

# Tutorial:

How to use the USDA Web Soil Survey and the DNRWebView



THE *Woodland* SCHOOL  
 *Classes for new and experienced land stewards*

This tutorial provides information that helps landowners access and use two internet programs available to the public. These internet programs are called USDA Web Soil Survey and DNRWebView. Both of these programs provide landowners with high quality current aerial maps which can aid the development of land management plans. They also offer many unique features that can be useful. This tutorial will first show you how to access aerial maps using both internet programs and then will explore some of their unique features.

## Contents

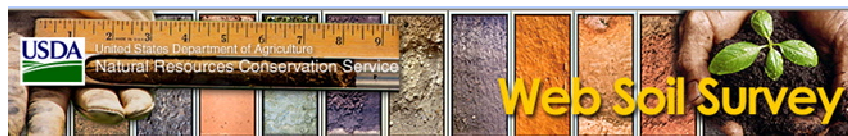
Pg. 2 USDA Web Soil Survey

Pg. 7 Unique features of USDA Web Soil Survey

Pg. 9 DNRWebView

Pg. 12 Unique features of DNRWebView

## USDA Web Soil Survey (WSS)



The Web Soil Survey can be found at: <http://websoilsurvey.nrcs.usda.gov/app/>

The opening of the Web Soil Survey marks the first time that soil maps and data can be viewed online in a nationally consistent method. This new Web Soil Survey system allows for easy updating and will eventually replace the familiar printed soil survey books.

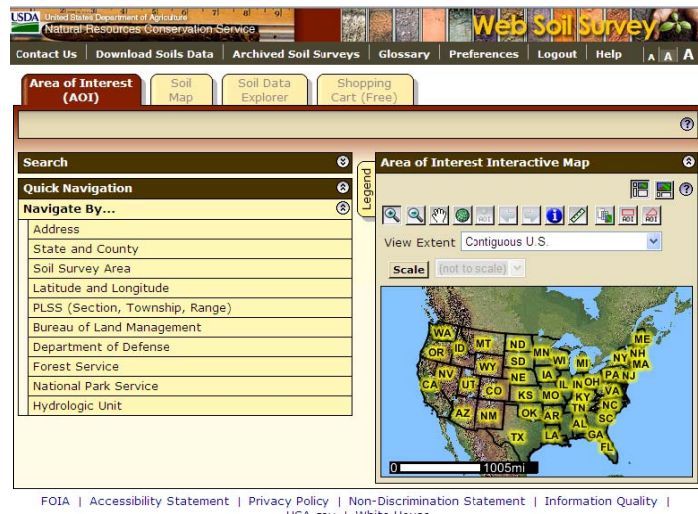
Access to the Web Soil Survey does not require registration or special permission. It is compatible with most popular browsers, especially with newer versions. It is open to the public via the Internet.

Click on the “Start WSS” button to start the Web Soil Survey

The simple yet powerful way  
to access and use soil data.



A new window will open. This window will allow you to zoom in on your property using a number of navigation tools. As an example we will zoom in on the Aldo Leopold Legacy Center.



Chose one of the navigation tools below, enter the appropriate information and click **View**.

For example: The PLSS (Section, Township, Range) of the Legacy Center was entered.

By Address:

|   |
|---|
| <b>Search</b>   |
| <b>Quick Navigation</b>                                       |
| <b>Navigate By...</b>   |
| <b>Address</b>  |
| <input type="text" value="Address"/>                          |
| <input type="text" value="City"/>                             |
| <input type="text" value="State"/>                            |
| <input type="text" value="Zip Code"/>                         |
| <input type="checkbox"/> Show <b>Postal Code</b> Layer in Map |
| <b>View</b>   |

By County:

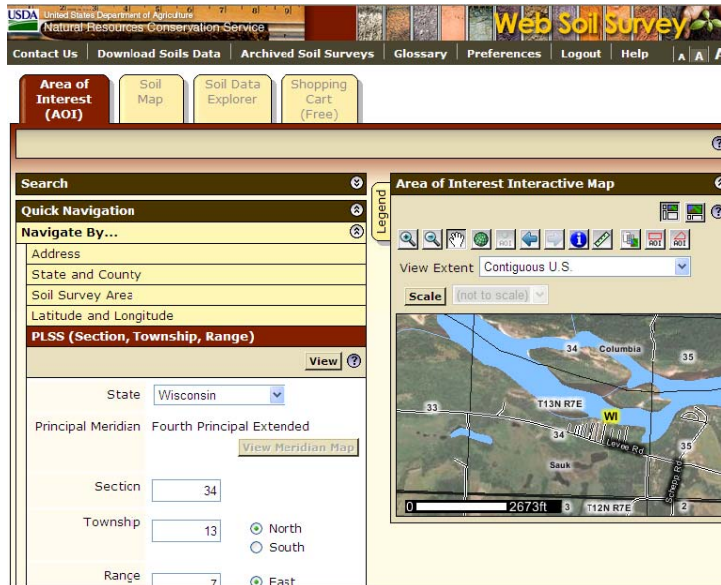
|  |
|--|
| <b>Search</b>                                  |
| <b>Quick Navigation</b>                        |
| <b>Navigate By...</b>                          |
| <b>State and County</b>                        |
| <input type="text" value="State"/>             |
| <input type="text" value="County (optional)"/> |
| <b>View</b>                                    |
| <b>Soil Survey Area</b>                        |
| <b>Latitude and Longitude</b>                  |
| <b>PLSS (Section, Township, Range)</b>         |

By Latitude and Longitude:

|  |
|--|
| <b>Search</b>                          |
| <b>Quick Navigation</b>                |
| <b>Navigate By...</b>                  |
| <b>Latitude and Longitude</b>          |
| <input type="text" value="Latitude"/>  |
| <input type="text" value="Longitude"/> |
| <b>View</b>                            |

By PLSS (Section, Township, Range):

|   |
|---|
| <b>Soil Survey Area</b>   |
| <b>Latitude and Longitude</b>   |
| <b>PLSS (Section, Township, Range)</b>  |
| <input type="text" value="State"/>  |
| <input type="text" value="Principal Meridian"/>   |
| <input type="text" value="Section"/>  |
| <input type="text" value="Township"/>   |
| <input type="text" value="Range"/>  |
| <input type="checkbox"/> Show <b>PLSS Section and PLSS Township and Range</b> Layers in Map |
| <b>View</b>   |



The screen will refresh showing the area you entered. For this example we can see the Aldo Leopold Legacy Center and surrounding area.

Using this view you can zoom in/out to a particular area. Use the following tools to do this:



Zoom In - Click button then click screen where you would like to zoom in.

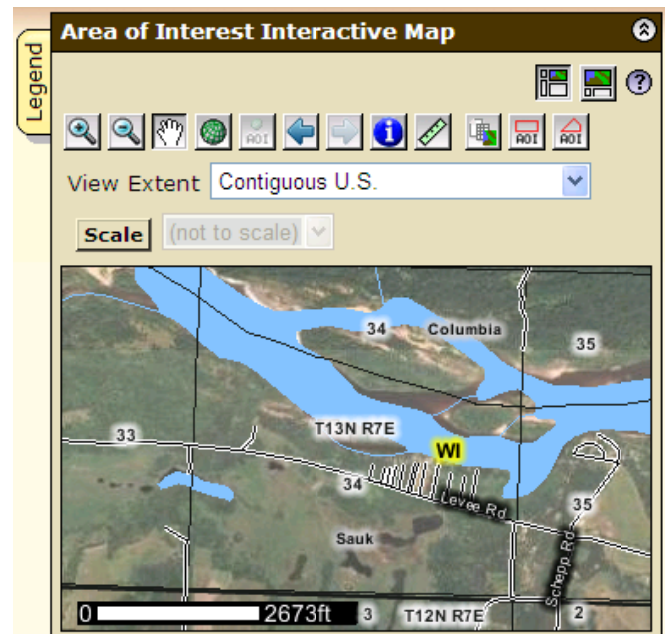


Zoom Out - Click button then click screen where you would like to zoom out.







Pan - Click button then click and drag screen to the desired location.

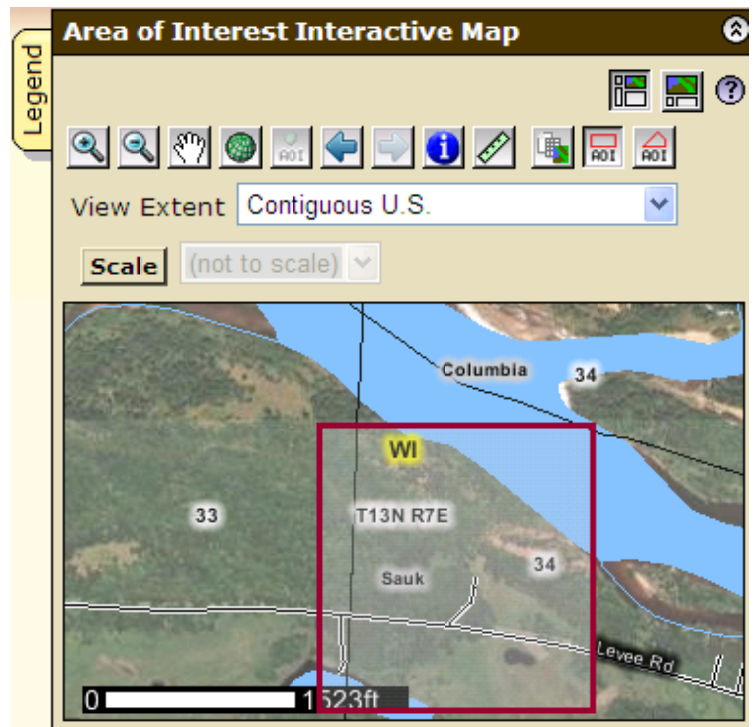
By using these 3 tools this view of the Legacy Center is possible:




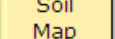


Once you have the area you would like to print in view, you can set the “Area of Interest” (AOI)   and then print the map with a legend. To set the AOI click on either  for a square or  for a complex shape.

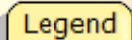
Define the “Area of Interest” by clicking and dragging the mouse to create a border around the area. The Area of Interest can serve various functions, it can include your entire property boundary or it can include a unique management area within your property such as a prescribed burn unit.



(If you would like a larger map to work from, maximize the screen or use  to change the format of the screen.)

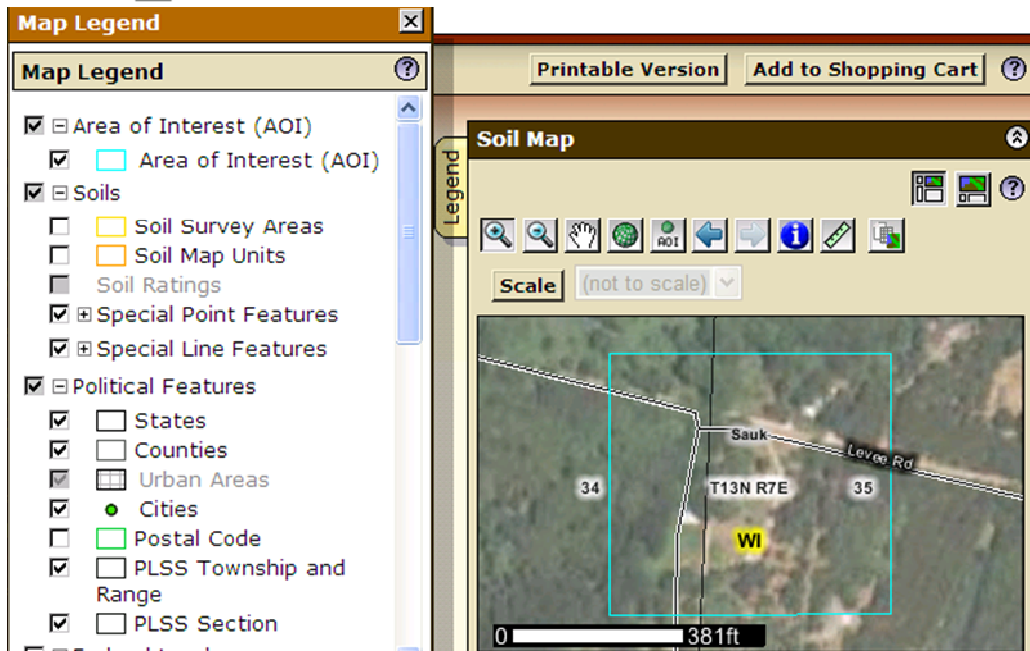
Now that the AOI has been defined, click on the  tab. Here the map can be most easily printed and the legend can be formatted.



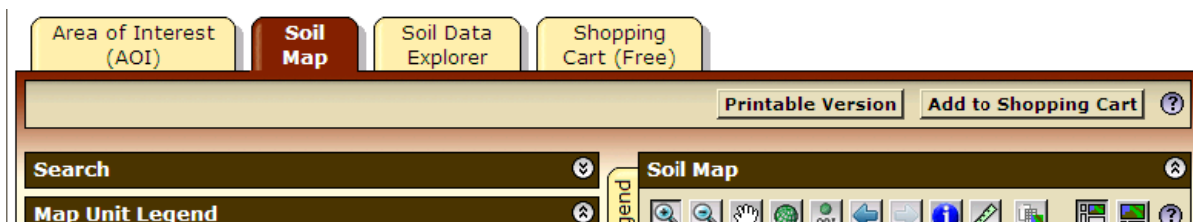
On the new screen find the  tab next to the “Soil Map”, click it.



The legend will open a new box. For this example ☐ **Soil Map Units** was unchecked and ☒ **States** were checked.  
☒ **Counties**

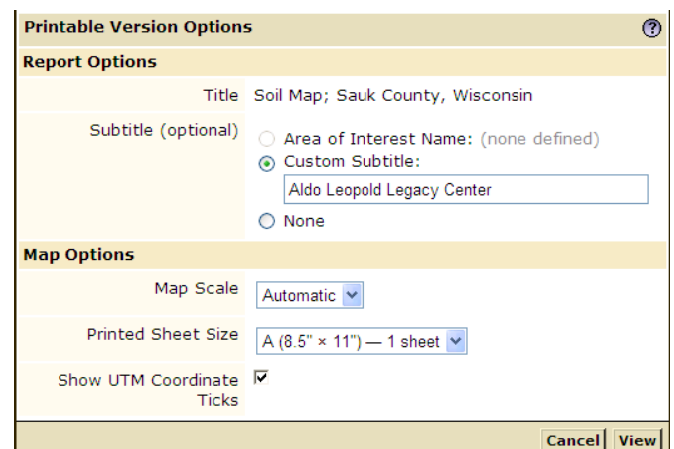
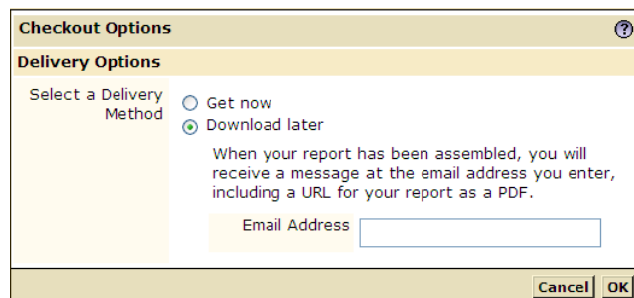


Once you have the map you would like to print, click **Printable Version**.



A pop up box will appear, add a "Custom Subtitle" if you wish, check the appropriate "Map Scale" and "Printed Sheet Size". Click **View**.

Your computer may automatically generate the map or you may be prompted with the dialog box shown below. Chose to download the map now or have a PDF sent via email. Click **OK**.



## Unique features of USDA Web Soil Survey (WSS)

Creating an Area of Interest (AOI) is key to using the unique features in WSS. Refer to the first section for instructions on how to obtain an AOI.

The AOI Map has some handy toolbar features including:



Zoom to full extent – zooms out to full map of US



Zooms to AOI extent – zooms out or in to the AOI boundaries



Backwards and forwards buttons



Information – gives instructions on how to change legend contents



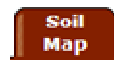
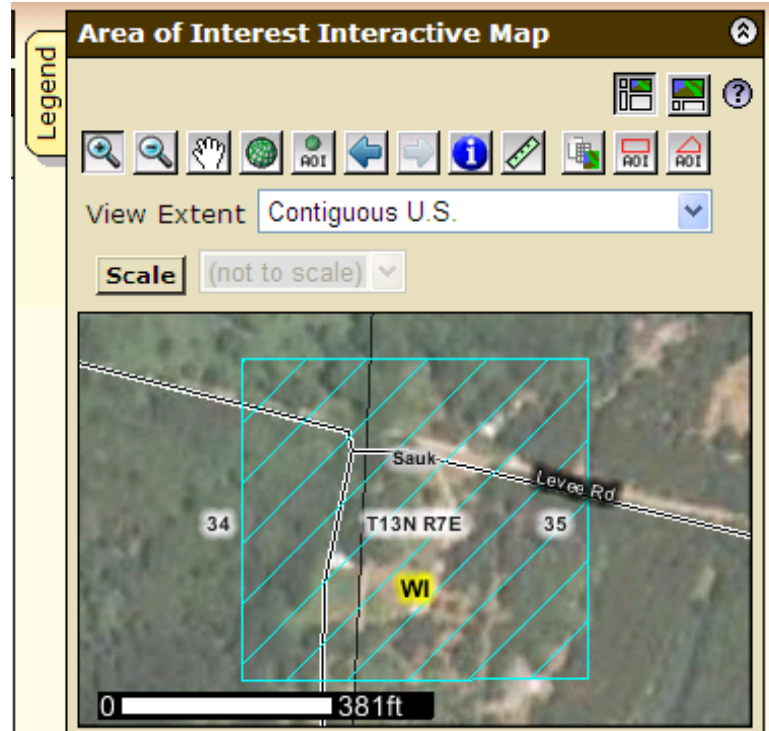
Measure – allows user to measure a line between 2 points



Identify Available Data – allows user to view soil data that is available for a particular location



Click for further information about toolbar buttons



shows all the soil types and corresponding data included within the AOI.

Area of Interest (AOI) **Soil Map** Soil Data Explorer Shopping Cart (Free)

Printable Version Add to Shopping Cart

**Search**

**Map Unit Legend**

Sauk County, Wisconsin (WI111)

| Map Unit Symbol | Map Unit Name                                  | Acres in AOI | Percent of AOI |
|-----------------|--|--------------|----------------|
| BrA             | Brems loamy sand, 0 to 3 percent slopes        | 1.9          | 22.7%          |
| Fw              | Fluvaquents, wet                               | 1.1          | 13.0%          |
| PfC             | Plainfield loamy sand, 6 to 12 percent slopes  | 2.1          | 26.0%          |
| PfD             | Plainfield loamy sand, 12 to 30 percent slopes | 3.1          | 38.4%          |

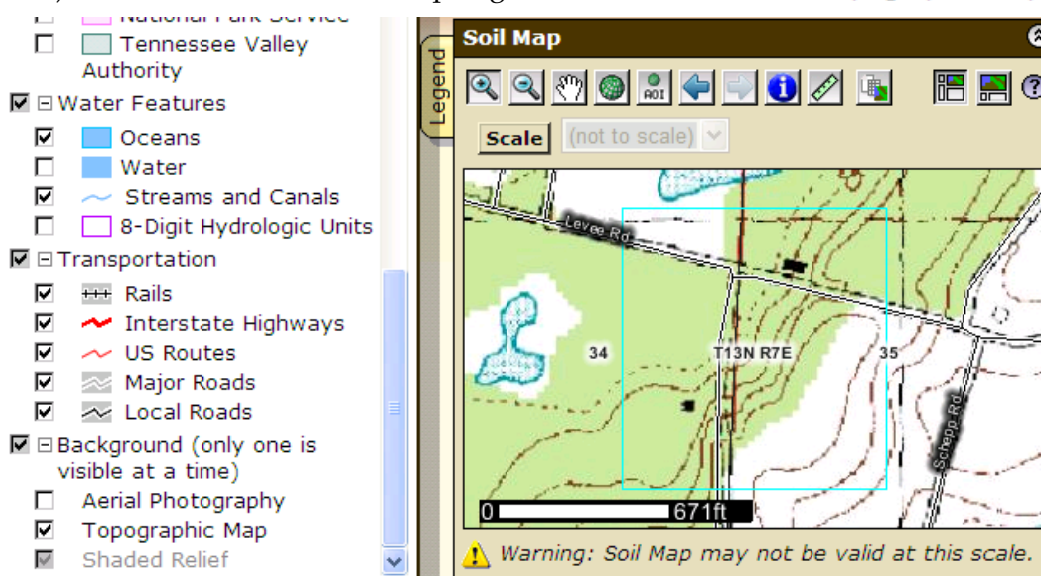
**Soil Map**

Legend

Scale (not to scale)



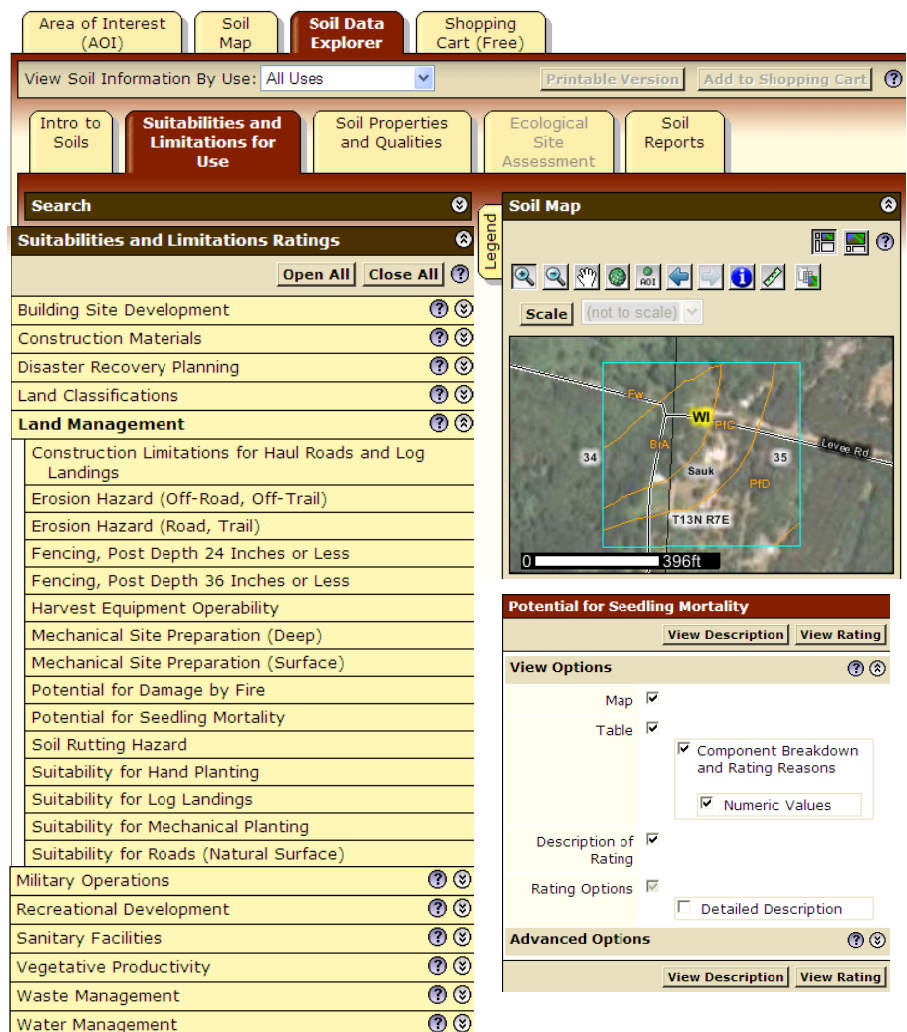
Within **Soil Map** explore the options in the Legend. One you may find helpful is “Topographic Map” instead of “Aerial Photography” (although this option may not be available in all instances). Scroll to the bottom of “Map Legend” and check ☒ **Topographic Map**.



The **Soil Data Explorer** tab allows the user to understand soil types are found within the AOI and helps you think about the best land uses for your property.

Click on any of the topics from “Building Site Development” to “Water Management” to see what information they have available. For example, under “Land Management” the options from “Construction Limitations...” to “Suitability for Mechanical Planting” are displayed.

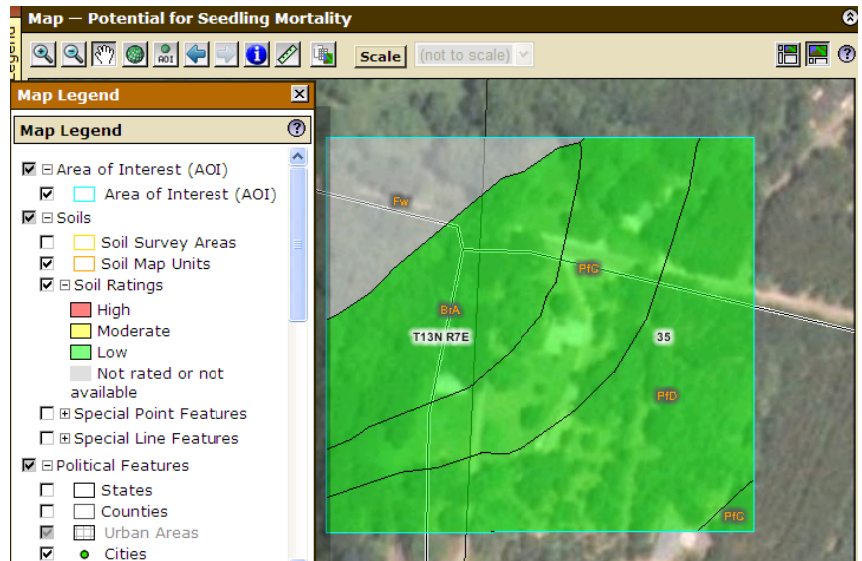
Explore these topics by clicking the topic and then click **View Rating**.





The map will be regenerated reflecting the data requested and a table will be generated below the map explaining the data. For example to the right is a map of “Potential Seedling Mortality” displaying high and low seedling mortality areas around the Legacy Center.

Exploring these tabs may give you many types of information to help inform management plans for your property.



Within **Soil Data Explorer** are several other tabs to be explored.

**Intro to Soils** has a number of resources to educate a user on basic soil knowledge that is necessary for understanding some of the data and information generated under the “Soil Data Explorer” tab. Check the box next to topics of interest and click

**View Selected Topics**.

**Soil Properties and Qualities** will generate data on soil chemistry and physical properties. Again explore these options by clicking on a topic and click **View Rating**.

**Intro to Soils**   **Suitabilities and Limitations for Use**   **Soil Properties and Qualities**

**Search** [v]

**Table of Contents** [^]

**View Selected Topics** [?]

- ☐ ☐ All Uses
  - ☐ ☐ Introduction to Soils
    - ☐ ☐ Soils 101
    - ☐ ☐ Information for Land Users
  - ☐ ☐ Cropland
    - ☐ ☐ Land capability classification
    - ☐ ☐ Soil erosion and crop production
    - ☐ ☐ Cropland management
  - ☐ ☐ Forestland
    - ☐ ☐ Grazed Forestland
    - ☐ ☐ Forest Canopy
    - ☐ ☐ Forest Overstory
    - ☐ ☐ Forest Understory
    - ☐ ☐ Forest Productivity
    - ☐ ☐ Forestland Ecological Sites
    - ☐ ☐ Forestland Management
    - ☐ ☐ Agroforestry

**Intro to Soils**   **Suitabilities and Limitations for Use**   **Soil Properties and Qualities**

**Search** [v]

**Properties and Qualities Ratings** [^]

**Open All**   **Close All** [?]

- Soil Chemical Properties [?] [v]
- Soil Erosion Factors [?] [v]
- Soil Physical Properties [?] [v]
- Soil Qualities and Features [?] [v]
- Water Features [?] [v]

The information available in the **Soil Reports** tab is similar to the sections in the “Suitabilities and Limitations for Use” tab but are summarized in a report form. Explore these topics by clicking the topic and **View Soil Report**.



The **Shopping Cart (Free)** generates a full report on the AOI. Click **Check Out** and then chose to download map now or have a PDF sent via email. Click **OK**.



## Wisconsin DNRWebView



The Wisconsin DNRWebView can be found at:  
<http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=webview>

The Wisconsin DNRWebView allows the public to access Geographic Information Systems (GIS) data available at the Wisconsin Department of Natural Resources (WDNR). These services include WDNR geospatial data sharing, data visualization and access via WDNR web mapping applications and participation in inter-agency GIS initiatives.

This is the start page for DNRWebView.

To get started click on

**Find Location**

tab.

**Wisconsin DNRWebView**

Layers Refresh Map Legend Find Location Themes Select Help


Zoom In Zoom Out Move Identify Full State Zoom to... Print Advanced Tools

What is WebView?

DNR "WebView" is an interactive online map viewer. Using your Web browser, you can access and display a subset of Geographic Information System (GIS) data available at the DNR.

Here are some basic hints to help you get started:

- Click on the "layers" tab to select different map layers to view.
- Use the Zoom In, Zoom Out, and Move buttons to view more (or less) detail on the map.



Scale: 1:8,463,807 go Selected Map Tool: Zoom In Zoom In

DNR Maps & Aerial Photography | DNR GIS Overview | Comments on this website |

Chose one of the following ways to locate the area you want to view:

### Find Location

What would you like to find?:

- City or Village
- Township/Range/Section
- County
- Civil Town
- Latitude / Longitude Coordinate (DMS)
- Latitude / Longitude Coordinate (DD)
- UTM Coordinate
- WTM Coordinate

This menu is used to set the extent of the map using query tools. Select one of the previous options, and the map extent will

### By City or Village:

#### Find Location

Enter a city or village name:

Go!

### By Township/Range/Section:

#### Find Location

Select a PLSS Township, Range, and Direction:

Township: 1 Range: 1 Direction: East

Section (optional)

None

For this example:

Township/Range/Section was used to find the Aldo Leopold Legacy Center. The Legacy Center and surrounding area is seen in the frame.

Layers Refresh Map Legend Find Location Themes Select Help

Zoom In Zoom Out Move Identify Full State Zoom to... Print Advanced Tools


**Find Location**

Select a PLSS Township, Range, and Direction:

Township: 13 Range: 7 Direction: East

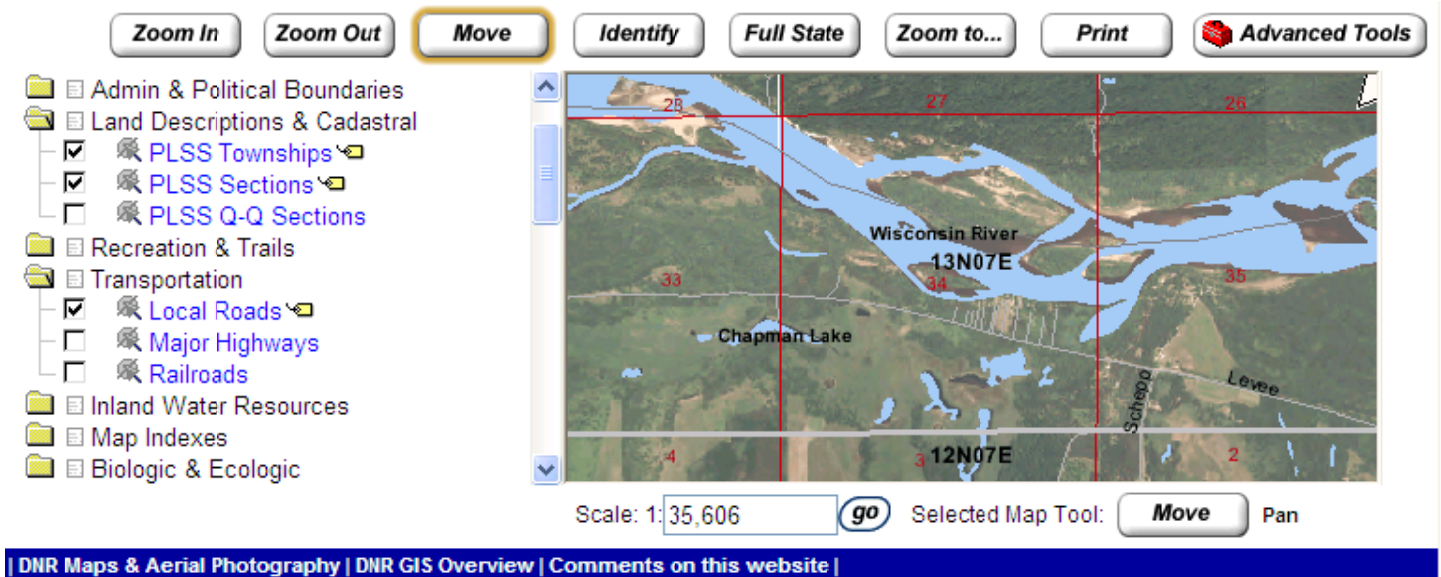
Section (optional): 34

Go!



Scale: 1:35,606 go Selected Map Tool: Zoom In Zoom In

Depending on how well you recognize your area from an aerial view you may want to turn on certain layers. Click **Layers** on the main tabs. For this example the following options were checked under “Land Descriptions and Cadastral”, “PLSS townships” and “PLSS Sections” and under “Transportation”, “Local Roads” and “Major Highways”. Otherwise all other layers were default.



Zoom into the area using the tools at the top of the screen.

**Wisconsin DNRWebView**

Layers
Refresh Map
Legend
Find Location
Themes
Select
Help

Zoom In
Zoom Out
Move
Identify
Full State
Zoom to...
Print
Advanced Tools

**Zoom In**

Zoom in - Click button then click the aerial photo.

**Zoom Out**

Zoom out - Click button then click the aerial photo.

**Move**

Pan - Click button then click and drag mouse to move aerial photo.

The view on the right was created using these 3 buttons.

Once you have the area you want to print in the frame, click **Print**.



The following screen will appear. Be sure the Template is the right size for your printer paper and the scale is appropriately set. Create a Map Title and Map Notes (optional). Click **OK**.

**Wisconsin DNRWebView**

Layers
Refresh Map
Legend
Find Location
Themes
Select
Help

Zoom In
Zoom Out
Move
Identify
Full State
Zoom to...
Print
Advanced Tools

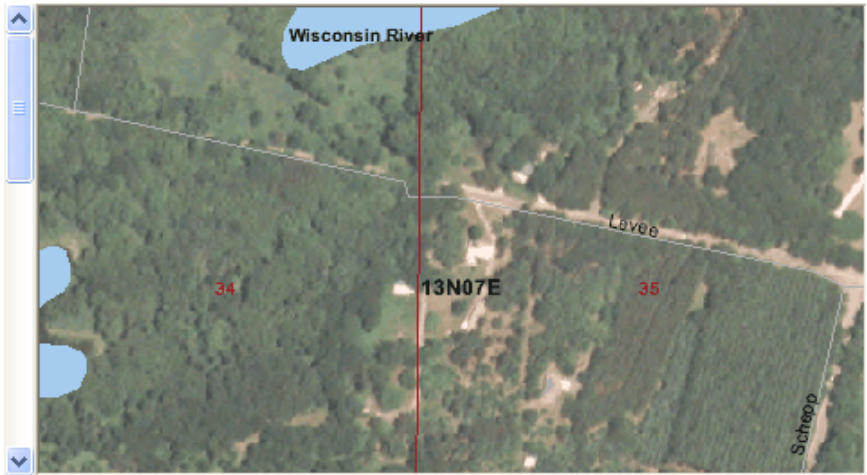
### Create a PDF Map

Template:

Scale:

The Current scale option keeps the map at the currently specified scale, but may increase or decrease the extent of the map to fill the printed map page.

Map Title



Scale: 1:4,556 
Selected Map Tool: Zoom In Zoom In

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Wait for the map to load, click [ [open map](#) ], save or print file.

**Wisconsin DNRWebView**

Layers
Refresh Map
Legend
Find Location
Themes
Select
Help

Zoom In
Zoom Out
Move
Identify
Full State
Zoom to...
Print
Advanced Tools


### Create a PDF Map

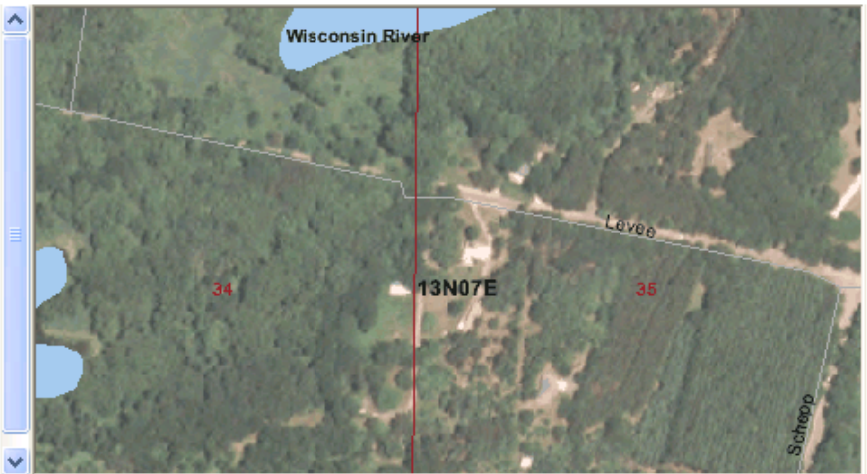
Map created successfully.

[ [open map](#) ]

To save the map document, right click on the link above, then click "Save As"

The map is in Adobe Acrobat PDF format. You probably have the Adobe Acrobat Reader installed on your computer but if not, you can download it for free from Adobe.

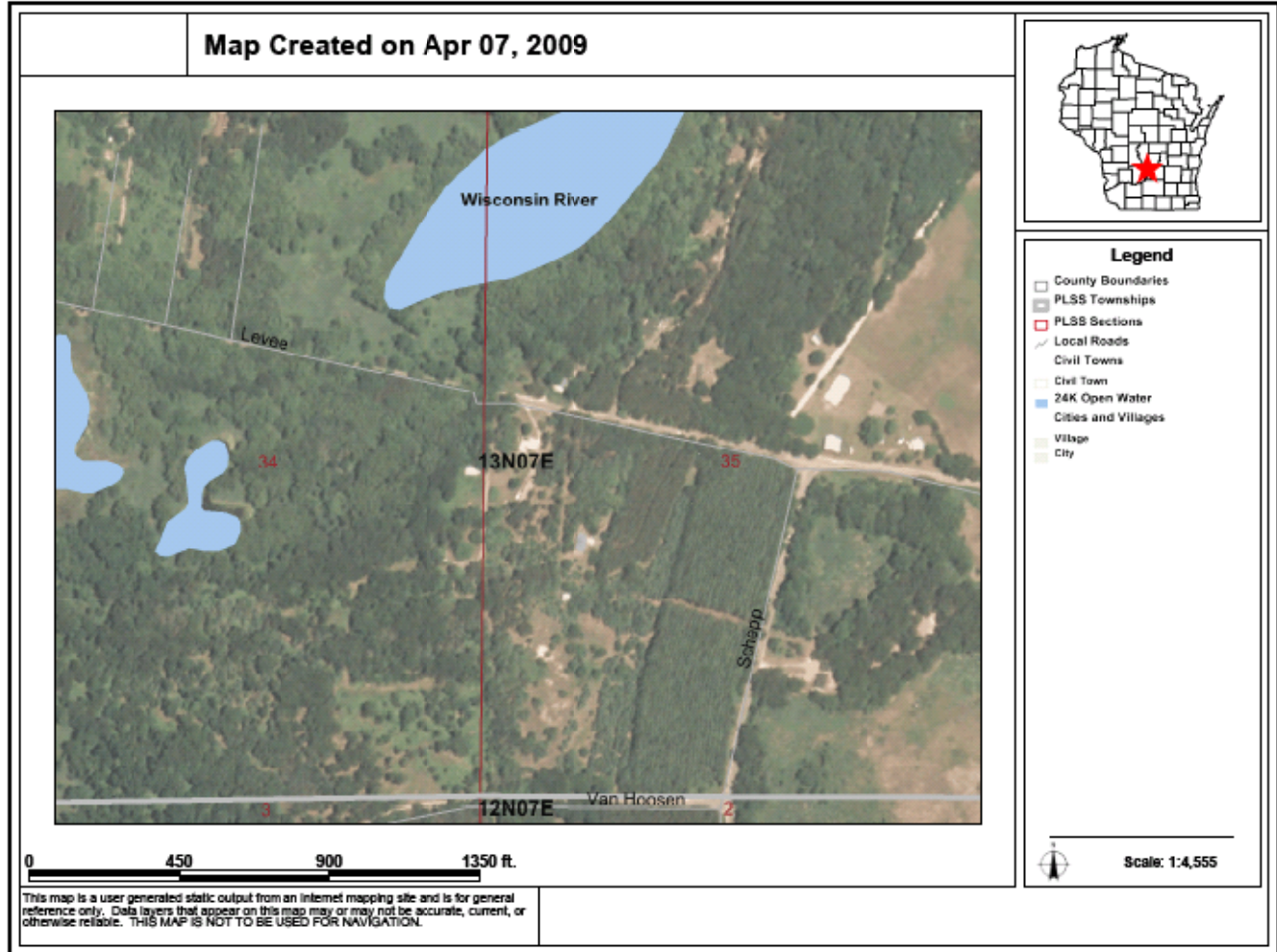






Scale: 1:4,556 
Selected Map Tool: Zoom In Zoom In


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Final Product:




## Unique features of DNRWebView

Maps can be created using  **Basic Tools** or under  **Advanced Tools** are a number of features that can enhance your map.

 The standard zoom in/out and move features are available.


 The print icon allows you to print and the envelope icon allows you to send a copy via email to yourself or others

 This icon allows for uploading Shape files to GIS programs. If you have a GIS program this feature may be beneficial.



Using ★ T you can mark a point and label it on the map. For example, the Legacy Center is marked and labeled to the right.




Use  to measure the distance between points. For example distance between the road and the Legacy Center was measured. Click the tool then click along the feature you want to measure. Listed is the distance between two (2) points.


### Measure Tool

This document shows the positions of the points that you have clicked on the map using the measure tool, and reports the distance between them.

|             |                                    |
|-------------|------------------------------------|
| Position    | 89° 38' 22.6" W<br>43° 33' 28.0" N |
| Position    | 89° 38' 23.3" W<br>43° 33' 23.5" N |
| Distance    | 454.5 ft                           |
| True Course | 186.8°                             |

[Clear Points](#)


Scale: 1:5,418 [go](#) Selected Map Tool:  Measure

Use  to measure an area. For example, the area of an Oak Savanna restoration behind the Legacy Center is measured. Click on the tool and then trace the boundaries of the area which you want to measure.

### Measure Tool

This document shows the positions of the points of a polygon that you have clicked on the map using the area measure tool, and reports the area of the polygon.

|          |                                    |
|----------|------------------------------------|
| Area     | 3.6 acres                          |
| Point 1: | 89° 38' 23.9" W<br>43° 33' 23.2" N |
| Point 2: | 89° 38' 30.1" W<br>43° 33' 20.7" N |
| Point 3: | 89° 38' 17.4" W<br>43° 33' 20.3" N |
| Point 4: | 89° 38' 16.0" W<br>43° 33' 21.0" N |

Scale: 1:5,418 [go](#) Selected Map Tool:  Measure Area



## Index Map



This tool shows the location of your area in relation to the state. The index Map will appear on the left side of the screen.

The most unique features of the DNRWebView are the WDNR project data that is made available as Layers. Under the folders "Recreation & Trails", "Inland Water Resources", "Biological & Ecologic" and "Forest & Landcover" are layers of information the WDNR has compiled and made available for public use.

To view these layers check the box next to the desired layer. To view a description of these layers click on the name of the layer.

Once a layer has been added information can be gathered about it by clicking  icon. For example: ☒  **Ecological Landscapes**. The following information will be generated.

Layers
Refresh Map
Legend
Find Location

**Map Layers**
? HELP

- Admin & Political Boundaries
- Land Descriptions & Cadastral
- Recreation & Trails
- Transportation
- Inland Water Resources
  - ☐ 24K Watersheds
  - ☐ DNR Major Basins
  - ☐ DNR Water Mgmt Units
  - ☒ Open Water
  - ☐ Rivers and Streams
- Map Indexes
- Biologic & Ecologic
  - ☐ 2001 Turkey Mgmt. Units
  - ☐ 2001 Bear Mgmt. Units
  - ☐ 2006 Deer Mgmt. Units
  - ☐ CWD Eradication Zone
  - ☐ CWD Herd Reduction Zone
  - ☐ Landtype Associations
  - ☐ Ecological Landscapes
- Forests & Landcover
  - ☐ WISCLAND Landcover
  - ☐ Original Vegetation Cover
  - ☐ National Forest Boundaries



### Identify Results


#### Coordinate Position

Lat/Lon: 43° 33' 25.3" N, 89° 38' 24.3" W  
 Decimal Lon/Lat: -89.640231, 43.557044  
 UTM 16N: 286749, 4826064  
 WTM91 (x,y): 549057, 342739

#### Ecological Landscapes

Name: Central Sand Hills  
 AREA: 5619889177.21793  
 LEN: 921453.576404979



Scale: 1:5,837  Selected Map Tool:  Identify Ecological Landscapes