

Ecological Site Reviewer

Help Document

The Ecological Site Reviewer (ESR) ArcGIS Online web-application was designed to provide access to viewing maps and attributes for basic environmental properties, ecological characteristics, and background reference information for sites throughout Montana.

Using the ESR the viewer can:

- Identify and review environmental characteristics of sites prior to conducting field work
- Locate representative sites for field data collection
- Identify optimum navigation to selected sites
- Save and print maps, charts, and tables of selected sites and associated attributes.
- Provide input on data layers with the edit tool

The Ecological Site Reviewer was developed by the Montana NRCS and GIS programmers at the Montana State Library



<https://www.nrcs.usda.gov/wps/portal/nrcs/mt/home>

Introduction to the Ecological Site Reviewer

1

This application was built using Esri's ArcGIS Online platform. ArcGIS Online is a cloud-based environment for storing and managing geographic content. It enables users to create and share maps and explore data through a web browser. The Ecological Site Reviewer was built from a web map within the web-based ArcGIS Online application.

Click here to start using the [Ecological Site Reviewer](#). Your web browser will open using ArcGIS Online to a map of Montana with a topographic map background and a display of Major Land Resource Areas (MLRA) in the foreground. Major highways and County boundaries will also be displayed for reference at the statewide scale. As you navigate to specific locations and zoom in, additional layers with greater detail will be displayed.

Help Document Outline

[Step 1 – Selecting a Basemap](#)

[Step 2 – Viewing the Data Layers and Legend](#)

[Step 3 – Changing the map extent](#)

[Step 4 – Navigating to an area of interest, searching, and bookmarks](#)

[Step 5 – Tools: Measuring](#)

[Step 6 – Tools: Swipe](#)

[Step 7 – Tools: Printing](#)

[Step 8 – Identifying Features](#)

[Step 9 – Add a Marker, View Lat/Long, and get URL to share marker location](#)

[Step 10 – Viewing Layer Attribute Tables](#)

[Step 11 – Viewing Related Table from Popup](#)

[Step 12 – Related Table Charts](#)

[Example Use](#)

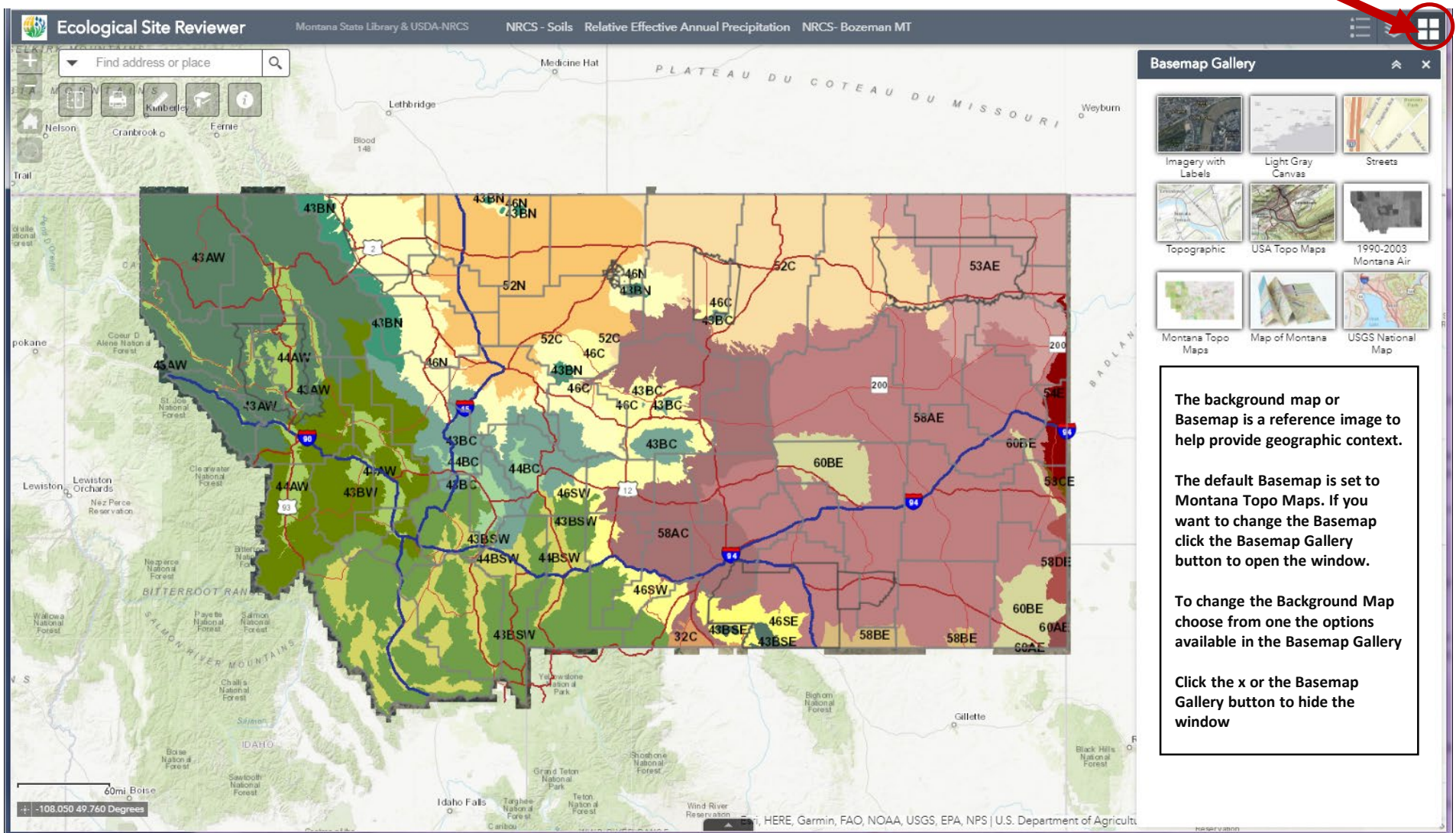
[Provide Input with the Edit Tool](#)

<http://msl.mt.gov/NRCS/SiteReviewer>

Step 1 – Selecting a Basemap

Click on this icon to open the Basemap Gallery

[Back to Outline](#) 2



Ecological Site Reviewer Montana State Library & USDA-NRCS NRCS - Soils Relative Effective Annual Precipitation NRCS - Bozeman MT

Find address or place

Basemap Gallery

- Imagery with Labels
- Light Gray Canvas
- Streets
- Topographic
- USA Topo Maps
- 1990-2003 Montana Air
- Montana Topo Maps
- Map of Montana
- USGS National Map

The background map or Basemap is a reference image to help provide geographic context.

The default Basemap is set to Montana Topo Maps. If you want to change the Basemap click the Basemap Gallery button to open the window.

To change the Background Map choose from one of the options available in the Basemap Gallery

Click the x or the Basemap Gallery button to hide the window

Bozeman, HERE, Germin, FAO, NOAA, USGS, EPA, NPS | U.S. Department of Agriculture

Step 2 – Viewing the Data Layers and Legend

Ecological Site Reviewer Montana State Library & USDA-NRCS NRCS - Soils Relative Effective Annual Precipitation NRCS - Bozeman MT

Find address or place

Legend

- Indian Reservations
- Countries
- Roads
 - Road Labels
 - Primary Road Labels (state-scale)
 - 1
 - 2
 - 3
 - Road Transportation System
 - Primary Roads (state-scale)
 - 1
 - 2
 - 3
- NRCS Layers
 - Major Land Resource Area
 - 32C:Desertic Basins, Central
 - 43BC:Central Rocky Mountains, Central
 - 44BC:Central Rocky Mountain Valleys, Central
 - 46C:Northern Rocky Mountain Foothills, Central
 - 46SW:Northern Rocky Mountain Foothills, South West
 - 52C:Glaciated Plains, Central
 - 58AC:Sedimentary Plains, Central
 - 46SE:Northern Rocky Mountain Foothills, South East
 - 53AE:Glaciated Plains, East
 - 54E:Soft Shale Plains, East
 - 58AE:Sedimentary Plains, East
 - 58BE:Northern Rolling High Plains, Southern Part
 - 58CE:Northern Rolling High Plains, Northeastern Part
 - 58DE:Northern Rolling High Plains, Eastern Part
 - 60AE:Pierre Shale Plains and Badlands

Layer List

Operational layers

- Indian Reservations
- Counties
- Incorporated Cities & Towns
- PLSS Township
- PLSS First Division
- Major Waterbodies (state-scale)
- Major Rivers (state-scale)
- Named Waterbodies (county-scale)
- Named Rivers and Streams (countyscale)
- Cadastral Parcels
- Conservation Easements
- Public Lands
- Watersheds
- Wetlands and Riparian Areas
- Roads
- Hydrography (local-scale)
- Managed Areas
- DOR Final Land Unit Classification
- NRCS Layers
- Landcover Level 3
- Landcover Classes

Turn on the **Legend** to see how each visible layer is symbolized to represent the features on the map.

Turn on or off the data layers within the **Layer List** by checking the box to the left of the layer name.

Some layers are only visible when you zoom in, and are grayed out in the Layer List if they are not visible at the current extent/scale of your map.

Layers will display in the order shown in the Layer List and may need to be turned off or on to be shown.

Step 3 – Changing the map extent – Zooming in or out

The screenshot displays the 'Ecological Site Reviewer' web application interface. At the top, the title bar includes 'Ecological Site Reviewer' and several data layers: 'Montana State Library & USDA-NRCS', 'NRCS - Soils', 'Relative Effective Annual Precipitation', and 'NRCS - Bozeman MT'. A search bar with the placeholder 'Find address or place' is located in the top left. Below the search bar is a toolbar with icons for home, print, pan, zoom in (+), zoom out (-), and help. A red circle highlights the zoom in (+) and zoom out (-) buttons, with a red arrow pointing to a text box. The main map area shows a topographic map of Montana with various colored overlays representing different ecological layers. A black-bordered inset map provides a closer view of a specific area. On the right side, a 'Layer List' panel is visible, containing a list of 'Operational layers' with checkboxes. The 'Roads' layer is checked, while others like 'Indian Reservations', 'Counties', and 'NRCS Layers' are also checked. The bottom of the map shows a scale bar for 60 miles and a coordinate display: '+ -100.030 50.255 Degrees'. The bottom right corner of the map area contains attribution text: 'HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | U.S. Department of Agriculture'.

You can use the roller function on your mouse or the + and - buttons to zoom in or out on the map.

As you zoom in additional background layers will be visible.

Step 4 – Navigating to an area of interest, searching, and bookmarks

Ecological Site Reviewer Montana State Library & USDA-NRCS NRCS - Soils Relative Effective Annual Precipitation NRCS - Bozeman MT Help

Find address or place

Type in the Search Box, Then Select from the list of possible matches.
Do not press the Enter Key or the Search Icon, as this will return the first match.

- Helena
- Fort Harrison
- East Helena
- Helena

Click the Down Arrow To choose a Search Option

All
OwnerParcel (geocode)
Soil Surveys
PLSS Township
City or Town
Address Search (101 Main St Helena)

Add and Navigate to Bookmarks

Bookmark

Add

Bookmark 1

You can navigate to an area of interest by zooming in or using the search tool.

Once you have navigated to the desired location and scale of detail you can use the Bookmark tool to save the location and easily return to it later.

Lat/Long coordinates – Click crosshair icon to set coordinates in one position

-110.521 50.391 Degrees

App State
Click to restore the map extent and Layers visibility where you left off.

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | U.S. Department of Agriculture Farm Services Agency Aerial Photo

Step 5 – Tools: Measuring

The screenshot shows the 'Ecological Site Reviewer' application window. At the top, there is a search bar with the text 'Find address or place' and a search icon. Below the search bar are several icons: a home icon, a measurement tool icon (circled in red with an arrow pointing to it), a print icon, and a mobile device icon. A 'Measurement' tool window is open in the center, displaying icons for 'Area', 'Distance', and 'Location'. Below these icons is a dropdown menu currently set to 'Acres'. A red arrow points from the text 'Use the Dropdown Arrow to Change the Unit of Measure' to the 'Acres' dropdown. The background is a satellite map of a field with a large rectangular area highlighted in blue. The map includes labels for 'LANNON RD', 'Wet spot', and several 'Rock outcrop' and 'Saline spot' markers. The bottom of the window shows a scale bar for 1000ft and coordinates: '-105.541 48.580 Degrees'. The Esri logo is visible in the bottom right corner.

Ecological Site Reviewer Montana State Library & USDA-NRCS NRCS - Soils Relative Effective Annual Precipitation NRCS - Bozeman MT Help

Find address or place

Measurement

Area

Acres

To make Area, Distance, and Location Measurements click on the Measurement Tool To open the Tool Window.

Click on the button to choose which type of measurement, area, distance or location.

Use the Dropdown Arrow to Change the Unit of Measure

Then left click in the map to start the measurement, and double click on the map to finish.

1000ft
-105.541 48.580 Degrees

esri

Step 6 – Tools: Swipe

Ecological Site Reviewer Montana State Library & USDA-NRCS NRCS - Soils Relative Effective Annual Precipitation NRCS - Bozeman MT Help

Find address or place

Select the layer you want to swipe
NAIP_2005

Click on the Swipe Button to open the Swipe Tool

Choose from the Visible Layers (checked on in the Layer List) available in the Drop-down List by clicking on the down arrow in the tool window.

Use the Swipe Slider Bar to reveal/hide the selected layer

Swipe Slider Bar

Layer List

- Soil Surveys
- Soil Line Features
- Soil Point Features
- Soils MU
- Major Land Resource Area
- Rangeland Resource Unit
- Landcover Level 3
- Landcover Classes
- USDA/NASS Cropland 2017
- Frost Free Days
- REAP
- Aspect
- Slope
- NAIP_2005
- NAIP_2009
- NAIP_2011
- NAIP_2013
- NAIP 2015 CIR
- NAIP_2015
- Elevation
- ESD2018

Wet spot

LANNON RD

68

69

71

76

Rock outcrop

Rock outcrop

Rock outcrop

Rock outcrop

Rock outcrop

Rock outcrop

Rock outcrop

Saline spot

1000ft

-105.568 48.589 Degrees

Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDI

Step 7 – Tools: Printing

Ecological Site Reviewer Montana State Library & USDA-NRCS NRCS - Soils Relative Effective Annual Precipitation NRCS - Bozeman MT Help

Find address or place

Print

Map title: ArcGIS Web Map
Layout: A3 Landscape
Format: PDF

Advanced Print

- ArcGIS Web Map
- ArcGIS Web Map

Clear prints

Map scale/extent:
Preserve: map scale map extent
Force scale: current
Labels:
Show labels:
Layout metadata:
Author: MSL - NRCS Web Applic
Copyright:
Include legend:
MAP_ONLY size:
Width (px): 670
Height (px): 500
Print quality:
DPI: 96

0mi
-111.387 49.124 Degrees

Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS | U.S. Department of Agriculture Farm Services Agency Aerial Photography Field Office | US... **esri**

Click on the Print tool button to open the tool window.

Enter a Title, Choose your layout, and pick a file format from the Dropdown Arrows.

Click on the Advanced button for additional options:
Scale, Size, Print Quality, etc.

Then click the Print button to export your map.

You can save multiple map files. Click on the Map Name text to open file in a new browser window and save it.

Click the Clear prints button to remove the maps from the list.

Step 8 – Identifying Features

Ecological Site Reviewer Montana State Library & USDA-NRCS NRCS - Soils Relative Effective Annual Precipitation NRCS - Bozeman MT Help

Find address or place

Once you have navigated to an area at the level of detail you are interested in, click within the map to reveal the **Popup Window** that displays selected attributes of the Data Layers.

Only layers that are checked on in the Layer List and visible in the Legend will have a popup window open when you click in the map. Turn on all the layers you wish to view attributes for in the Popup Window.

The top left of the popup window will show how many layers have been opened (3 in this example). If there are several layers visible then click through the left and right arrows on the popup window to view the popup windows for other visible layers.

(2 of 3)
FLU 2017
Classification: Irrigated Pivot
Zoom to

Layer List

- DOR Final Land Unit Classification
 - FLU 2009
 - FLU 2011
 - FLU 2013
 - FLU 2015
 - FLU 2017
 - Crop
 - Fallow
 - Grazing Land
 - Hay
 - Irrigated Flood
 - Irrigated Pivot
 - Irrigated Sprinkler
 - Non-commercial Forest
 - Timber
- NRCS Layers
 - Soil Surveys
 - Soil Line Features
 - Soil Point Features
 - Soils MU
 - Major Land Resource Area
 - Rangeland Resource Unit

Legend

DOR Final Land Unit Classification

- FLU 2017
 - Crop
 - Fallow
 - Grazing Land
 - Hay
 - Irrigated Flood
 - Irrigated Pivot
 - Irrigated Sprinkler
 - Non-commercial Forest
 - Timber

NRCS Layers

Soil Line Features

- Escarpment, Bedrock
- Escarpment
- Gully
- Levee
- Slope

Soil Point Features

- Rock Outcrop
- Prominent Knoll
- Lake Sediment Outcrop
- Shallow
- Bouldery
- Boulders
- Rubble

Show/Hide Map Overview

WELLIVER RD

ZaE, ZaD, ZaC

-104.714 48.723 Degrees

Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA | U.S. Department of Agriculture Farm Services Agency

Step 9 – Add a Marker, View Lat/Long, and get URL to share marker location

The screenshot shows the 'Ecological Site Reviewer' interface. At the top, there is a search bar and navigation tools. The main map area displays various colored regions representing different soil types or land uses. A popup window is open over a specific area, displaying the following information:

(2 of 2)	
Soils MU: Dooley fine sandy loam, 0 to 6 percent slopes	
MU Name	Dooley fine sandy loam, 0 to 6 percent slopes
MU Symbol	DoB
Farm Land Class	Farmland of statewide importance
Acres	775.30
Average Slope	3
Drainage Class	Well drained
Related tables:	
ESD2018	
Zoom to	

Below the popup, a blue marker with a white location pin is placed on the map. A red arrow points from a text box to this marker. Another text box points to the 'Add a marker' option in the map's context menu.

First, click on the map to open the popup window

Click on ... and Choose: **+** Add a marker

Pan to
+ Add a marker
View in Attribute Table

Then click on the newly created Blue Marker to View the Lat/Long and URL to the Map Location in the Popup. The URL can then be sent to a colleague to show them the exact location you are looking at.

(1 of 3)	
Longitude	-104.3375
Latitude	48.4817
URL	http://montana.maps.ar
Zoom to	

At the bottom left, the map's coordinates are shown as -104.340 48.505 Degrees. The bottom right corner features the Esri logo and a list of data providers: Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA | U.S. Department of Agriculture Farm Services Agency Aerial Photography Fl...

Step 10 – Viewing Layer Attribute Tables

To open the Attribute Table(s) for existing Layers click on the drop down arrow at the bottom of the map screen.

Scroll through available attribute tables or Click Dropdown arrow to choose from the list

Attribute Table Options:
 Export to CSV and turn on/off Column Headings

Click on Filter by map extent to only show items in table that are visible in the map

Sort ascending
Sort descending

Click on the Column Name to Sort the table

Turn on and off Column Headings by checking on/off the boxes

Shape	ACRES	OBJECTID	MA_ID	MANAME	MANAGER	MA_TYPE	INSTTYPE	INST	UNITTYPE	DataSource	SourceDate	URL	EditDate	Editor
	11332.995301015413	1015413	1081	Freezout Lake Wildlife Management Area	Montana Fish, Wildlife & Parks, Region 4	SFPWM	State	Montana Fish, Wildlife & Parks	Wildlife Management Area					
	6627.85182		53			SFPWM	State	Montana Fish, Wildlife & Parks	Wildlife Management Area					
	1055.51565681764	61	9			SFPWM	State	Montana Fish, Wildlife & Parks	Wildlife Management Area					

Step 11 – Viewing Related Tables from Popup

Related Tables:
In the Ecological Site Reviewer the soils map units have been related to a table containing additional ecological site attributes. The ESD2019 table has a one-to-many relationship with the Soils MU data layer that can be explored through the popups and the attribute table.

Soils MU (2 of 2)
Soils MU: Dooley fine sandy loam, 0 to 6 percent slopes
MU Name: Dooley fine sandy loam, 0 to 6 percent slopes
MU Symbol: DoB
Farm Land Class: Farmland of statewide importance
Acres: 775.30
Average Slope: 3
Drainage Class: Well drained
Related tables: ESD2019
Zoom to

ESD2019 (2 of 2)
Related records:
Loamy (Lo); Farnuf 2%
Loamy (Lo); Williams 3%
Sandy (Sy); Parshall 1%
Sandy (Sy); Tally 4%
Sandy Argillic (SyA); Dooley 90%

Soils MU (2 of 2)
Related records:
Soils MU: Dooley fine sandy loam, 0 to ...
Soils MU: Dooley fine sandy loam, 0 to ...
Soils MU: Dooley fine sandy loam, 0 to ...
Soils MU: Dooley fine sandy loam, 0 to ...
Soils MU: Dooley fine sandy loam, 0 to ...
Soils MU: Dooley fine sandy loam, 0 to ...
Soils MU: Dooley fine sandy loam, 0 to ...
Soils MU: Dooley fine sandy loam, 0 to ...
Soils MU: Dooley fine sandy loam, 0 to ...
Soils MU: Dooley fine sandy loam, 0 to ...
Zoom to

Click on ... To Reveal More Options

Click on ... To Reveal More Options

Click on ... To Reveal More Options

Step 12 – Related Table Charts

1) Select the Related Table Charts Tool from the upper right hand corner.

2) Click on the map. An orange marker will be placed where you clicked on the map, and the pie chart showing the composition of ecological sites within the soil map unit will update in the Related Table Charts Window.


Note: If the Related Table Charts Tool is Open then clicking on the map will only update the Pie Chart.

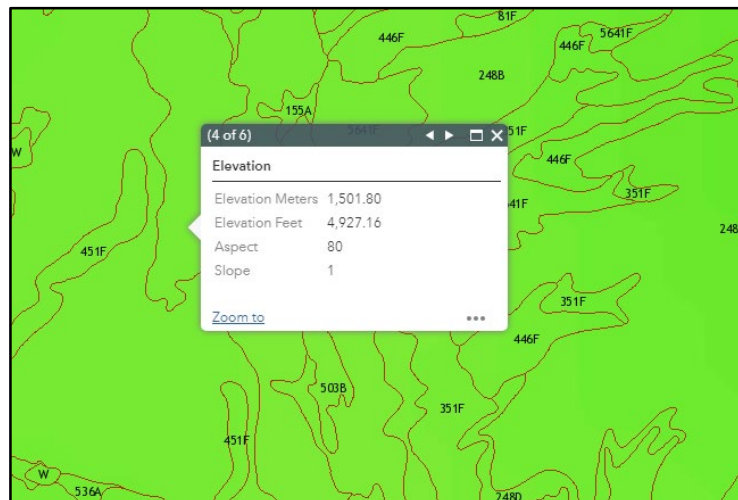
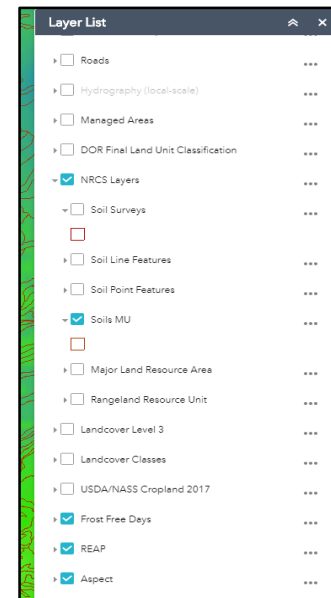
To view the Popup Windows when you click on the map, first close the Related Table Charts tool window by clicking on the "X" in the upper righthand corner.

ESD Component	Percentage
Sandy (Sy): Tally	4%
Sandy (Sy): Parshall	1%
Loamy (Lo): Williams	3%
Loamy (Lo): Farnuf	2%
Sandy Argillic (SyA): Dooley	90%

Ecological Site Reviewer – Example Use

Scenario - I am headed to the field tomorrow in Township 2N Range 9E and need to know the characteristics of my study area, including slope, aspect, elevation, relative effective annual precipitation, soil type, and number of frost free days.

- Step 1 – Open the Ecological Site Reviewer (ESR)
- Step 2 – Click the Layer List button  and turn on the layers of interest and turn off the layers not needed
- Step 3 – Zoom and pan or search to find the study area. Type “2N 9E” in the Search Box and wait for the list of possible matches. Under PLSS Township, choose “2N 9E” and the map will zoom to that township.
- Step 4 - Click on the map where you are interested in doing field work. The popup will return the values of the layers turned on in Step 2.



Provide Input with the Edit Tool

The Edit Tool allows users to markup where a revision to a layer may be needed. For example, a user may be doing field work in an area and determine that a soil map unit should be modified or that the ecological site or MLRA assignment should be changed. The user can draw a polygon and add a comment describing the modification needed. Others using the application will see the suggestion and agency partners can begin collaborating to make the change happen.

The screenshot displays the 'Ecological Site Reviewer - Interagency Version' application. The interface includes a map, a toolbar, a search bar, and a Layer List on the right. Five numbered callouts guide the user through the editing process:

- 1. Click the Edit Tool**: Points to the 'Edit' icon in the toolbar.
- 2. Click New Feature**: Points to the 'New Feature' button in the 'Edit' dialog box.
- 3. Choose the shape you'd like to draw, such as arrow, polygon, freehand, or circle**: Points to the shape selection options in the 'Edit' dialog box.
- 4. Follow the onscreen directions displayed next to the cursor to draw your edit suggestion**: Points to the 'Click to start drawing (Press CTRL to enable snapping)' instruction on the map.
- 5. Fill out the form that pops up. Optionally, include an attachment. Save is at the bottom of the form (scroll down)**: Points to the 'Edit Suggestions' form, which contains fields for Name, Email, Layer to be Revised, Description, Source, and Attachments.

The Layer List on the right shows 'Operational layers' with 'Edit Suggestions' selected and highlighted by a red circle. Other layers include Indian Reservations, Counties, Incorporated Cities & Towns, PLS Township, PLS First Division, Major Waterbodies (state-scale), Named Waterbodies (county-scale), Named Rivers and Streams (county-scale), Cultural Parcels, Conservation Easements, Public Lands, Watersheds, Wetlands and Riparian Areas, Roads, Hydrography (local-scale), Managed Areas, and DOR Final Land Unit Classification.