactive" series can only have its status changed to "Established", and a "Tentative" series can be changed to "Established" only if its OSD is available. Only a "Tentative" series can be deleted from the SC database. A benchmark series is only allowed when its status is "Established", thus the "Benchmark" checkbox will only be enabled when the "Status" is set to "Established".

Status [TENTATIVE ▼]
Year P[ESTABLISHED]
       [TENTATIVE]

Microsoft Internet Explorer   ✕

⚠ The series ABRACADABRA has no OSD file.
   A series' status cannot be changed from tentative to established without an OSD file.
   The series status has been changed back to tentative.

                    [OK]
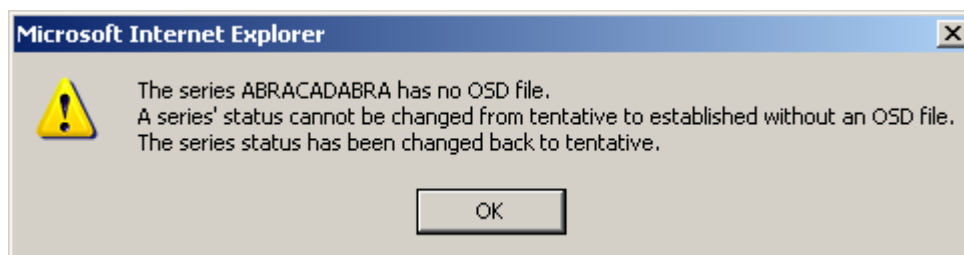
Status [TENTATIVE ▼]   Benchmark ☐

If a tentative series has no OSD file saved to disk and an attempt is made to change its status to "Established", a warning message will appear and the status will be changed back to "Tentative".

4.3.1.6 Year Proposed and Year Established

Year Proposed [2010 ▼]   Year Established [▼]

The "Year Proposed" and "Year Established" fields will contain 4-digit years ranging from 1899 to the present year (e.g. 2010). If both are populated, the "Year Established" year choice should be at least the same year or greater than the "Year Proposed" year choice. For a new soil series that has a status of "Tentative", "Year Proposed" must be populated. For a current, established soil series both "Year Proposed" and "Year Established" should be populated, although for some older series this information may not be known.

For a new series, if the "Year Proposed" field is blank and the user presses "Add Series", then the "Year Proposed" field will automatically be populated with the current year (e.g. 2010).

For a new series, if the "Year Proposed" field is blank, then the "Year Established" field will be disabled.

If the "Year Proposed" and "Year Established" fields are populated, and then the "Year Proposed" field value is removed (made blank), then the "Year Established" field will become disabled.

4.3.1.7 Taxonomy, Calculate Classification and Classification Messages

The next section contains the taxonomy controls, a "Calculate Classification" button and associated message box. Select from the given controls as much Soil Taxonomy classification information as necessary, and then press the "Calculate Classification" button to calculate the given input and display the classification string. If the classification is invalid, descriptive messages will be displayed in the "Classification Messages" box.

For more information on Soil Taxonomy, please refer to the following web site: http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/class/taxonomy/

For information on The "Keys to Soil Taxonomy", please refer to the following web site: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/class/?cid=nrcs142p2_053580

Note: An asterisk (*) will be displayed next to choice list items that have become obsolete. They should not be selected for newly input classifications, and if done so, will be automatically removed by the program.

The following fields are used in the calculation of the classification string:

- Subgroup
- Particle Size
- Modifier (Particle Size Modifier)
- Human Altered-Human Transported Material
- Mineralogy (Mineralogy 1st term)
- Field next to the text "Over" (Mineralogy 2nd term)
- CEC Activity
- Soil Reaction
- Soil Temp (Soil Temperature)
- Other Family (Other Family 1st term)
- Field next to the comma (Other Family 2nd term)

The following screen represents a random and incorrect selection of classification terms to describe a soil series, and has been done for illustrative purposes.

Before pressing the "Calculate Classification" button, notice some obvious mistakes. The "Mineralogy" second term chosen is "CHLORITIC *", an obsolete choice, and the "Other Family" second term chosen is the same as the first: "CRACKED".

After pressing the "Calculate Classification" button, the "Classification Messages" box displays these two errors.

The program automatically changed the mineralogy second term to the empty string. After we manually changed the "Other Family" second term to the empty string through the user interface, we again pressed the "Calculate Classification" button.

After pressing the "Calculate Classification" button a second time, the "Classification Messages" box displays further errors. In order to create a valid classification, these

errors will need to be fixed. Note that the classification string (the long, rectangular box under the "Calculate Classification" button) will be empty if an error has occurred.

Based on the error messages, we changed mineralogy from "amorphic" to "smectitic" over "mixed", and soil reaction and other family (first term) to the empty string, and then pressed the "Calculate Classification" button a third time.

Success! The classification string is "Clayey over loamy, aniso, smectitic over mixed, semiactive, hyperthermic Abruptic Argiaquolls". Notice that the classification string text is all in lower case, except for the first word (Clayey) and the subgroup name (the last two words in this case).

Another example of a classification follows for an existent soil series named "BABBITT". Its classification string is "Coarse-loamy, isotic, frigid Aquic Dystrudepts". This soil series was loaded from the database, and no changes were made to its taxonomic classification. Notice that the classification string text is all in upper case.

Note: The classification string text will be uppercase when loaded from the database, as this is how it is stored. When calculated in the interface, it will be changed to a mixture of upper and lower case characters, as seen in its OSD. This distinction will

help the user determine whether the calculation string has been loaded from the database or is the result of a calculation. In the screen shot above, we see that the classification string is in uppercase and thus is the result of a database load.

Upon calculation, the first word will be capitalized, and the subgroup will be capitalized (generally the last two to four words in the classification string, since a subgroup is made up of two to four words). The rest of the words in the calculation string will be lowercased.

For a new series, if the "Particle Size" field is blank, then the "Modifier" field will be disabled.

If the "Particle Size" and "Modifier" fields are populated, and then the "Particle Size" field value is removed (made blank), then the "Modifier" field will become disabled.

For a new series, if the "Mineralogy (first term)" field is blank, then the "Mineralogy (second term)" field will be disabled.

If the "Mineralogy (first term)" and "Mineralogy (second term)" fields are populated, and then the "Mineralogy (first term)" field value is removed (made blank), then the "Mineralogy (second term)" field will become disabled.

For a new series, if the "Other Family (first term)" field is blank, then the "Other Family (second term)" field will be disabled.

If the "Other Family (first term)" and "Other Family (second term)" fields are populated, and then the "Other Family (first term)" field value is removed (made blank), then the "Other Family (second term)" field will become disabled.

Type-Ahead Feature

Subgroup [▼]

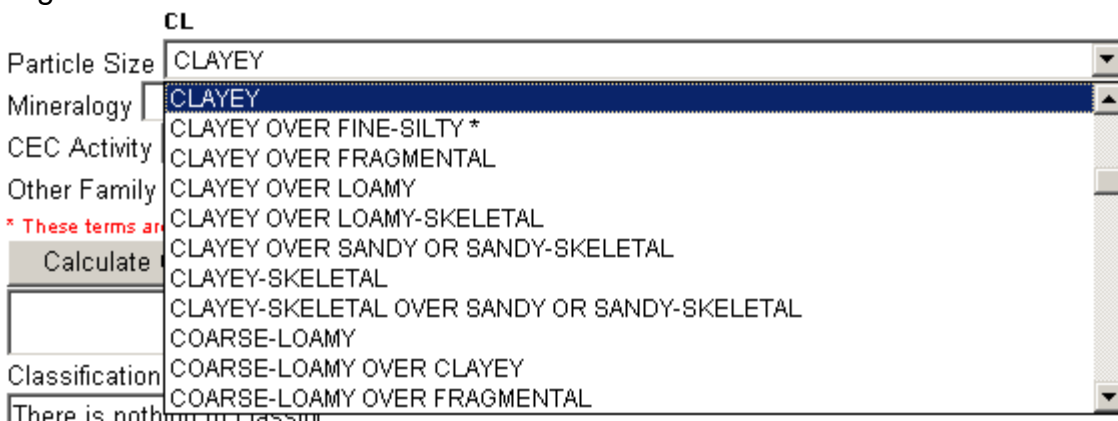Particle Size [▼]

There are two classification fields that have many possible choices: the "Subgroup" and "Particle Size" fields. The user may scroll through many choices trying to find the required item, or they may click on the field and start typing. If the type-ahead feature is used, the list will be focused on those items that match the letters the user is currently typing.
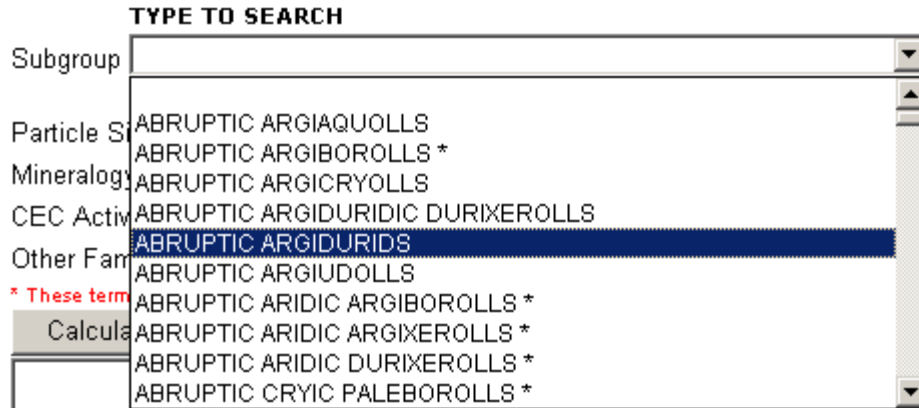
Once the field is clicked on using the left mouse button the text "TYPE TO SEARCH" will be displayed in bold text, indicating the next step is to type the name of the item.
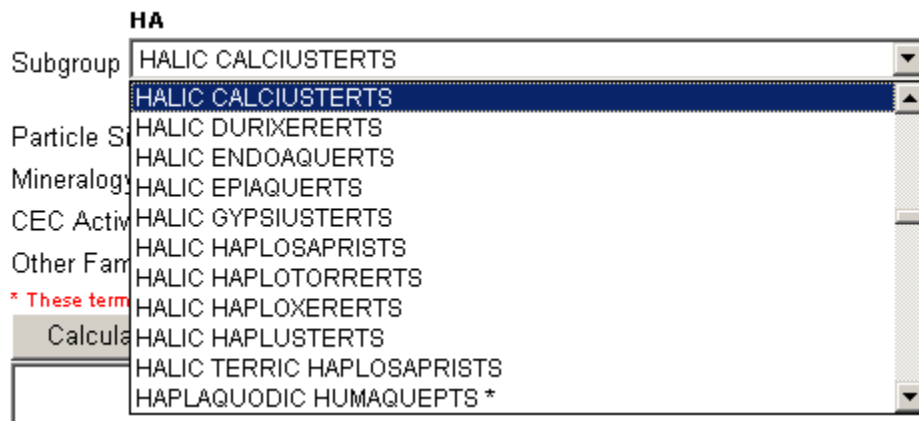
In this case for "Subgroup", the letters "H" then "A" were typed in, giving a list that begins with the letters "HA".

In this case for "Particle Size", the letters "C" then "L" were typed in, giving a list that begins with the letters "CL".

4.3.1.8 Other States Using and Calculate State List

Other States Using (Please use the Ctrl or Shift key for multiple selections/deselections)

```
AK ALASKA
AL ALABAMA
AR ARKANSAS
AS AMERICAN SAMOA
AZ ARIZONA
```

Calculate State List

The "Other States Using" list allows the user to choose multiple states that use this soil series, including the state selected in the "State Location" field. Each choice list item contains the state FIPS code followed by the state name, e.g. "AK Alaska". Select more than one state by using the "CTRL" (control) or "SHIFT" keys on your keyboard. Vertical scrolling may be needed to view all the states in the selection. After selecting the desired states, press the "Calculate State List" button to display all the states selected. The state listing will have each selected state's FIPS code and use a comma as the delimiter between states.

Other States Using (Please use the Ctrl or Shift key for multiple selections)

```
AK ALASKA
AL ALABAMA
AR ARKANSAS
AS AMERICAN SAMOA
```

Calculate State List

AK, AR, CO, TN

Note: There is a relationship between the "State Location" drop down list and the "Other States Using" list. The chosen "State Location" item will automatically be included in the "Other States Using" list.

4.3.1.9 MLRAs Using and Calculate MLRA List

MLRAs Using (Please use the Ctrl or Shift key for multiple selections/deselections)

```
1 NORTHERN PACIFIC COAST RANGE, FOOTHILLS, AND VALLEYS
2 WILLAMETTE AND PUGET SOUND VALLEYS
3 OLYMPIC AND CASCADE MOUNTAINS
4 CALIFORNIA COASTAL REDWOOD BELT *
4A SITKA SPRUCE BELT
4B COASTAL REDWOOD BELT
5 SISKIYOU-TRINITY AREA
6 CASCADE MOUNTAINS, EASTERN SLOPE
```

Calculate MLRA List

The "MLRAs Using" list allows the user to choose one or more MLRAs where this soil series is mapped. Each choice list item contains the MLRA symbol followed by the MLRA name, e.g. "6 Cascade Mountains, Eastern Slope". The list is sorted by MLRA symbol in ascending order. Select more than one MLRA by using the "CTRL" (control) or "SHIFT" keys on your keyboard. Vertical scrolling may be needed to view all the MLRAs in the selection. After selecting the desired MLRAs, press the "Calculate MLRA List" button to display all the MLRAs selected. The MLRA listing will have each selected MLRA symbol and use a comma as the delimiter between MLRAs.

MLRAs Using (Please use the Ctrl or Shift key for multiple selections/deselections)

```
1 NORTHERN PACIFIC COAST RANGE, FOOTHILLS, AND VALLEYS
2 WILLAMETTE AND PUGET SOUND VALLEYS
3 OLYMPIC AND CASCADE MOUNTAINS
4 CALIFORNIA COASTAL REDWOOD BELT *
4A SITKA SPRUCE BELT
4B COASTAL REDWOOD BELT
5 SISKIYOU-TRINITY AREA
6 CASCADE MOUNTAINS, EASTERN SLOPE
```

Calculate MLRA List

1, 3, 4A, 5, 93A

Note: An asterisk (*) will be displayed next to choice list items that have become obsolete. They should not be selected for newly input data, and if done so, will be removed by the program.

The CTRL and SHIFT keys

The "Other States Using" list and "MLRAs Using" list both use the keyboard and mouse as user input devices. If the user only uses the mouse, then only one item may be selected in either list. In order to select more than one item, the user **must** use the CTRL or SHIFT keys along with the left mouse button on the mouse. This is performed by holding in the CTRL or SHIFT key and pressing the left mouse button at the same time. Note that you may select or de-select any item in these lists using this method.

Using the CTRL key to select items
Hold the CTRL key while clicking items in a list to select them. Click every item you want to select.

If you make a mistake and want to un-select an item, click it again. If it is not selected it will become selected, and if it is selected it will become un-selected. This is called a "toggle".

Notice that only the items you click on are selected. That's why some users call the CTRL key the "jump" key because you literally jump over things you don't want to select: you toggle or highlight exactly the items you want.

Using the SHIFT key to select items
To select multiple items that are adjacent, click on the first item. Hold the SHIFT key while you click on the last item. This will select all of the items between the first and the last, or "stretch" the selection across all items. The selection is consecutive and cannot be broken up.

Using a combination of CTRL and SHIFT
You can select all but one or two items in a list. First select them all using the SHIFT key as directed above. You can also use CTRL+A which is a shortcut to select all. Then hold the CTRL key and click on the items you don't want included.

Warning: If a list has one or more items highlighted and you select a different, unselected item without using the CTRL or SHIFT key, the current highlighted items will be unselected and the new item will be the only one selected (highlighted). If this happens, do not press the "Calculate State List" or "Calculate MLRA List button". View the comma-delimited string of entries in the textbox to individually re-highlight each appropriate selection in the choice list.

4.3.1.10 OSD Historical Notes

OSD Historical Notes

The OSD Historical Notes text field is introduced with the migration of the SC database into the NASIS database – NASIS version 6.2. The intent of this field is to allow the user to enter and maintain notes of progressive changes to the soil series over time. Many years ago, when the OSDs were maintained on UNIX minicomputers, these notes were maintained in separate files named after the soil series but with a ".a" extension. These files were commonly called dot-a files. It was up to the SSRO Regional offices to keep and maintain these files. It was suggested that this information is better kept in the database soil series record. Therefore, a text column, named soilseriesedithistory, in the NASIS database soilseries table is introduced to provide a place to store that information.

The SC/OSD Maintenance Tool exposes the soilseriesedithistory column to entering/editing via the OSD Historical Notes text field. The value of the column is displayed in the text field for a series when the user selects a main menu command, enters an existing soil series name, and clicks on the Retrieve Series button. It is available for entry/edit when the user selects the main menu command Add Series, Update Series, Transfer Responsibility, and Rename Series for a retrieved series from a SSRO that the user is a member of. The value of the text field is updated in the database whenever its value is changed and the user clicks on either of the dynamic "Retrieve Series" buttons (which would have the displayed value "Add Series", "Update Series", "Transfer Responsibility", or "Rename Series") or the dynamic "Add/Update Description" button or the "Continue Description Save" button (see section **4.3.1.17**).

4.3.1.11 Add/Update Series Dynamic Button

Add Series   Update Series

An additional button, located between the OSD Historical Notes and the OSD section, will mirror the dynamic "Retrieve Series" button at the top of the form. It is placed here to help the user to avoid scrolling to the top of the form in order to click on the dynamic "Retrieve Series" button. Note, however, it will not be available for series retrieval but rather take action; Add, Update, Delete, Transfer, Rename.

4.3.1.12 Official Soils Series Description Section

Description

Validate Description   Add Description

OSD Messages

Please input the series record information above and save it via the button 'Add Series' before adding a description.

Continue Description Save   Cancel Description Save   (may be hidden)

The OSD (Official Soil Series Description) section contains multiple boxes and buttons. There is a multi-line "Description" text box in which the user may enter and edit a soil series description (the actual OSD), a "Validate Description" button used to check the validity of the description, and a dynamic "Add/Update Description" button used to save the OSD. An "OSD Messages" box is provided to display possible error, warning and informational messages found during the validate process. Two buttons, "Continue Description Save" and "Cancel Description Save", only appear when adding or updating an OSD description that has warnings.

Note: A new soil series' record information must be input first in the upper portion of the screen, and then saved via the "Add Series" button before adding an OSD for that series. Thus, the "Description" textbox, the "Validate Description" button and the "Add/Update Description" button will be disabled until this occurs. This can be seen in the screen shot above in which the OSD section is disabled and the "OSD Messages" box displays the following message: "Please input the series record information above and save it via the button 'Add Series' before adding a description.".

4.3.1.13 Description

Description

```
LOCATION RAVENDOG          NV

Established Series
Rev. JBF-TRM-JVC
02/2010

RAVENDOG SERIES

The Ravendog series consists of very deep, well drained soils that formed in alluvium derived from mixed sources. Ravendog
soils are on stream terraces and inset fans. Slopes are 2 to 8 percent. The mean annual precipitation is about 250 mm and
the mean annual temperature is about 12 degrees C.

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, mesic Torrifluventic Haploxerolls

TYPICAL PEDON: Ravendog loam--rangeland. (Colors are for dry soil unless otherwise noted.)

   A--0 to 20 cm; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR3/2) moist; weak thin platy structure
parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; many very
fine and fine, and few medium roots; many very fine and fine tubular pores, and many very fine and fine vesicular pores;
slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.  (5 to 41 cm thick)

   Bw--20 to 41 cm; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic
structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic;
```

Validate Description   Update Description

The user can type the draft OSD directly into the "Description" text box, or the description may be constructed in a separate text editor such as MS Word, WordPad, or Notepad and then copy/pasted into this text box.

Since this application is adding data to the live database system or editing existing data, the preferred approach is to draft a new or edited OSD outside the application using MS Word, WordPad, or Notepad. Files should be saved as ".txt" files with absolutely no formatting. These files can and should be routed to your peers for reviewing prior to being posted.

Please refer to the following website for OSD instructions:
http://www.soils.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054220#ex4

Special Termination Characters

Section headers are capitalized and end with one colon (:) character, e.g. "TAXONOMIC CLASS:".

In the "Typical Pedon" section, pedon horizon designations end with a hyphen (-) character, e.g. "Bw1--". One or more consecutive hyphens are allowed.

Header and Footer Rules

The following lists the required format for the first eight lines and the last two lines in any OSD. There are specific rules that must be followed in order for an OSD to be saved. Most errors occur in the header section (the first eight lines). Please read this section carefully.

Line 1 -- The soil series name, state location and other states using are on this line, e.g.

```
LOCATION CABINET                ID+MT
```

The entire line is entered in capital letters. The first letter of the state where the soil series is located **must** be in column 33 (in this case the letter "I" in "ID"). A "+" (plus) sign or a space (" ") may be used to start the "Other States Using" list (in this case it is a plus sign as in "+MT"). The first letter of the first state in the "Other States Using" list **must** be in column 36 (in this case the letter "M" in "MT"). The state location is **not** repeated in the "Other States Using" list. Subsequent states after the first state listed in the "Other States Using" list are separated by a space or a plus sign. The "Other States Using" list **must** be in alphabetical order, i.e. "AL" comes before "PA".

Note: By "column" 33, we mean the 33rd character location on the first line starting on the leftmost side at the first character location "1".

Line 2 -- Blank line

Line 3 -- "Tentative Series" or "Established Series", e.g.

```
Established Series
```
The two words start with a capital letter (e.g. "E" and "S") and then the rest of the letters in the two words are in lowercase.

Line 4 -- The initials of the individuals who last revised the soil series are placed on this line, e.g.

```
Rev. PMH-GLS-JAL
```
This line usually starts with "Rev." and then has the initials capitalized and separated by a hyphen symbol (-) or a slash symbol (/).

Line 5 -- This line contains the month and year that the soil series draft was last sent to the official series description file, e.g.

`09/2000`

The date may also represent the last revision in one of the five form fields for the SC database that was accomplished through automatic synchronization (see "Synchronization" for more details).

The system enters this date automatically. The month and date **must** be entered as:

MM/YYYY as in 03/2010 (months 1 through 9 are preceded by a "0" to make two digits). The date should consist of seven (7) total characters, including the slash (/). Notice this date format contains a forward slash (/), not a dash or hyphen (-).

Line 6 -- Blank line

Line 7 -- The name of the series and then the word "SERIES", e.g.

`CABINET SERIES`

The entire line is entered in capital letters.

Line 8 -- Blank line

Line 8 is followed by the introductory paragraph and the rest of the soil series description.

The Last Two Lines **must be exactly** as shown below
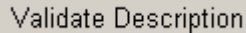
`National Cooperative Soil Survey`

`U.S.A.`

Next to last line -- National Cooperative Soil Survey (the beginning of each word is capitalized)

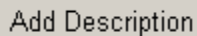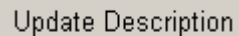Last line -- U.S.A. (All letters are capped and do not have spaces in between)

When the OSD is in the form that you wish the general public to see, then copy/paste it into the OSD Description portion of this application. Once the OSD has been entered, or an existing OSD has been edited, it must be validated prior to being saved.

4.3.1.14 Validate Description

[Validate Description]

The "Validate Description" button invokes a series of validations to ensure proper content and format of the OSD. These are the same checks contained in the previous "OSD Check" program. Validations may result in "errors" and/or "warnings". Please review the contents of the "OSD Messages" textbox for validation results.

4.3.1.15 Add/Update Description Dynamic Button

[Add Description]   [Update Description]

The button next to the "Validate Description" button is dynamic and has two purposes: 1) to add a new description, or 2) to update an existing description. If the series description does not already exist, the button label will be "Add Description", and if the soil series description does already exist, the button label will be "Update Description".

The "Add/Update Description" dynamic button will validate the OSD and then save it. It performs the same checks contained in the previous "OSD Check" program and the same update as the previous "OSD Update" program. The validations are run prior to saving the OSD.

Note: The OSD is saved in two file formats: a Word document format (*.Doc) and an HTML text file format (*.HTML). For an example please see the appendix.

Note: If the OSD text is changed by the user such that it is different than what is currently stored on disk, the date on line 5 of the OSD will be updated to the current month and year automatically (e.g. MM/YYYY format as in 03/2010).

Synchronization Warning

For any series, it is important that the web form field elements, the database and the OSD text contain the same information. In order to facilitate this, automatic synchronization is performed when the user presses the "Update Series" or "Transfer Responsibility" button. Similarly, when the user presses the "Add/Update Description" dynamic button, changes in the user interface need to be synchronized with the OSD text and the database. However, the purpose of the "Add/Update Description" dynamic button is to add or update an OSD, not to update the database, so this presents a problem when a database update is needed. The solution is to cancel the Add/Update Description operation, and present the user with a results screen detailing what has happened and what they need to do. Instead of pressing the "Add/Update Description" dynamic button, the user will need to press the "Update Series" button, since that operation will synchronize the user interface, OSD text and database data.
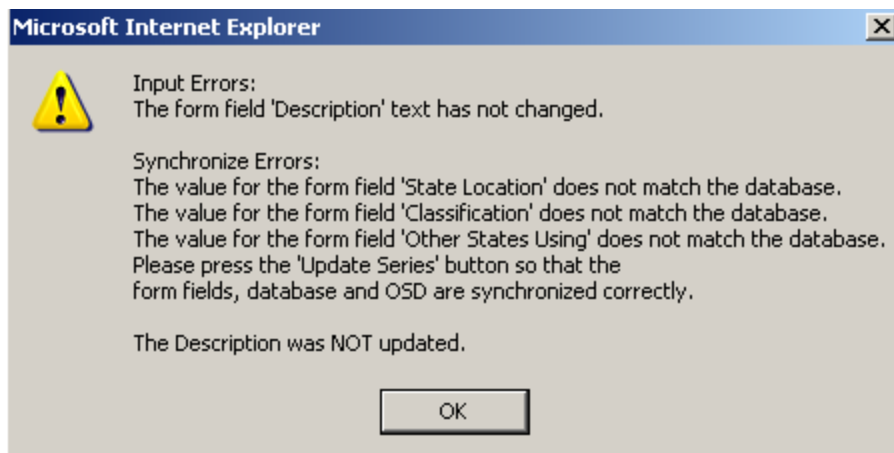
4.3.1.16 OSD Messages

Validations may result in "errors" and/or "warnings". Errors must be corrected before the OSD can be saved. Warnings may be ignored by the user.

Description

LOCATION RAVENDOG   NV

Established Series
Rev. JBF-TRM-JVC
02/2010

RAVENDOG SERIES

The Ravendog series consists of very deep, well drained soils that formed in alluvium derived from mixed sources. Ravendog soils are on stream terraces and inset fans. Slopes are 2 to 8 percent. The mean annual precipitation is about 250 mm and the mean annual temperature is about 12 degrees C.

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, mesic Torrifluventic Haploxerolls

TYPICAL PEDON: Ravendog loam--rangeland. (Colors are for dry soil unless otherwise noted.)

   A--0 to 20 cm; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR3/2) moist; weak thin platy structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; many very fine and fine, and few medium roots; many very fine and fine tubular pores, and many very fine and fine vesicular pores; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (5 to 41 cm thick)

   Bw--20 to 41 cm; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic;

Validate Description   Update Description

An example of a soil series that has its OSD defined is the RAVENDOG series. Vertical scrolling is available to view the entire description. Note that the button next to "Validate Description" is labeled as "Update Description" since this OSD already exists.

The RAVENDOG OSD is valid and upon pressing the "Validate Description" button a message box is immediately displayed. The following message is also displayed in the "OSD Messages" box: "No errors or warnings found".

Microsoft Internet Explorer
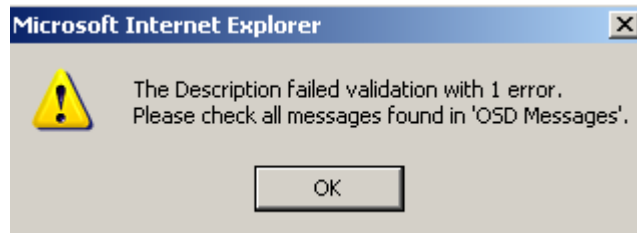
The Description passed validation.

OK

OSD Messages

No errors or warnings found.

However, if an error or warning occurs, the OSD text will be duplicated in the "OSD Messages" box, highlighted with the corresponding error or warning. Errors and warnings will be enclosed in brackets ([ ]), and errors will be displayed in red colored text and warnings will be displayed in blue colored text. Normal text is displayed in black.

To illustrate an error, we deleted the "GEOGRAPHIC SETTING" section for the RAVENDOG series and pressed the "Validate Description" button. The following messages were the result of this action. Notice the red colored text illustrating the error.

To illustrate a warning, we added an extra line before the "TAXONOMIC CLASS" section for the RAVENDOG series and pressed the "Validate Description" button. The following messages were the result of this action. Notice the blue colored text illustrating the warning.
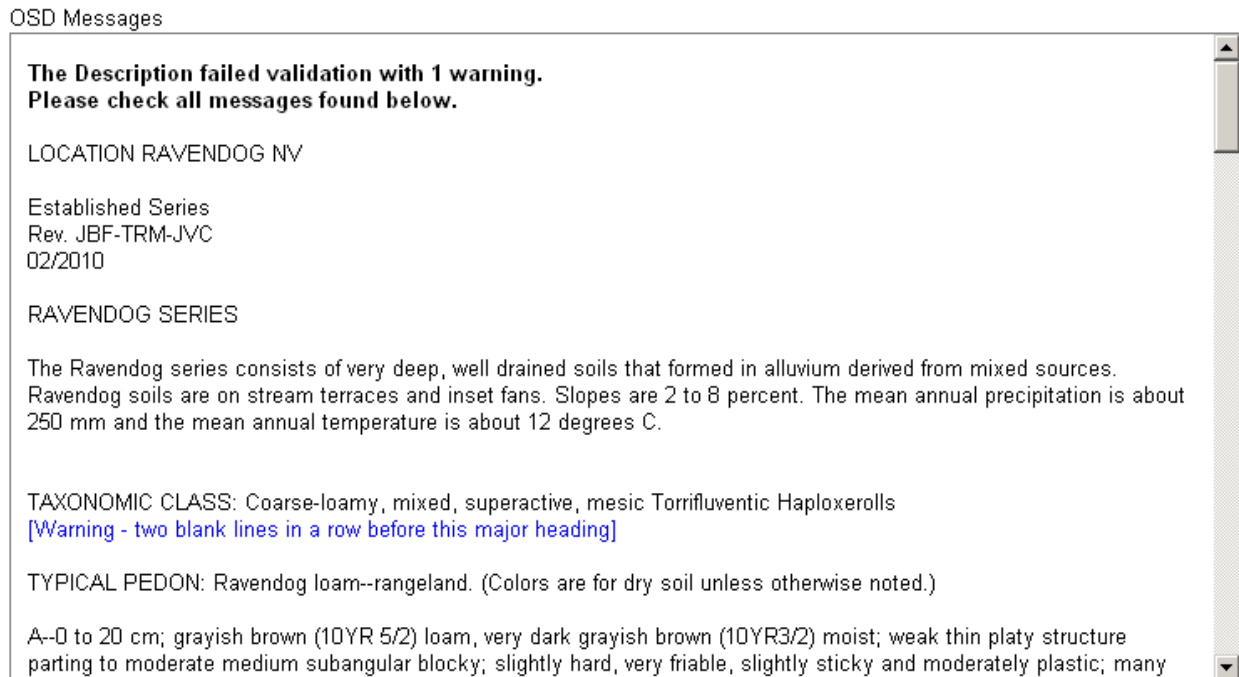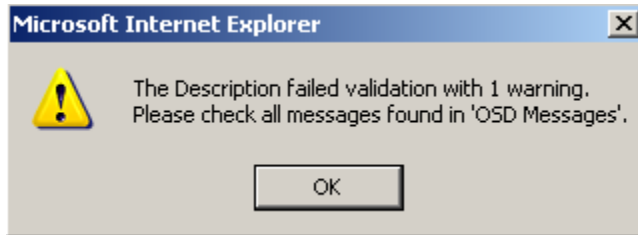
Correct any warnings and errors by making needed edits in the "Description" box, and press the "Validate Description" or "Update Description" button again. Repeat this process until no errors exist. Once no warnings or errors are found, the description will be saved to disk, and a confirmation message will appear.
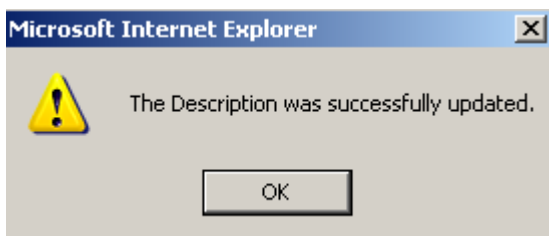
4.3.1.17 Continue Description Save and Cancel Description Save

The "Continue Description Save" and "Cancel Description Save" buttons are initially hidden, and when displayed will be shown below the "OSD Messages" box, so they will

be the last buttons on the form. These two buttons will be displayed when adding or updating an OSD and one or more warnings occur. If the warning(s) displayed are not issues that you need or wish to address, then press the "Continue Description Save" button. On the other hand, if you wish to correct the warning(s), press the "Cancel Description Save" button.

To illustrate a warning, we used the CAVEHILL series and pressed the "Update Description" button. This produced the following screens.
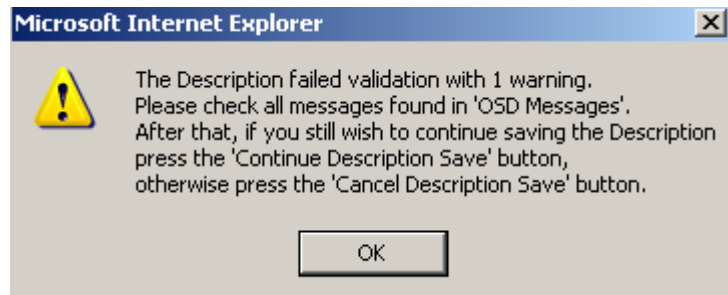
OSD Messages

alkaline (pH 8.0); clear wavy boundary. (13 to 33 cm thick)

A3--23 to 46 cm; grayish brown (10YR 5/2) very gravelly silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common fine and medium and many very fine roots; common fine and many very fine tubular pores; 35 percent gravel and 15 percent cobbles; strongly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary. (0 to 30 cm thick)

Bk--46 to 74 cm; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few medium and common fine and very fine roots; common fine and many very fine tubular pores; weakly cemented by secondary calcium carbonate; prominent secondary calcium carbonate pendants on the bottom of rock fragments; 45 percent gravel and 10 percent cobbles; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary. (15 to 53 cm thick)

2R--74 cm; hard limestone.
[Warning - could not find a reaction class]

TYPE LOCATION: Eureka County, Nevada; about 33 miles south of Carlin in the Sulphur Spring Range; approximately 2,500 feet east and 300 feet south of the northwest corner of section 12, T. 27 N., R. 52 E; USGS Mineral Hill 7.5 minute topographic quadrangle; latitude 40 degrees 14 minutes 29.7 seconds N and longitude 116 degrees 3 minutes 29.2 seconds W; NAD 83.

RANGE IN CHARACTERISTICS:
Soil moisture - Usually moist; dry from about mid-July through mid-October. Xeric soil moisture regime.

Continue Description Save   Cancel Description Save

4.3.1.18 OSD Rules

OSD Rules

1- The OSD text in the Description textbox must pass a validation process in order to be saved to disk.
2- A new OSD or existing OSD that has been edited may be saved if the OSD validation produced one or more warnings.
3- An existing OSD cannot be modified by the user incorrectly with errors and then saved.
4- A user cannot delete an existing OSD by removing all the text in the "Description" textbox and pressing either the "Update Series" or "Update Description" buttons. An OSD is deleted along with its SC database data using the "Delete Tentative Series" main menu option.
5- An OSD cannot exist independently. It must have associated series SC database data.
6- A series may exist in the SC database independently. A soil series is not required to have an OSD file, unless its status is "Established". However, the corresponding OSD for a series with "Tentative" status (i.e. already in the SC database) should be entered, validated and saved with the SC/OSD Maintenance Tool as soon as possible.
7- A general rule of thumb is an OSD cannot be saved to disk if it contains errors. However, there is a special case of saving an OSD with errors. The rule is "An existent series with an OSD that has been synchronized but whose text has not been changed by the user in any way can be saved, whether there are errors or not". The word "synchronized" in the rule means the OSD text has been updated to match what is in the user interface fields "Responsible SSRO", "State Location", "Other States Using", "Status", or any of the taxonomic controls. Note that for this rule to be true, the user cannot modify any text in the "Description" textbox.
8- An OSD filename is generally the soil series name appended with either the file extension ".doc" or ".html". There are two special characters in the filename that are converted to different characters in the soil series name. These two OSD filename characters are the "@" (at symbol) character and the "_" (underscore) character. The "@" (at symbol) character in an OSD filename is converted to the "`" (grave accent) character in the soil series name. The "_" (underscore) character in an OSD filename is converted to the " " (space) character in the soil series name. Conversely, the "`" (grave accent) character in the soil series name is converted to the "@" (at symbol) character in an OSD filename. Conversely, the " " (space) character in the soil series name is converted to the "_" (underscore) character in an OSD filename.
9- When the user interacts with the SC/OSD Maintenance Tool web form, and uses the "Update Series", "Delete Tentative Series", "Transfer Responsibility" or "Rename Series" main menu options, an OSD is loaded onto the form from disk from a file share, if it exists. This happens in the first step of each option – the "Retrieve Series" step. The soil series' OSD file text is copied into the

"Description" multi-line textbox control with no formatting. For the "Add Series" main menu option, an existent soil series with an OSD will also be loaded onto the form from disk, but will be read-only.

10- An OSD is saved to a file share subdirectory whose name is the first letter in the soil series name. For example, the "BABBITT" series will be saved in subdirectory "OSD_Docs\B".

11- For a new OSD, when the OSD is first saved to disk, the SC database fields "DateSeriesDescriptionCreated" (DESC_DATE) and "DateSeriesDescriptionLastUpdated" (DATE_DESC_UPD) are populated with the current date/time information.

12- For an existing OSD, when the OSD is saved to disk, the SC database field "DateSeriesDescriptionLastUpdated" (DATE_DESC_UPD) is populated with the current date/time information.

13- Impersonation is used to access the files on the file share for all OSD documents. This includes read and write operations (retrieve, create, update, rename and delete). The impersonated user will be the System Admin user in the domain for the file share.

OSD HTML Rules

1- Line 7 (the soil series name followed by the word "SERIES") will be bolded.

2- All section headers will be bolded, up to and including the colon (:) character.

3- In the "Typical Pedon" section, all pedon horizon designations will be bolded, not including the dashes.

4- Hyperlinks to other, different soil series will exist in the sections "COMPETING SERIES" and "GEOGRAPHICALLY ASSOCIATED SOILS". A hyperlink will only appear if the referenced soil series is correctly spelled, and it has an associated OSD file saved into the file storage system. Note that a hyperlink for a particular soil series will only appear once no matter how many times the series name is repeated in the particular section.

5- Soil data that lends to a tabular (spreadsheet) look may be entered after the special section "TABULAR DATA". The data may be entered with the Tab character or multiple blanks separating columns of data. Web browsers rendering HTML will compress tab characters and multiple spaces into one character so that the columns of data would lose the desired look. The SC/OSD Maintenance Tool will insert special HTML instructions to preserve the desired look.

6- A horizontal bar will exist before the last two lines in the OSD HTML file.

When the name of a competing series or a geographically associated soil is misspelled, the spelling must be corrected, and the OSD then updated (i.e. using the Update Description button) in the subject series for the hyperlinks to subsequently appear in its HTML OSD file.

After OSDs for the referenced series are available in the file storage system, hyperlinks in other OSDs are easily generated. These hyperlinks will appear when the OSD is

updated and changes to the OSD description form are saved. The changes to the OSD description form can be either actual edits to the content of data or simply the addition of a single blank space to the end of a line. A blank space can be added by placing the cursor at the end of a line of text and touching the spacebar button once. Then validate, update, and save the OSD description into the file storage system. When the HTML formatted version of the OSD is again viewed in a Web browser, hyperlinks should now exist for all existing soil series names in both the competing series and geographically associated soils sections.

4.3.1.19 Header/Footer Links and Menu Buttons

The USDA image and the "United States Department of Agriculture" title both link to the same web site URL named as www.usda.gov. The "Natural Resources Conservation Service" title hyperlinks to the web site URL named as www.nrcs.usda.gov. These web sites will display in the current Internet browser window.

The "SC/OSD Maintenance Tool" image hyperlinks to itself, since there is only one web page to the web application.

The "User Guide" button will open up the SC/OSD Maintenance Tool User's Guide in PDF format in its own browser window, independent of the browser window already open for the SC/OSD Maintenance Tool.

The "Contact Us" button will open up the user's default email client (most likely Microsoft Outlook), and open up an email with the "To" and "Subject" lines filled out. The "To" should be filled with "soilshotline@lin.usda.gov" and the "Subject" should be filled with "SC/OSD Maintenance Tool".

Logout

The "Logout" button will open the eAuth logoff page shown below.

The footer contains many links to various government web sites. These web sites are self-explanatory and will display in the current Internet browser window.

4.3.2   User Interface

4.3.2.1 Screen Refreshes

The SC/OSD Maintenance Tool may seem to flicker from time to time, especially after updating a user interface control, like a list box. This is completely normal, and actually a screen redraw is occurring after posting a request to the server. This is called a "postback" because we are posting a request to the server when something changes on the form. You may ask, "Why and when do we need to send a request to the server?". We need to send a request to the server when the user changes some control on the web page that is important, and can only be done at run-time. For example, consider the scenario in which a web page is used for entering user information and the page contains two list box controls, "state" and "city". Whenever the user selects a state, the appropriate cities should be automatically filled in the "city" list box which is loaded from the database. To achieve this behavior, we can set the postback property of the "state" list box to "true". If we do that, we can handle the event on the server side and write code to populate the "city" list box with the values from the database, based on the specific state chosen. Similarly, in the SC/OSD Maintenance Tool, this occurs when a user selects a series status, using the "Status" list box control, which contains three possible values. Whenever the user chooses the "Established" series status, the "Benchmark" checkbox control becomes enabled, and whenever the user chooses the "Tentative" or "Inactive" series status, the "Benchmark" checkbox control becomes disabled. Another relationship exists between the "State Location" control and the "Other States Using" control. Whenever a state is selected in the "State Location" control, that selected state must be removed from the "Other States Using" list, if it exists. Therefore, one can see how related controls require the need for postbacks, and thus screen refreshes.

4.3.2.2 Tooltips

Demonstrations of tooltip usage are prevalent on Web pages. Many graphical Web browsers display the `title` attribute of an HTML element as a tooltip when a user hovers the mouse cursor over that element; in such a browser you should be able to hover over Wikipedia images and hyperlinks and see a tooltip appear. [some elements, notably Microsoft's Internet Explorer.]

A web browser tooltip displayed for a hyperlink.

The tooltip is a common graphical user interface element and is used in conjunction with a cursor, usually a mouse pointer. The user hovers the cursor over an item, without clicking it, and a tooltip may appear – a small "hover box" with information about the item being hovered over. The SC/OSD Maintenance Tool uses tooltips for some of its web page controls.

4.3.2.3 Web Browser Rendering

Although most, if not all, users of the SC/OSD Maintenance Tool will be using Microsoft Internet Explorer, there will be those few who wish to use a different browser, such as Mozilla's FireFox. The rendering of the SC/OSD Maintenance Tool web page will be different across browsers, and thus the web page's controls will look different across browsers. Below is a comparison of the "Series Name" and "Retrieve Series" button controls in the Internet Explorer and FireFox browsers.

In the Internet Explorer screenshot (the first one shown), the "Series Name" textbox is taller than the "Retrieve Series" button, but in the FireFox screenshot (the second one shown), the "Series Name "textbox is shorter than the "Retrieve Series" button. Also, notice that the read-only "Series Name" textbox has a white background in the Internet Explorer version, but a grayed out, shaded background in the FireFox version.

4.3.2.4 Screen Size and Resolution

Another aspect of the user interface is the size of the screen and screen resolution. Depending on the screen size and resolution, more or less of the controls will be visible on one page. The larger the screen size and resolution, the less vertical scrolling will be required. Because of the large vertical size of the SC/OSD Maintenance Tool web page, some vertical scrolling will be needed. Also, after the page is redrawn, the screen will be displayed at the top of the vertical scroll bar. An example of a good screen resolution for a laptop with a 15 inch screen is 1280 x 1024. Please set your screen resolution to your own particular preferences.

5.0   APPENDIX

5.1 Official Soil Series Description (OSD) Document Example (Word Format)

```
LOCATION RAVENDOG                    NV

Established Series
Rev. JBF-TRM-JVC
02/2010

RAVENDOG SERIES
```

The Ravendog series consists of very deep, well drained soils that formed in alluvium derived from mixed sources. Ravendog soils are on stream terraces and inset fans. Slopes are 2 to 8 percent. The mean annual precipitation is about 250 mm and the mean annual temperature is about 12 degrees C.

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, mesic Torrifluventic Haploxerolls

TYPICAL PEDON: Ravendog loam--rangeland. (Colors are for dry soil unless otherwise noted.)

   A--0 to 20 cm; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR3/2) moist; weak thin platy structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; many very fine and fine, and few medium roots; many very fine and fine tubular pores, and many very fine and fine vesicular pores; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (5 to 41 cm thick)

   Bw--20 to 41 cm; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; many very fine and fine, common medium, and few coarse roots; many very fine and common fine tubular pores; 5 percent gravel; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (20 to 69 cm thick)

   Bqk1--41 to 69 cm; very pale brown (10YR 7/3) paragravelly silt loam, with discontinuous lenses of very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, moderately sticky and moderately plastic; common very fine, few fine and medium roots; common very fine and fine tubular pores; 15 percent hard durinodes; few distinct secondary calcium carbonate concretions on faces of peds; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

   Bqk2--69 to 152 cm; very pale brown (10YR 7/3) stratified paragravelly silt loam to sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; 15 percent hard durinodes; few distinct secondary calcium carbonate seams, few distinct secondary calcium carbonate concretions around rock fragments; 10 percent gravel; violently effervescent; strongly alkaline (pH 8.8). (Combined thickness of the Bqk horizons is 25 to 119 cm.)

TYPE LOCATION: White Pine County, Nevada; about 2,000 feet north of the intersection of Blue Mass scenic area road and Pleasant Valley road; approximately 1,500 feet south and 1,775 feet east of the northwest corner of section 34, T. 22 R. 69 E.; USGS Blue Mass Canyon 7.5 minute topographic quadrangle; latitude 39 degrees 44 minutes 33.8 seconds N and longitude 114 degrees 10 minutes 1 seconds W; NAD 83.

RANGE IN CHARACTERISTICS:
Soil moisture: Moist in winter and spring, dry in summer and fall, except for 10 to 20 days cumulative between July to September due to convection storms; aridic moisture regime that borders on xeric.
Mean annual soil temperature: 8 to 11 degrees C.
Mollic epipedon thickness: 25 to 41 cm; includes the Bw horizon in some pedons.
Depth to identifiable secondary carbonates: 41 to 100 cm.
Other features: There is an irregular decrease in organic carbon content between 25 and 125 cm. Some pedons have C horizons below the Bqk horizon.

Particle-size control section - Clay content: Averages 8 to 18 percent.
Rock fragments: Averages 5 to 35 percent, mainly gravel. Lithology of fragments is mixed rocks.

A horizon
Value: 4 or 5 dry, 2 or 3 moist.
Chroma: 2 or 3, dry or moist.
Clay content: 8 to 15 percent.
Reaction: Slightly alkaline through moderately alkaline.
Organic matter content: 1 to 3 percent.
Effervescence: Noneffervescent to strongly effervescent.
Calcium carbonate equivalent: 0 to 3 percent.

Bw horizon
Value: 5 or 6 dry, 3 or 4 moist.
Chroma: 2 through 4, dry or moist.
Texture: Fine sandy loam, very fine sandy loam, or loam, or silt loam.
Clay content: 8 to 18 percent.
Rock fragments: 5 to 35 percent.
Consistence: Soft or slightly hard, dry; very friable or friable, moist, slightly sticky or moderately sticky and slightly plastic or moderately plastic, wet.
Reaction: Slightly alkaline through strongly alkaline.
Effervescence: Slightly effervescent or strongly effervescent.
Calcium carbonate equivalent: 1 to 3 percent.

Bqk horizons
Value: 5 through 7 dry, 3 through 5 moist.
Chroma: 3 or 4, dry or moist.
Texture: Stratified and dominated by fine sandy loam, sandy loam, or very fine sandy loam but includes strata of loamy coarse sand to paragravelly silt loam in some pedons.
Clay content: 8 to 18 percent.
Rock fragments: Averages 5 to 35 percent, mainly gravel; individual strata range from 0 to 65 percent.
Structure: Subangular blocky or massive.
Consistence: Nonsticky through moderately sticky and nonplastic through moderately plastic.

Durinodes: 5 to 15 percent weakly to strongly cemented durinodes.
Reaction: Moderately alkaline or strongly alkaline.
Effervescence: Slightly effervescent through violently effervescent.
Identifiable secondary carbonates: Occur as few to common, fine or medium
coats on faces of peds, rock fragments, or durinodes.
Calcium carbonate equivalent: 1 to 5 percent.

C horizons (when present)
Value: 6 or 7 dry, 3 through 5 moist.
Chroma: 3 or 4, dry or moist.
Texture: Stratified and dominated by fine sandy loam, sandy loam, or very
fine sandy loam but includes strata of loamy coarse sand to silt loam in some
pedons.
Structure: Subangular blocky or massive.
Clay content: 8 to 18 percent.
Rock fragments: Averages 10 to 35 percent, mainly gravel; individual strata
range from 0 to 65 percent.
Consistence: Soft or slightly hard dry, nonsticky or slightly sticky and
nonplastic or slightly plastic.
Reaction: Moderately alkaline or strongly alkaline.
Effervescence: Slightly effervescent through violently effervescent.
Calcium carbonate equivalent: 1 to 5 percent.

COMPETING SERIES: These are the Cleman, Dressler, Kimberly, Kodak, and
Sheepskin series.

Cleman soils do not have horizons with durinodes and identifiable secondary
carbonates and are not intermittently moist in some part between July and
October due to convection storms. Dressler soils have endosaturation and
redoximorphic features within 152 cm of the soil surface, do not have
horizons with durinodes and identifiable secondary carbonates, and are not
intermittently moist in some part between July and October due to convection
storms. Kimberly, Kodak, and Sheepskin soils are not intermittently moist in
some part between July and September due to convection storms.

GEOGRAPHIC SETTING: Ravendog soils are on stream terraces and inset fans.
These soils formed in alluvium derived from mixed sources. Slopes are 2 to 8
percent. Elevations range from 1,675 to 2,350 meters. The climate is semiarid
with cool, moist winters and warm, dry summers. The mean annual precipitation
is 200 to 360 mm, the mean annual temperature is 10 to 13 degrees C., and the
frost-free period is 110 to 130 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Chainlink, Linoyer, Lodar, and
Veet soils. Chainlink soils are loamy and shallow to duripans. Linoyer soils
are coarse-silty and have ochric epipedons. Lodar soils are loamy-skeletal,
shallow to lithic contacts, and have calcic horizons. Veet soils are loamy-
skeletal and have ochric epipedons.

DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY: Well drained; moderately rapid
permeability; high saturated hydraulic conductivity. These soils are
susceptible to rare flooding for very brief periods year-round.

USE AND VEGETATION: Ravendog soils are used for livestock grazing and
wildlife habitat. The vegetation is mainly Wyoming big sagebrush,
rabbitbrush, Indian ricegrass, thickspike wheatgrass, and basin wildrye.

DISTRIBUTION AND EXTENT: Eastern Nevada. These soils are moderately extensive. The main acreage currently occurs in MLRA 28A. Other acres of this series are mapped in MLRA 28B.

SOIL SURVEY REGIONAL OFFICE (SSRO) RESPONSIBLE: Reno, Nevada.

SERIES ESTABLISHED: White Pine County, Nevada, East Part, 2004.

REMARKS: Diagnostic horizons and features recognized in this pedon are:
Mollic epipedon - The zone from the soil surface to 41 cm (A and Bw horizons).
Durinodes and identifiable secondary carbonates - The zone from 41 to 152 cm (Bqk horizons).
Particle-size control section - The zone from 25 to 100 cm (Bqk1 horizon and parts of the Bw and Bqk2 horizons).

ADDITIONAL DATA: The type location was moved from Lincoln County to White Pine County in 2004 to a pedon that better represents the series concept. This series replaces the soil previously correlated as Sevenmile in the Lincoln County, North Part and White Pine County, East Part soil survey areas in Nevada.

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5.2 Official Soil Series Description (OSD) Document Example (HTML Format)

LOCATION RAVENDOG   NV

Established Series
Rev. JBF-TRM-JVC
02/2010

RAVENDOG SERIES

The Ravendog series consists of very deep, well drained soils that formed in alluvium derived from mixed sources. Ravendog soils are on stream terraces and inset fans. Slopes are 2 to 8 percent. The mean annual precipitation is about 250 mm and the mean annual temperature is about 12 degrees C.

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, mesic Torrifluventic Haploxerolls

TYPICAL PEDON: Ravendog loam--rangeland. (Colors are for dry soil unless otherwise noted.)

A--0 to 20 cm; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR3/2) moist; weak thin platy structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; many very fine and fine, and few medium roots; many very fine and fine tubular pores, and many very fine and fine vesicular pores; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (5 to 41 cm thick)

Bw--20 to 41 cm; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; many very fine and fine, common medium, and few coarse roots; many very fine and common fine tubular pores; 5 percent gravel; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (20 to 69 cm thick)

Bqk1--41 to 69 cm; very pale brown (10YR 7/3) paragravelly silt loam, with discontinuous lenses of very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, moderately sticky and moderately plastic; common very fine, few fine and medium roots; common very fine and fine tubular pores; 15 percent hard durinodes; few distinct secondary calcium carbonate concretions on faces of peds; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqk2--69 to 152 cm; very pale brown (10YR 7/3) stratified paragravelly silt loam to sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; 15 percent hard durinodes; few distinct secondary calcium carbonate seams, few distinct secondary calcium

carbonate concretions around rock fragments; 10 percent gravel; violently effervescent; strongly alkaline (pH 8.8). (Combined thickness of the Bqk horizons is 25 to 119 cm.)

TYPE LOCATION: White Pine County, Nevada; about 2,000 feet north of the intersection of Blue Mass scenic area road and Pleasant Valley road; approximately 1,500 feet south and 1,775 feet east of the northwest corner of section 34, T. 22 R. 69 E.; USGS Blue Mass Canyon 7.5 minute topographic quadrangle; latitude 39 degrees 44 minutes 33.8 seconds N and longitude 114 degrees 10 minutes 1 seconds W; NAD 83.

RANGE IN CHARACTERISTICS:
Soil moisture: Moist in winter and spring, dry in summer and fall, except for 10 to 20 days cumulative between July to September due to convection storms; aridic moisture regime that borders on xeric.
Mean annual soil temperature: 8 to 11 degrees C.
Mollic epipedon thickness: 25 to 41 cm; includes the Bw horizon in some pedons.
Depth to identifiable secondary carbonates: 41 to 100 cm.
Other features: There is an irregular decrease in organic carbon content between 25 and 125 cm. Some pedons have C horizons below the Bqk horizon.

Particle-size control section - Clay content: Averages 8 to 18 percent.
Rock fragments: Averages 5 to 35 percent, mainly gravel. Lithology of fragments is mixed rocks.

A horizon
Value: 4 or 5 dry, 2 or 3 moist.
Chroma: 2 or 3, dry or moist.
Clay content: 8 to 15 percent.
Reaction: Slightly alkaline through moderately alkaline.
Organic matter content: 1 to 3 percent.
Effervescence: Noneffervescent to strongly effervescent.
Calcium carbonate equivalent: 0 to 3 percent.

Bw horizon
Value: 5 or 6 dry, 3 or 4 moist.
Chroma: 2 through 4, dry or moist.
Texture: Fine sandy loam, very fine sandy loam, or loam, or silt loam.
Clay content: 8 to 18 percent.
Rock fragments: 5 to 35 percent.
Consistence: Soft or slightly hard, dry; very friable or friable, moist, slightly sticky or moderately sticky and slightly plastic or moderately plastic, wet.
Reaction: Slightly alkaline through strongly alkaline.
Effervescence: Slightly effervescent or strongly effervescent.
Calcium carbonate equivalent: 1 to 3 percent.

Bqk horizons
Value: 5 through 7 dry, 3 through 5 moist.

Chroma: 3 or 4, dry or moist.
Texture: Stratified and dominated by fine sandy loam, sandy loam, or very fine sandy loam but includes strata of loamy coarse sand to paragravelly silt loam in some pedons.
Clay content: 8 to 18 percent.
Rock fragments: Averages 5 to 35 percent, mainly gravel; individual strata range from 0 to 65 percent.
Structure: Subangular blocky or massive.
Consistence: Nonsticky through moderately sticky and nonplastic through moderately plastic.
Durinodes: 5 to 15 percent weakly to strongly cemented durinodes.
Reaction: Moderately alkaline or strongly alkaline.
Effervescence: Slightly effervescent through violently effervescent.
Identifiable secondary carbonates: Occur as few to common, fine or medium coats on faces of peds, rock fragments, or durinodes.
Calcium carbonate equivalent: 1 to 5 percent.

C horizons (when present)
Value: 6 or 7 dry, 3 through 5 moist.
Chroma: 3 or 4, dry or moist.
Texture: Stratified and dominated by fine sandy loam, sandy loam, or very fine sandy loam but includes strata of loamy coarse sand to silt loam in some pedons.
Structure: Subangular blocky or massive.
Clay content: 8 to 18 percent.
Rock fragments: Averages 10 to 35 percent, mainly gravel; individual strata range from 0 to 65 percent.
Consistence: Soft or slightly hard dry, nonsticky or slightly sticky and nonplastic or slightly plastic.
Reaction: Moderately alkaline or strongly alkaline.
Effervescence: Slightly effervescent through violently effervescent.
Calcium carbonate equivalent: 1 to 5 percent.

COMPETING SERIES: These are the Cleman, Dressler, Kimberly, Kodak, and Sheepskin series.

Cleman soils do not have horizons with durinodes and identifiable secondary carbonates and are not intermittently moist in some part between July and October due to convection storms. Dressler soils have endosaturation and redoximorphic features within 152 cm of the soil surface, do not have horizons with durinodes and identifiable secondary carbonates, and are not intermittently moist in some part between July and October due to convection storms. Kimberly, Kodak, and Sheepskin soils are not intermittently moist in some part between July and September due to convection storms.

GEOGRAPHIC SETTING: Ravendog soils are on stream terraces and inset fans. These soils formed in alluvium derived from mixed sources. Slopes are 2 to 8 percent. Elevations range from 1,675 to 2,350 meters. The climate is semiarid with cool, moist winters and warm, dry summers. The mean annual precipitation is 200 to 360 mm, the mean annual temperature is 10 to 13 degrees C., and the frost-free period is 110 to 130 days.

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SOIL SURVEY REGIONAL OFFICE (SSRO) RESPONSIBLE: Reno, Nevada.

SERIES ESTABLISHED: White Pine County, Nevada, East Part, 2004.

REMARKS: Diagnostic horizons and features recognized in this pedon are:
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