

WASHINGTON



Natural Heritage
Report 2023-02



WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

Washington Natural Heritage Program Data Explorer User Guide

Washington Natural Heritage Program Report Number: 2023-02

February 8, 2023

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ON THE COVER: WNHP Data Explorer, Rare Plant and Ecosystems Locations map.

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Introduction

The [Washington Natural Heritage Program \(WNHP\) Data Explorer](#)¹ online Geographic Information System (GIS) application replaces the WA Wetlands of High Conservation Value (WHCV) viewer. Whereas the WHCV viewer primarily displayed wetland-associated rare species and ecosystems, the Data Explorer shares

- All publicly-available locations of rare species and rare & high-quality ecosystems, known as Element Occurrences (EOs), currently documented in WNHP's database, with precise species boundaries masked to protect sensitive species locations; and
- WNHP's available Ecological Integrity Assessment (EIA) data.

Other datasets are also accessible in the Data Explorer to help guide land use decision, inform natural resource management, and prioritize conservation actions. We created the new Data Explorer using Esri's ArcGIS Experience Builder platform built on the ArcGIS API for JavaScript 4.x technology. WNHP will continue to improve and expand the application into the future.

To help guide development, we surveyed stakeholders from a variety of organizations regarding data and functionality needs. We then invited these stakeholders to demonstrations of draft versions of the application and have used their feedback to make further refinements. We continue to welcome feedback from application users and continue to improve the data explorer's functionality moving forward. A [feedback form link](#)² is provided in the application.

Background

WNHP developed this application as part of the [Ecological Integrity Assessments to Inform Prioritization of Protection and Restoration Actions and Monitor Progress in the Puget Sound Region](#)³. This project was completed with funding from Puget Sound National Estuary Program in support of Near Term Actions 2018-0652 and 2018-0692 (WDFW Project 20-15677 / EPA Award No. PC-01J22301 / NTA 2018-0652 and 2018-0692).

In addition to providing additional reference data layers, the application includes tools for:

- Finding locations of interest (e.g. counties, PLSS townships, county parcels, coordinates, etc.).
- Filtering plant, ecosystem, and EIA data on desired criteria.
- Interactively selecting features of interest.

¹ <https://experience.arcgis.com/experience/174566100f2a47bebe56db3f0f78b5d9>

² <https://survey123.arcgis.com/share/51a1746e8d25440ab799024990cb722d>

³ https://www.dnr.wa.gov/publications/amp_nh_eia_puget_sound_region.pdf

- Interactively adding graphic markups.
- Bookmarking areas of interest.
- Creating PDF or graphic format maps for printing and distribution.

For the best performance and user experience, use the latest version of supported browsers. As the WNHP Data Explorer is built on Esri ArcGIS Online technology, it supports the following browsers:

- Google Chrome version 104 and later
- Microsoft Edge version 104 and later
- Mozilla Firefox version 105 and later
- Mozilla Firefox version 102 (ESR)
- Safari version 15 and later

Currently the Data Explorer is not optimized for use on mobile devices. It is our hope to provide a mobile-optimized version of the application in the future.

When using the Data Explorer as a source in reports and publications, please acknowledge the use of the application with the following citation information:

Washington Department of Natural Resources. 2023. Washington Natural Heritage Program Data Explorer. Washington Department of Natural Resources, Natural Heritage Program. Olympia, WA. Online:
<https://experience.arcgis.com/experience/174566100f2a47bebe56db3f0f78b5d9/>. (Date viewed).

Application Pages

The new [WNHP Data Explorer](#)⁴ application currently includes three pages:

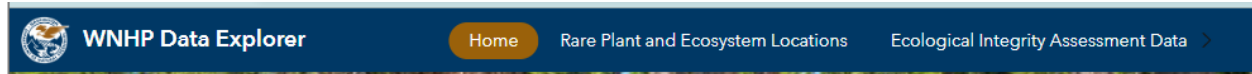
1. Home Page: Includes descriptions of the map pages and links to documentation and WNHP information.
2. [Rare Plant and Ecosystem Locations](#)⁵: This map displays all publicly-available rare plant and rare and high-quality ecosystem locations in our database. It replaces and expands upon the functionality of the previous WA Wetlands of High Conservation Value map viewer.

⁴ <https://experience.arcgis.com/experience/174566100f2a47bebe56db3f0f78b5d9>

⁵ <https://experience.arcgis.com/experience/174566100f2a47bebe56db3f0f78b5d9/page/Rare-Plant-and-Ecosystem-Locations/>

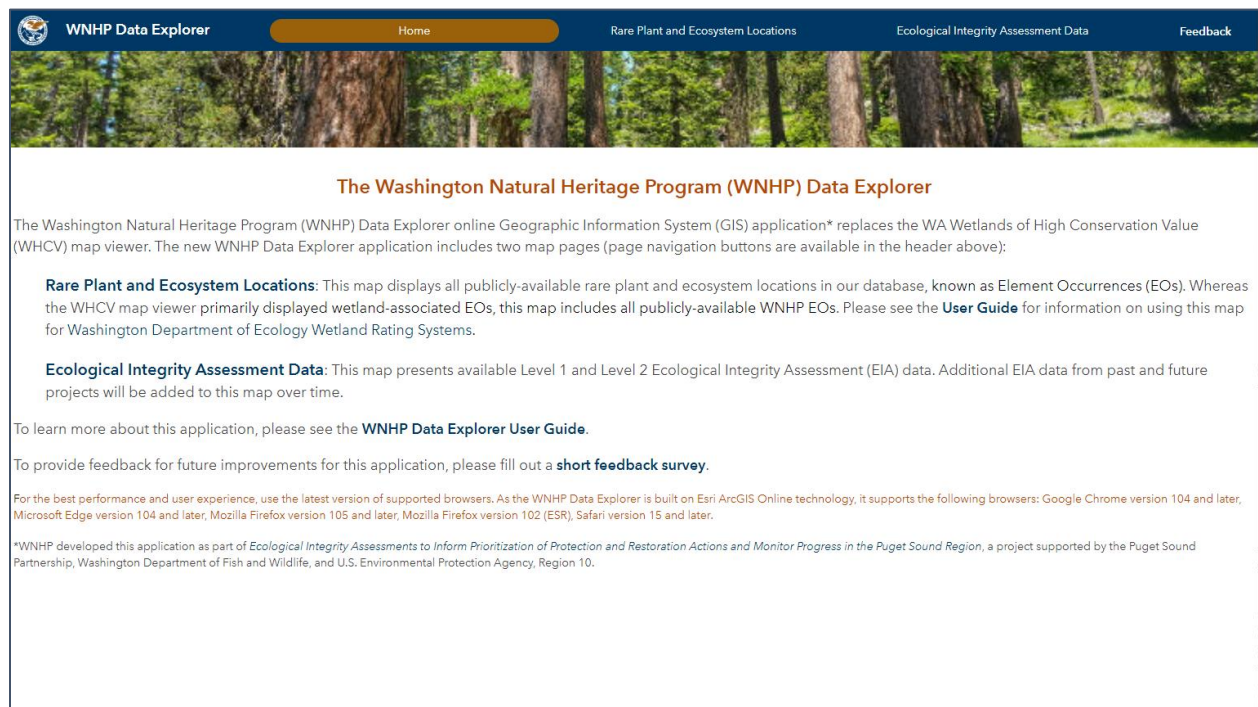
3. [Ecological Integrity Assessment Data⁶](#): This map presents available Level 1 and Level 2 EIA data across the state. As additional EIA data becomes available, it will be added to this map over time.

Navigation links for application pages are available in the header.



Home Page

The home page includes a basic introduction to the application, links to documentation and feedback, and will include informational announcements about updates to the application.



Rare Plant and Ecosystem Locations Map

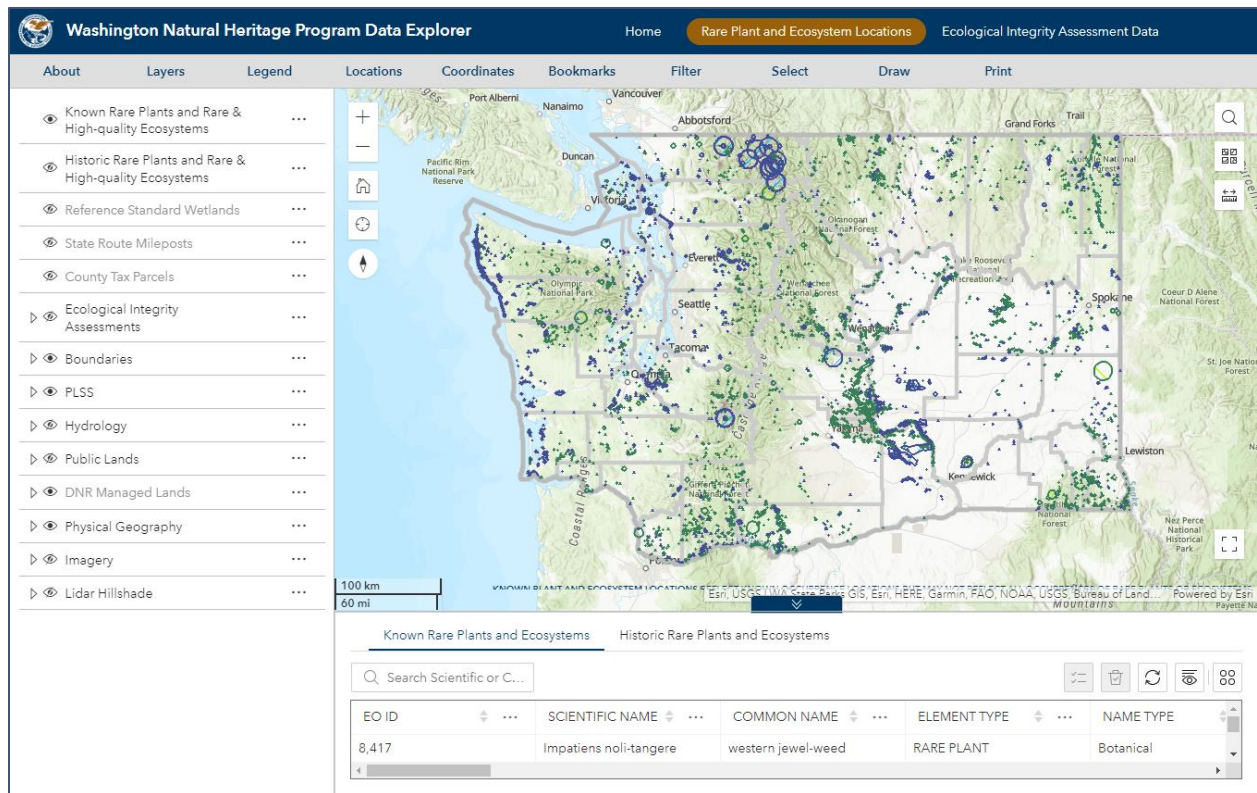
WNHP maintains a database of rare species and rare and high-quality ecosystems for the state. The **Rare Plants and Rare & High-quality Ecosystems** layers in this map represent the **Element Occurrence (EO)** records that form the core of the Natural Heritage database (see [Natural Heritage Methods⁷](#)). EOs include information on the location, status, characteristics, numbers, condition, and distribution of elements of biological diversity using established Natural Heritage Methodology developed by [NatureServe⁸](#) and [The Nature Conservancy⁹](#).

⁶ <https://experience.arcgis.com/experience/174566100f2a47bebe56db3f0f78b5d9/page/Ecological-Integrity-Assessment-Data/>

⁷ <https://www.dnr.wa.gov/NHPmethods>

⁸ <https://www.natureserve.org/>

⁹ <https://www.nature.org/en-us/>



Element Occurrences

An **Element Occurrence (EO)** is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. For species elements, the EO often corresponds with the local population, but when appropriate may be a portion of a population or a group of nearby populations (e.g., metapopulation). For ecosystem elements, the EO may represent a stand or patch of an ecosystem type, or a cluster of stands or patches of an ecosystem type.

An EO record is a data management tool that has both spatial and tabular components including a mappable feature and its supporting data. EOs are represented by bounded, mapped areas of land and/or water. EO records are most commonly created for current or historically known occurrences of natural communities or native species of conservation interest. They may also be created, in some cases, for extirpated occurrences.

The **Known Rare Plants and Rare & High-quality Ecosystems** layer includes EOs observed within the last 40 years. The **Historical Rare Plants and Rare & High-quality Ecosystems** layer includes EOs last observed 40+ years ago, as well the lowest precision records. For further information concerning EO data, please see our [EO GIS metadata document](https://www.dnr.wa.gov/publications/amp_nh_eo_metadata.pdf)¹⁰.

Reference Standard Wetlands

¹⁰ https://www.dnr.wa.gov/publications/amp_nh_eo_metadata.pdf

Locations of Reference Standard Wetlands¹¹ are also included in the Data Explorer. Reference Standard Wetlands are considered to be among the best examples of specific wetland types. These wetlands are generally located in areas with long-term protection status. Reference standard wetlands need to be anchored to a specific classification scheme and specific ecological condition criteria. Here, wetland Subgroups¹² are used as the classification standard and ecological integrity (as measured by the EIA method¹³) as benchmark conditions. Reference standard wetlands shown in the Data Explorer reflect ecological conditions representative of wetlands with minimal human-induced disturbance and/or the best quality wetlands for a given type remaining on the landscape. These reference standard wetlands can be used to identify restoration potential and benchmarks, mitigation performance standards, conservation priorities, or to provide benchmark data to help understand how wetlands respond to human-induced disturbance.

Using the Data Explorer for Washington Department of Ecology Wetlands Rating Systems

A common use of WNHP's EO data is for implementation of the [Washington Wetland Rating System](#)¹⁴ (Hruby, T. 2014a, 2014b, or as revised). In 2017, WNHP launched the Wetlands of High Conservation Value (WHCV) map viewer to assist users with the rating system.

The Washington Department of Ecology (Ecology) Wetland Rating Systems are tools designed to differentiate between wetlands based on their sensitivity to disturbance, rarity, our ability to replace them, and the functions they provide. They are designed to help agencies make decisions about standards for protecting wetlands. Ecology uses the term **Wetland of High Conservation Value** (WHCV) to describe a wetland that supports rare species or a rare or high-quality ecosystem type. These are known locations of any plant, nonvascular species, or ecosystems considered to be Endangered, Threatened, or Sensitive; or ecosystems prioritized by the WNHP based on a combination of the plant community type's rarity or risk of extinction and its current ecological integrity. All wetlands that overlap occurrences of rare species or rare ecosystem types, regardless of their condition, are considered to be WHCV, while occurrences of wetlands with common ecosystem types are WHCV only if they are in good to excellent condition, as determined by the WNHP (e.g., high-quality ecosystems).

The [WNHP Data Explorer](#)¹⁵ displays known rare plants and rare and high-quality ecosystems. If any part of a wetland overlaps data from any of those layers, regardless of the plants' wetland indicator status, the wetland meets the criteria for WHCV in the Washington Wetland Rating Systems, and that wetland is a Category I. By categorizing these wetlands as Category I, Ecology is trying to provide a high level of protection to these important and rare wetlands. These natural systems and species will survive in Washington only if we give them special attention and protection.

The WNHP Data Explorer is replacing and expanding on the functionality of the WHCV map viewer. As such, the WHCV map viewer will be retired and eventually removed from the WNHP web site. The WHCV map viewer only presented rare & high-quality wetland ecosystems while

¹¹ https://www.dnr.wa.gov/publications/amp_nh_ref_wetland_final.pdf

¹² <https://www.dnr.wa.gov/NHPwetlands>

¹³ <https://www.dnr.wa.gov/NHP-EIA>

¹⁴ <https://ecology.wa.gov/Water-Shorelines/Wetlands/Tools-resources/Rating-systems>

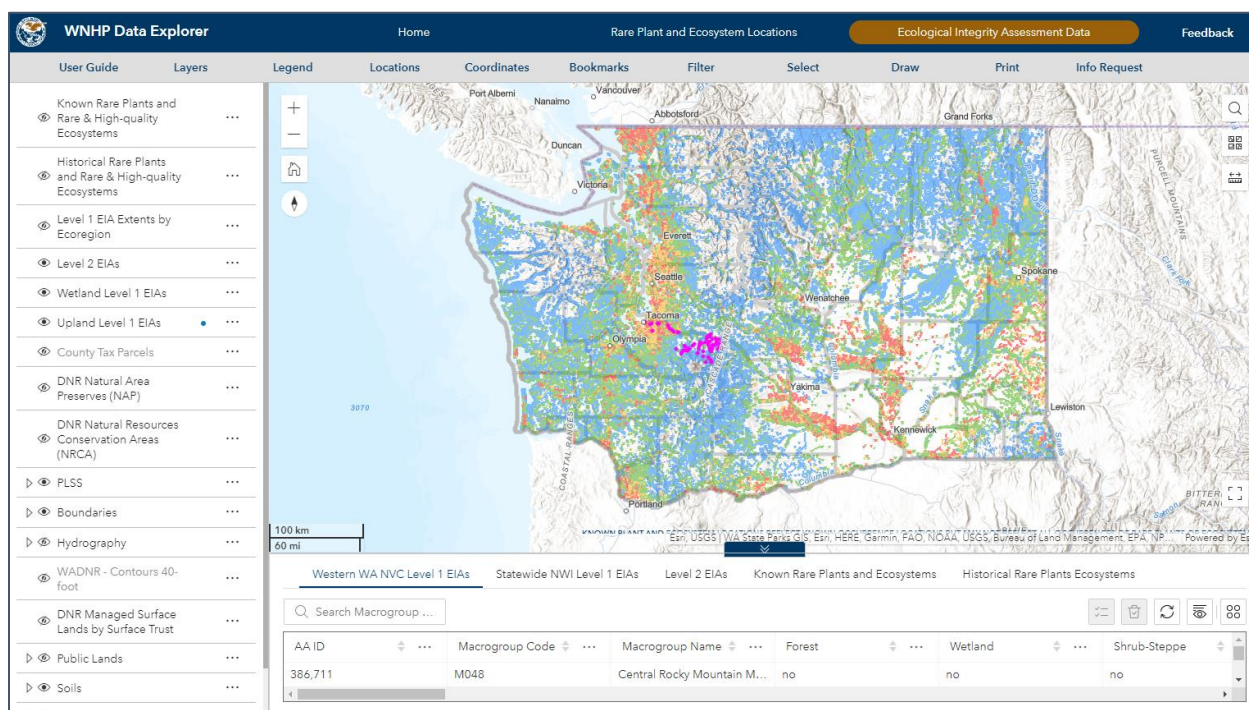
¹⁵ <https://experience.arcgis.com/experience/174566100f2a47bebe56db3f0f78b5d9>

the Data Explorer includes all ecosystem EOs in WNHP's database. While the WHCV map viewer did present all rare plant data, the names of the plants were masked. Rare plant names are included in EO records presented in the Data Explorer.

Not every wetland in Washington has been visited by WNHP staff; additional sites may contain rare species and/or rare & high-quality ecosystems that meet EO data standards. If you believe you've discovered a new location for a vascular plant or nonvascular species considered to be Endangered, Threatened, or Sensitive by our program, or discovered a rare or high-quality wetland ecosystem type, then see the 'Submitting Data to the Natural Heritage Program' section on our [Data Products and Requests](#)¹⁶ web page. WNHP scientists will review submitted data to determine whether the species or communities meet the standard for a new EO. The accuracy of the boundaries of each EO varies depending on the quality of underlying data. **Within the [EO metadata](#)**¹⁷, see 'Precision Code' for clarification.

Ecological Integrity Assessment Data Map

Ecological Integrity Assessments (EIAs) were developed by WNHP and others to measure the ecological condition of upland and wetland ecosystems using standardized metrics to categorize sites into condition classes (Faber-Langendoen et al. 2019; Rocchio et al. 2020a,b).



EIAs seek to measure “the degree to which, under current conditions, the structure, composition, processes, and connectivity of an ecosystem corresponds to reference conditions, and are within the bounds of natural or historical disturbance regimes” (Faber-Langendoen et al. 2019). EIAs may be conducted at three different sampling intensities: Level 1 (entirely remote sensing/GIS-based), Level 2 (rapid, mostly qualitative, field based), and Level 3 (intensive, quantitative, field-

¹⁶ <https://www.dnr.wa.gov/NHPdata>

¹⁷ https://www.dnr.wa.gov/publications/amp_nh_eo_metadata.pdf

based). This tiered approach is integrated such that Level 1 assessments can be made across all sites in the study area, followed by Level 2 assessments at a subset of locations accessed on the ground, and—in some cases—Level 3 assessments of a smaller subset requiring more precise/detailed information (Faber-Langendoen et al. 2019). Notably, data from Level 2 and 3 EIA may be used to help calibrate and/or assess the sensitivity of remotely sensed Level 1 assessments.

Level 1 EIA data are most appropriate for landscape level assessments. Level 1 EIA may be used as an initial site-scale screening tool to identify sites with conservation (i.e., high ecological integrity) or restoration (i.e., sites with low ecological integrity) potential. However, ground-truthing via Level 2 EIA is imperative to confirm the ecological integrity of any specific location.

Level 2 EIA data may be used in a variety of ways to support restoration and conservation actions. Level 2 EIA data, when used with conservation status ranks, are useful for identifying ecosystem locations with high conservation value (e.g., ecosystem EOs). Level 2 data can also be used for site scale monitoring to track changes in ecological integrity at a site over time. Individual metrics can be used to indicate which components of ecological integrity need improvement. The A-rank conditions described for each metric can also be used to characterize reference standard conditions for a given ecosystem type, thereby providing restoration benchmarks.

Most of the EIA data currently available in the Data Explorer were developed as part of *Ecological Integrity Assessments to Inform Prioritization of Protection and Restoration Actions and Monitor Progress in the Puget Sound Region*. For that project, the WNHP aimed to improve the knowledge and data accessibility of the locations of rare and high-quality ecosystems in the Puget Sound drainage basin, develop and distribute a systematic approach to identify and prioritize areas for restoration and protection, and enable land managers to assess current ecological conditions and monitor restoration progress. For more details, see the [project report](#)¹⁸.

For further information concerning EIA GIS attributes, please see the [EIA GIS Attribute Glossary](#)¹⁹.

Literature Cited

- Faber-Langendoen D., J. Lemly, W. Nichols, F.J. Rocchio, K. Walz, and R. Smyth. 2019. Development and evaluation of NatureServe’s multi-metric Ecological Integrity Assessment for wetland ecosystems. *Ecological Indicators* 104(9):764–775.
- Hruby, T. 2014a. Washington State Wetland Rating System for Eastern Washington: 2014 Update. Publication #14-06-030. Olympia, WA: Washington Department of Ecology
- Hruby T. 2014b. Washington State Wetland Rating System for western Washington. 2014 update. Washington State Department of Ecology, Olympia, WA. Publication #14-06-29.

¹⁸ https://www.dnr.wa.gov/publications/amp_nh_eia_puget_sound_region.pdf

¹⁹ https://www.dnr.wa.gov/publications/amp_nh_eia_attrglossary.pdf

Rocchio F.J., R.C. Crawford, and T. Ramm-Granberg. 2020a. Field manual for applying rapid Ecological Integrity Assessments in wetlands and riparian areas. Version 1.1. Washington Natural Heritage Program, Department of Natural Resources, Olympia, WA. Natural Heritage Report-2020-06. Online:

https://www.dnr.wa.gov/publications/amp_nh_eia_protocol_wetland_2020.pdf

Rocchio F.J., T. Ramm-Granberg, and R.C. Crawford. 2020b. Field manual for applying rapid Ecological Integrity Assessments in upland plant communities of Washington state. Version 1.1. Washington Natural Heritage Program, Department of Natural Resources, Olympia, WA. Natural Heritage Report-2020-05. Online:

https://www.dnr.wa.gov/publications/amp_nh_eia_protocol_upland_2020.pdf

Getting Started

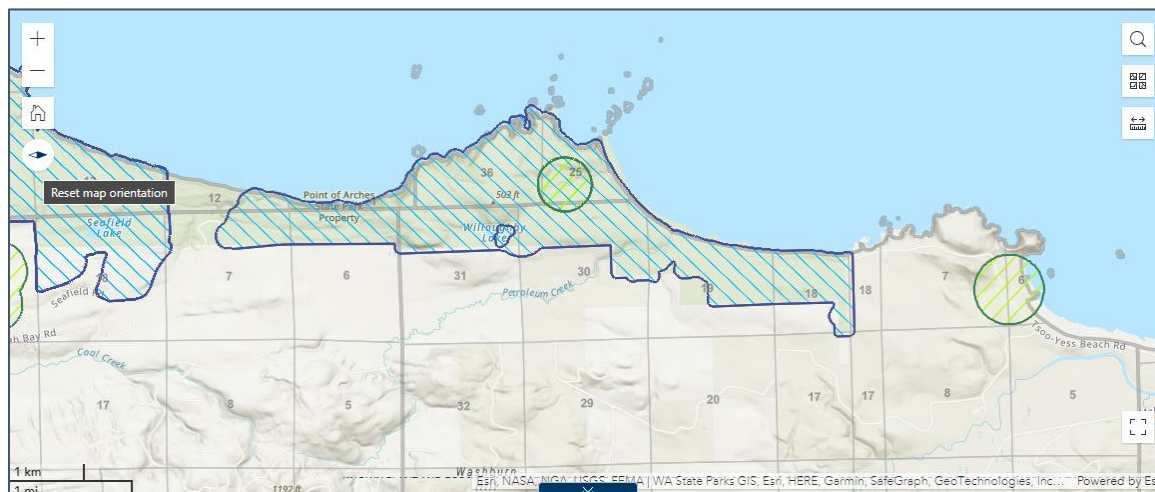
Using the WNHP Data Explorer, you can interactively explore spatial data in the available map pages, find and bookmark locations and areas of interest, filter layers for planning and research purposes, and create output maps to share with others. The following sections provide guidance on how to use the basic application functions.

Map Navigation and Tools

Many map navigation tasks can be accomplished using the mouse and scroll wheel.

- To pan the map, left-click and drag the mouse.
- To zoom in, scroll the mouse wheel forward; to zoom out, scroll the mouse wheel backward.
- To rotate the map, right-click and drag the map clockwise or counterclockwise to the desired orientation. Rotating the map can be particularly useful for examining areas that are longer west to east rather than north to south.

To reset the map orientation, click the *Reset map orientation* button in the upper left of the map.



Upper Left – Navigation Tools



Zoom In, Zoom out

The top two buttons provide fixed zoom in (+) and zoom out (-) functions.

Home

The middle button returns the map frame to the default map extent.

Default map orientation

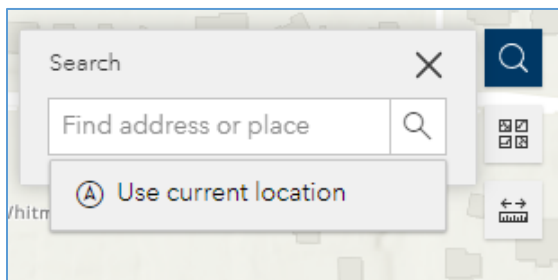
The last widget in the upper left is *Reset map orientation*. Use this widget to reset the map orientation to north at the top, if you have rotated the map view.

Upper Right

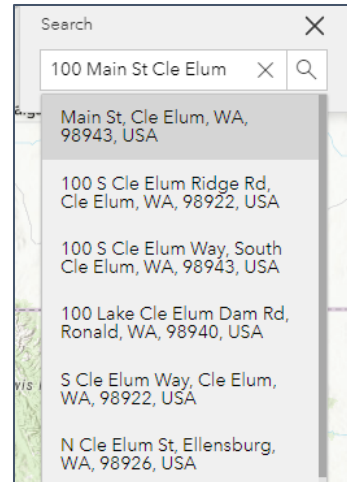
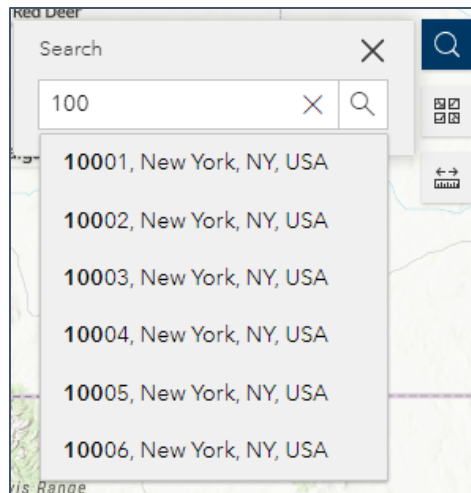


Search

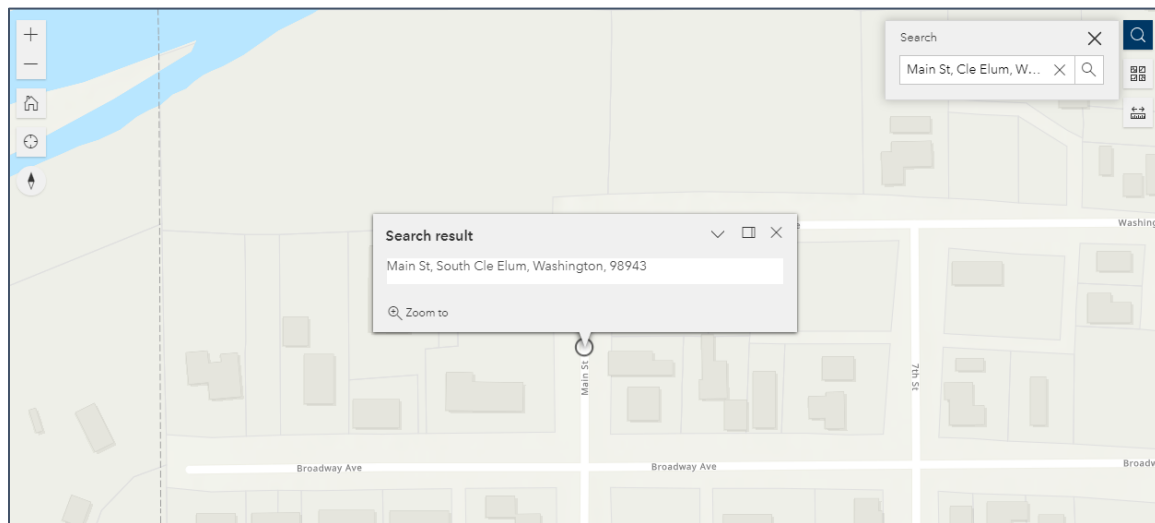
Use the *Search* widget at the top to enter an address or place name in the text entry box and navigate the map to that location. When you first click in the text box you will be given the option of using your current location. If you use the tool from a computer on a network, spurious locations may be generated.



Once three characters are entered in the text box, a list of suggestions will be generated. Please note, this widget is not limited to addresses in Washington, so the list could include a wide range of addresses. Keep entering characters until the desired address appears; select the address from the suggestion list.

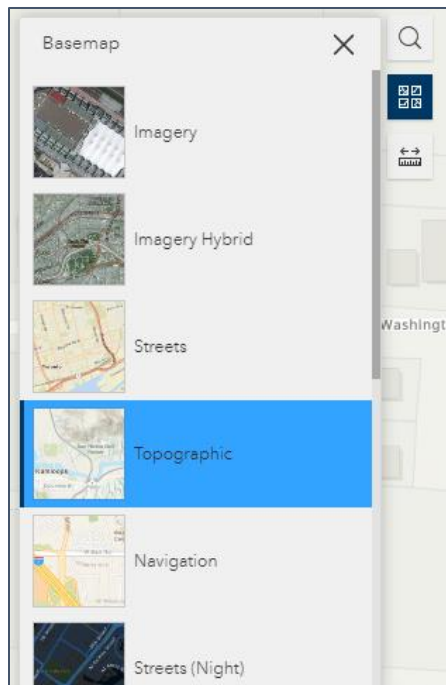


The widget will zoom the map to the location and provide a popup. Click the X on the popup or the Search widget to clear the results from the map.



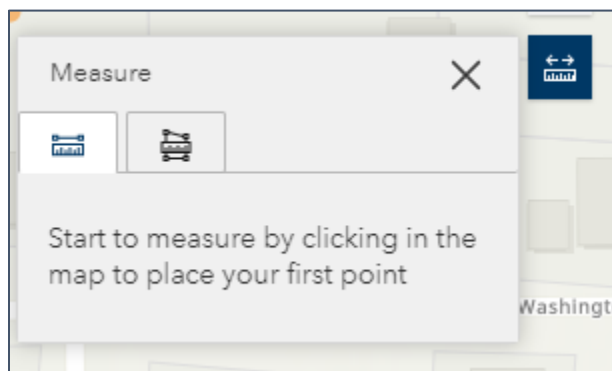
Basemap

Use the *Basemap* widget to change the underlying basemap.

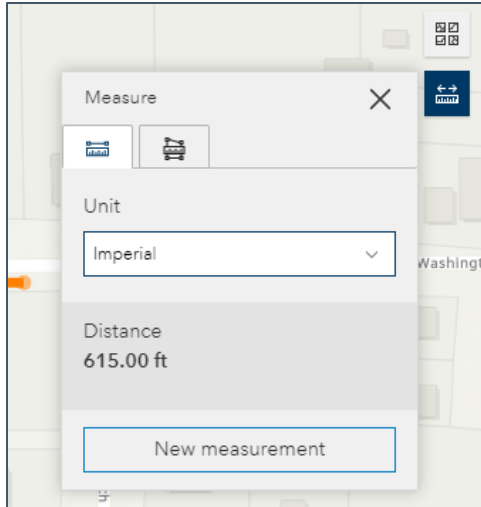


Measure

Use the *Measure* widget to draw simple line or polygon graphics to measure distances or areas.

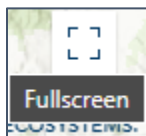


Double click to finish drawing the desired line or polygon and see the returned distance or area measurement. Use the Unit dropdown to change the units of measure.



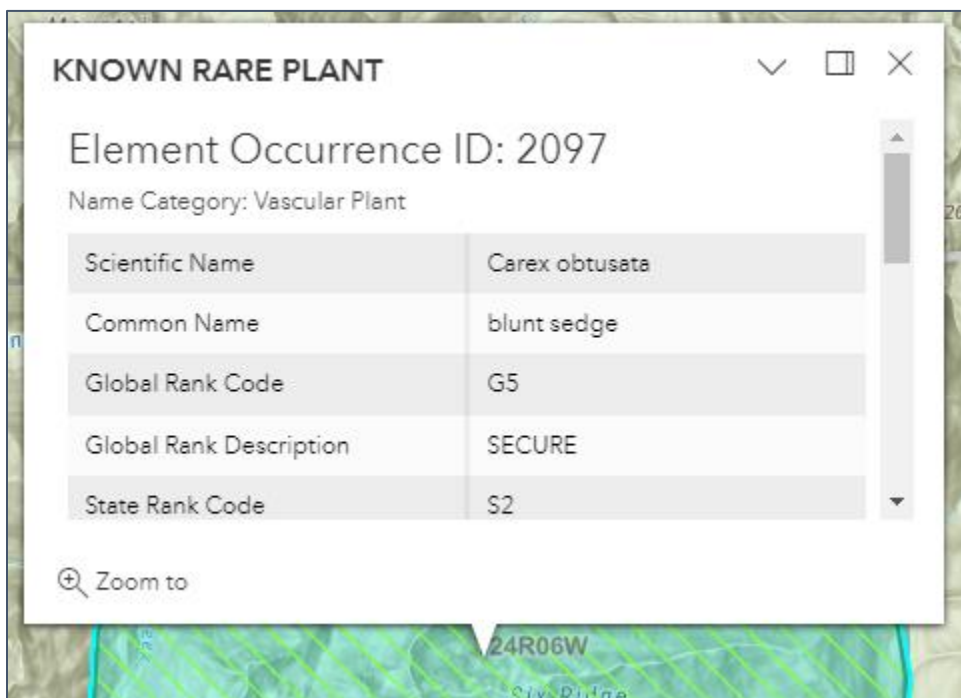
Lower Right Full Screen

Use the *Fullscreen* widget to expand the map frame to the extent of your monitor. Click the widget again, or press the Esc key, to exit the full screen mode.

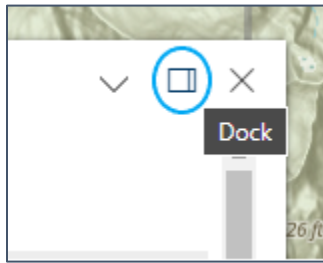


Popups

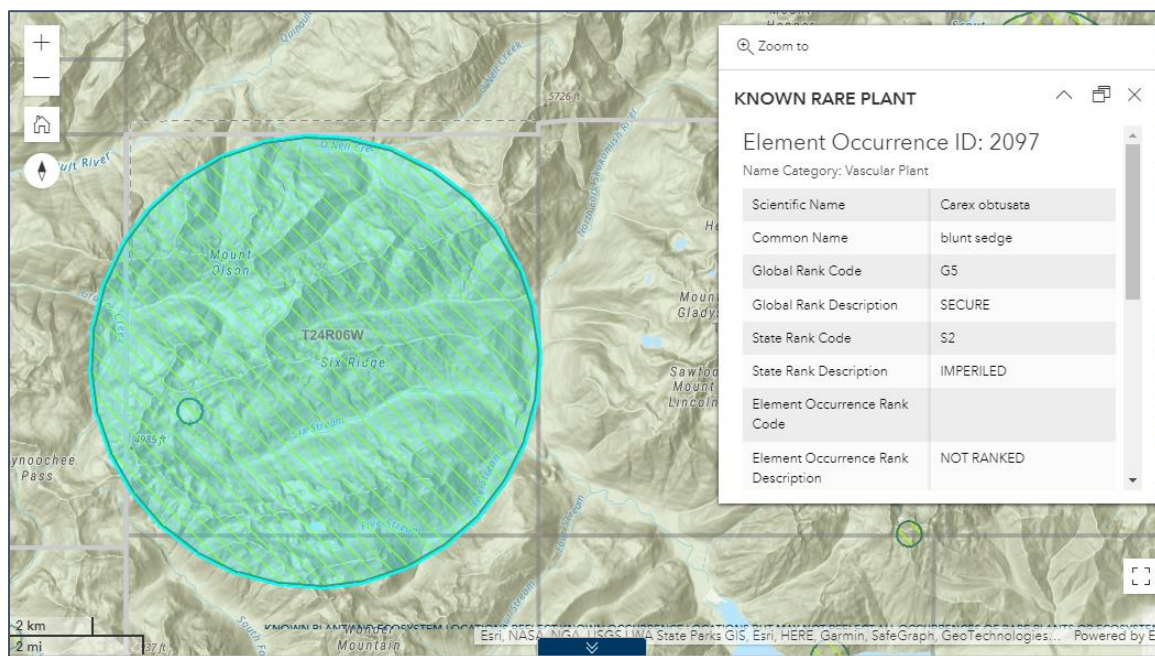
Many layers have popups enabled to access additional feature information. To activate the popup, click on the feature(s) of interest. This will also highlight the feature(s) on the map.



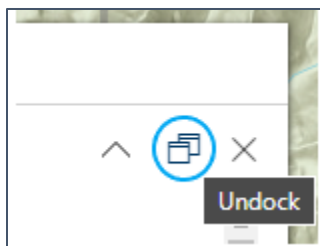
To dock the popup in the upper right of the map frame, click the *Dock* button in the upper right of the popup window.



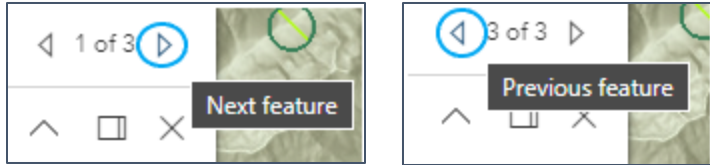
This will allow you to see the entire feature. This will persist for all future features, even for other layers.



To reset the popup to center on the feature, click the *Undock* button.



If there are multiple features at a clicked-on location, examine each feature's information by using the *Next* and *Previous feature* buttons in the upper right of the popup window.



To close the popup window and remove the highlighting from the map, click the close icon.

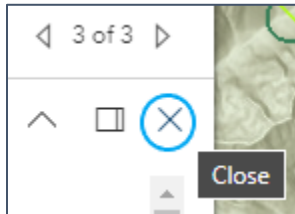


Table Panel

The table panel is available below the map frame. Attribute tables for Plant and Ecosystem, and EIA layers are available in this panel. Resize the panel by clicking and dragging along the border between the table panel and the map frame.

EO ID	SCIENTIFIC NAME	COMMON NAME	ELEMENT TYPE	NAME TYPE
8,417	Impatiens noli-tangere	western jewel-weed	RARE PLANT	Botanical

The panel can be collapsed and reopened by clicking the collapse button above the table pane.



Select individual records in the table by clicking on the row in the table; deselect the record by clicking the row again; clicking additional rows adds them to the selected set. Selected rows are highlighted in the table and the features are highlighted in the map.

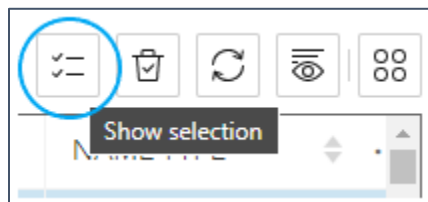
Known Rare Plants and Ecosystems

Historic Rare Plants and Ecosystems

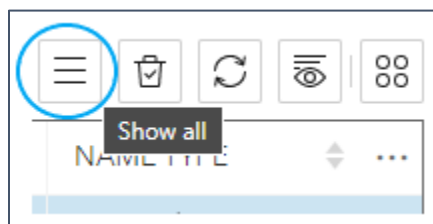
Search Scientific or C...

EO ID	SCIENTIFIC NAME	COMMON NAME	ELEMENT TYPE
8,417	Impatiens noli-tangere	western jewel-weed	RARE PLANT
9,365	Cirsium remotifolium var. r...	weak thistle	RARE PLANT
2,283	Pediocactus nigrispinus	snowball cactus	RARE PLANT
3,571	Heterotheca oregona	Oregon goldenaster	RARE PLANT
1,474	Howellia aquatilis	water howellia	RARE PLANT
1,277	Ribes oxycanthoides var. ...	Idaho gooseberry	RARE PLANT
9,571	Penstemon pennellianus	Blue Mountain penstemon	RARE PLANT

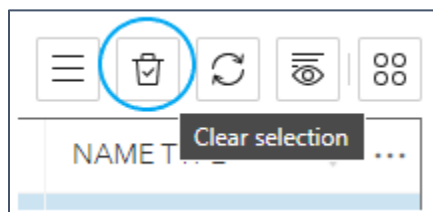
Filter the table to the selected set by clicking *Show selection*.



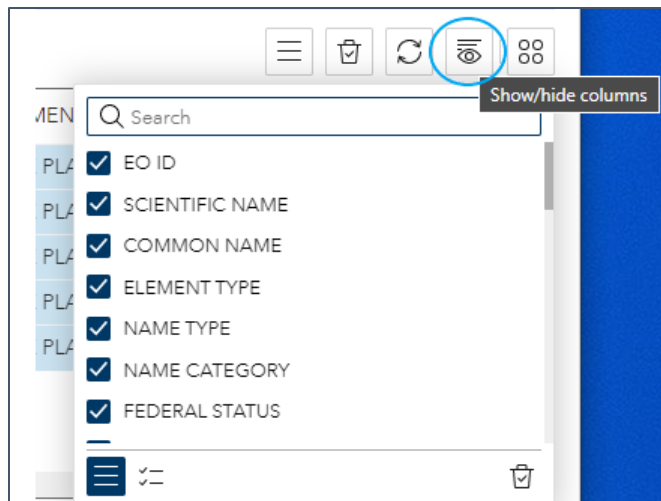
Remove the filter from the table by clicking *Show all*.



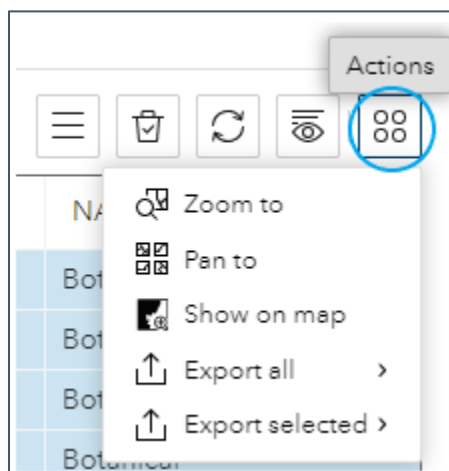
Remove the selection by clicking *Clear selection*.



Use the *Show/hide columns* button to customize the list of fields shown in the table widget.

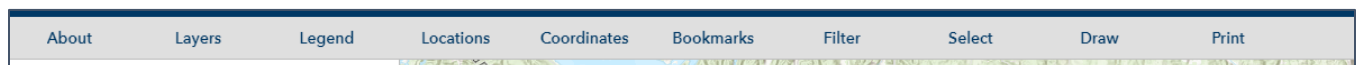


The *Actions* button provides options for working with the table and selected records. *Zoom to* and *Pan to* navigates the map to the selected records. If there are no selected records, *Export all* will be the only option.



Choose *Export all* to export all records to JSON, CSV (useable in Excel), or GeoJSON. Choose *Export selected* for the same functions for the selected set.

Menu Ribbon
















The menu ribbon is located at the top of the application between the header and the map frame. Items on the menu ribbon can be selected by clicking on the name, and will open in the panel to the left of the map frame. This panel can be expanded and contracted by clicking and dragging the line between the panel and the map.

About

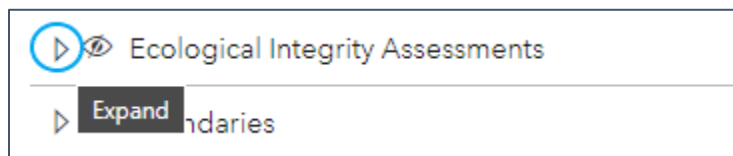
The *About* panel provides useful information about the map and map layers.

Layers

The *Layers* panel exposes the entire list of available map layers. Layers are listed individually or in groups. Layers whose names are gray in the layer list, indicate the layer is not visible at that scale. The layer will become visible once the map is zoomed in to the appropriate scale.

	Known Rare Plants and Rare & High-quality Ecosystems	...
	Historic Rare Plants and Rare & High-quality Ecosystems	...
	Reference Standard Wetlands	...
	State Route Mileposts	...
	County Tax Parcels	...
 	Ecological Integrity Assessments	...
 	Boundaries	...
 	PLSS	...
 	Hydrology	...

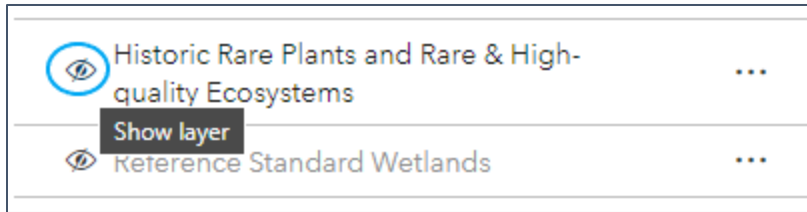
Layer groups are indicated by the *Expand* icon. Click the *Expand* icon to reveal layers in the group.



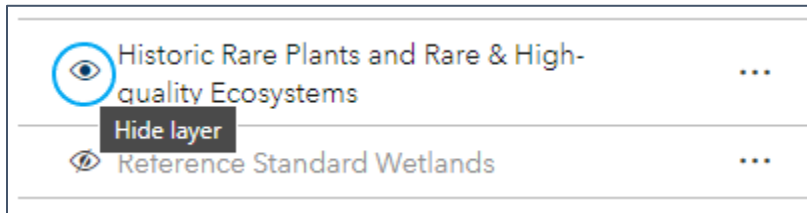
When the layer group is expanded, click the *Collapse* icon to close.



If a layer or group layer is not being shown on the map, click on *Show layer* in the layer list.



Likewise, to turn off a layer in the map, click on *Hide layer* in the layer list.

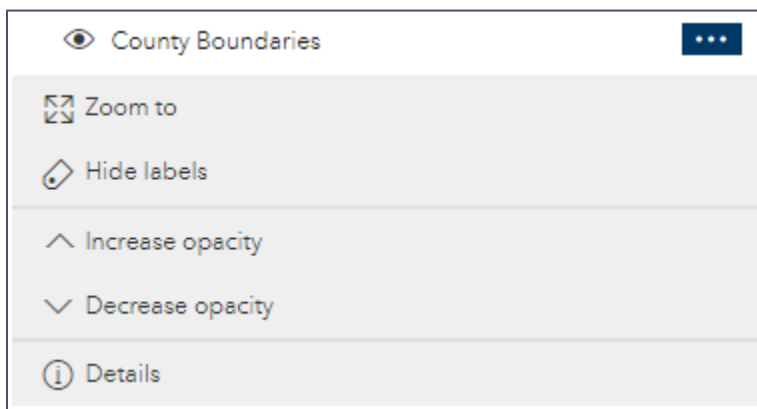


The *Options* button is available for layers and layer groups.



The options available vary depending on the layer and group including:

- *Zoom to* – zoom to the extent of features in the layer.
- *Hide labels* – toggle label visibility when labels are drawn on a layer.
- *Increase opacity/Decrease opacity* – use *Decrease opacity* to make the layer or group more transparent; use *Increase opacity* to make the layer or group less transparent.
- *Details* – opens feature service details page or REST endpoint.





Legend

Activate the *Legend* panel to view the symbology for all currently visible map layers.

Known Rare Plants and Rare & High-quality Ecosystems


Element Occurrence Type

 Rare Plant


 Rare and/or High Quality Ecosystem

Boundaries

State Boundary



County Boundaries




Locations

Select the *Locations* panel to expose several preset searches in order to find locations of interest.


Find a County

Begin typing a county name and select from list to zoom map to selected county.



Find a PLSS Township


Begin typing a township using the format "T01R04W" and select from list to zoom map to selected township.



Find a County Parcel

HINT: Make the parcel layer visible to see the result.

Begin typing a county parcel number and select from list to zoom map to selected parcel.



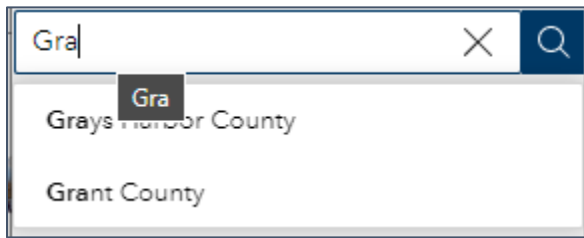
Find a State Route Milepost

Locations of interest searches include:

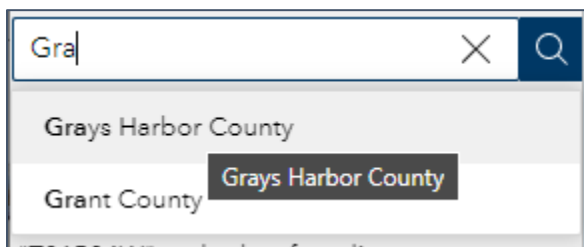
- County
- PLSS Township
- County Parcel
- State Route Milepost (Plant and Ecosystems map only)

Find a County

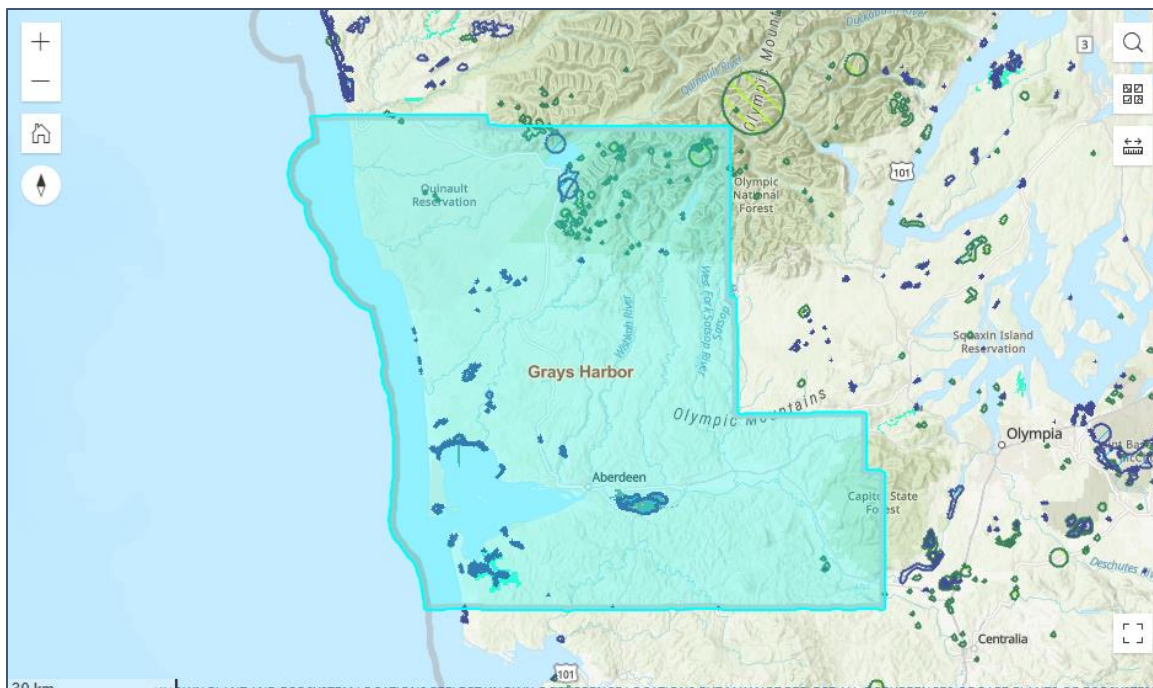
Begin typing a county name in the search box. Once three letters are entered, a list of up to six (6) potential matches appear in the suggestion list.



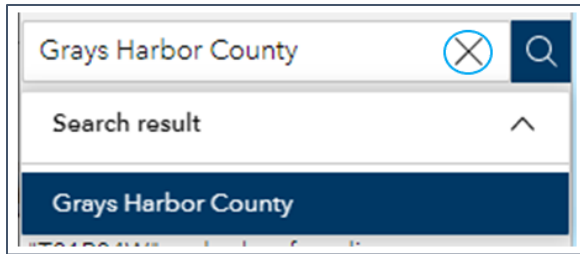
Select the county of interest from the list.



The map will zoom to and highlight the county.

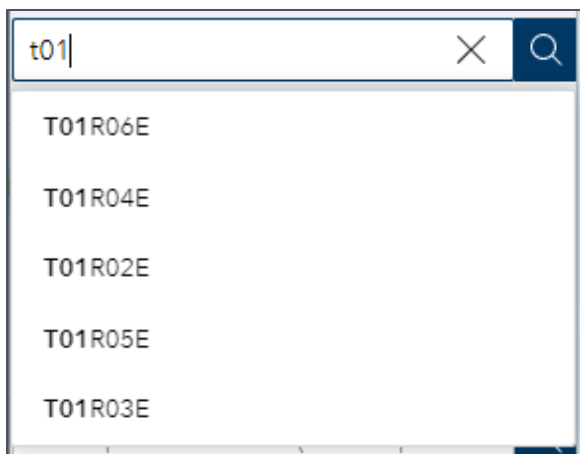


To clear the selected county on the map, click the X in the search box.

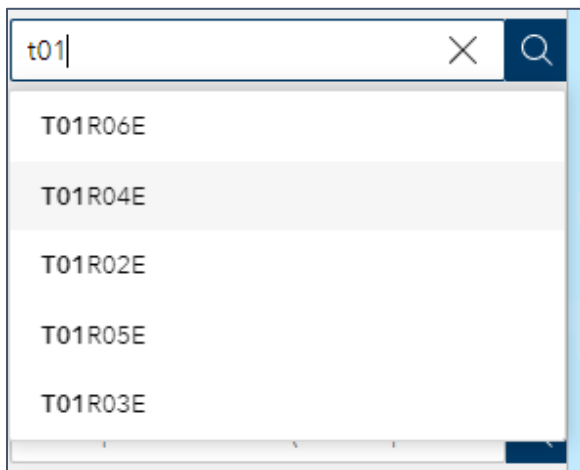


Find a PLSS Township

Begin typing a township using the format "T01R04W" (this search is not case sensitive). Once three characters are entered, a list of up to six (6) potential matches appear in the suggestion list. If the township of interest does not appear in the suggestion list, keep typing additional characters until the desired township appears.



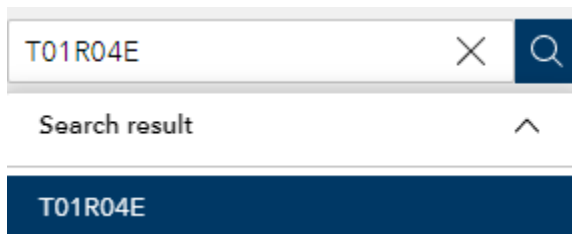
Select the township of interest from the list.



The map will zoom to and highlight the selected township.

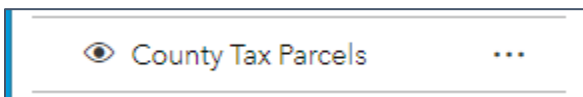


To clear the selected township on the map, click the X in the search box.

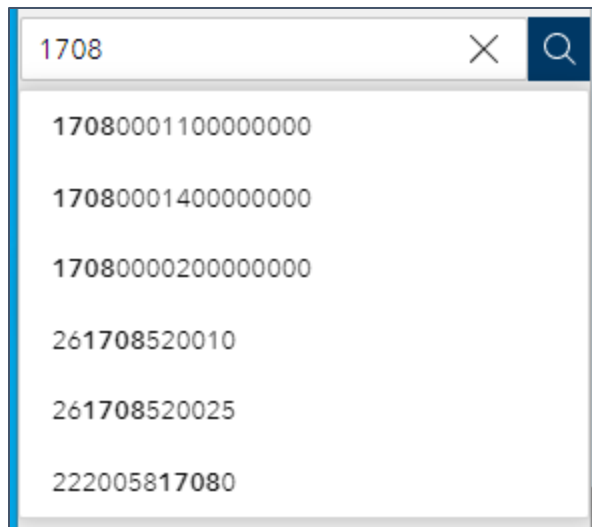


Find a County Parcel

To make the results of your search visible in the map, ensure the County Tax Parcels layer is set to visible in the *Layers* panel.



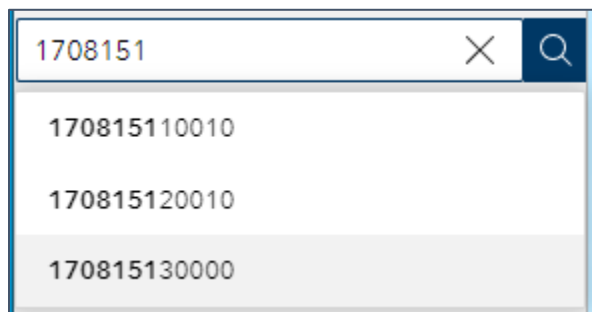
Begin typing a county parcel number in the search box. Once three characters are entered, a list of up to six (6) potential matches appear in the suggestion list. If the parcel of interest does not appear in the suggestion list, keep typing additional characters until the desired parcel number appears.



A search dropdown menu with the text '1708' in the input field. The dropdown list contains the following items:

- 17080001100000000
- 17080001400000000
- 17080000200000000
- 261708520010
- 261708520025
- 222005817080

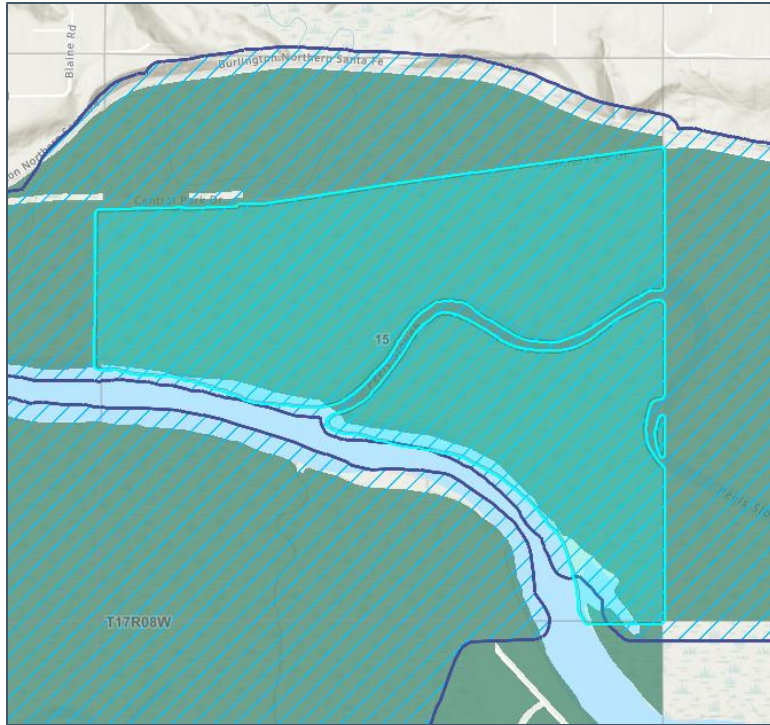
Select the parcel of interest from the list.



A search dropdown menu with the text '1708151' in the input field. The dropdown list contains the following items, with the third item selected:

- 170815110010
- 170815120010
- 170815130000

The map will zoom to and highlight the selected parcel.

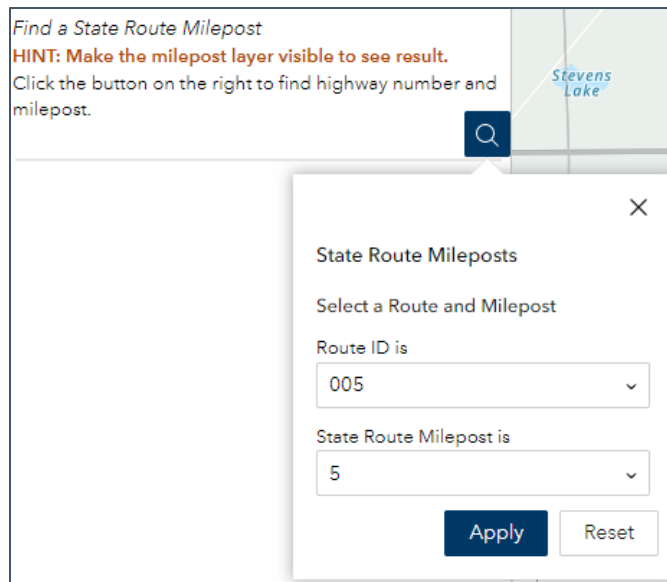


Find a State Route Milepost

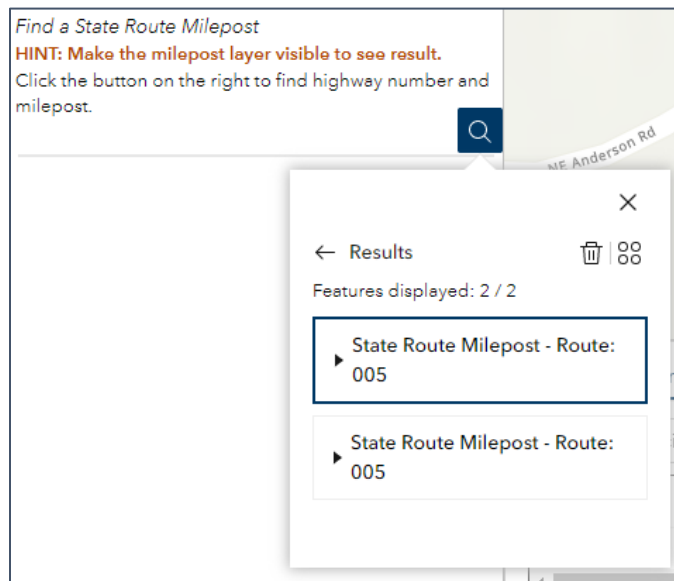
To make the results of your search visible in the map, ensure the State Route Mileposts layer is set to visible in the *Layers* panel.



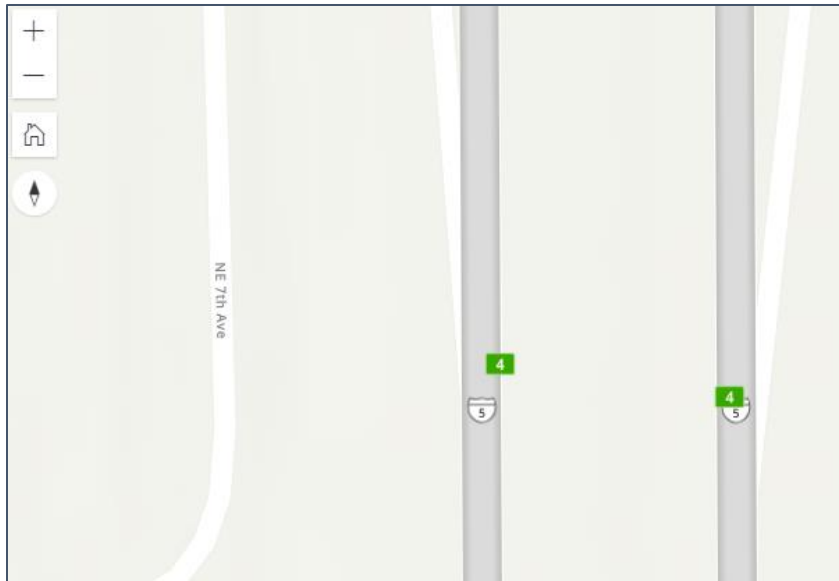
Click on the milepost search widget and select the desired route and milepost numbers. Route IDs are listed as three-digit numbers, occasionally with a suffix. For example, for Interstate 5, select Route ID “005” and for Highway 97A, select “097AR.”



With a route and milepost selected, click the *Apply* button. Click on one of the items in the results panel. The map will zoom to the milepost location.



Please note that there are typically two features at each milepost value, one for each direction of a route.

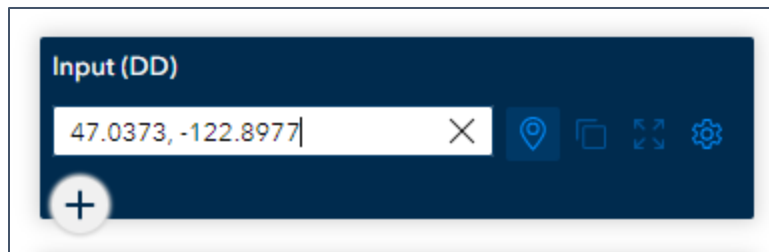


Coordinates

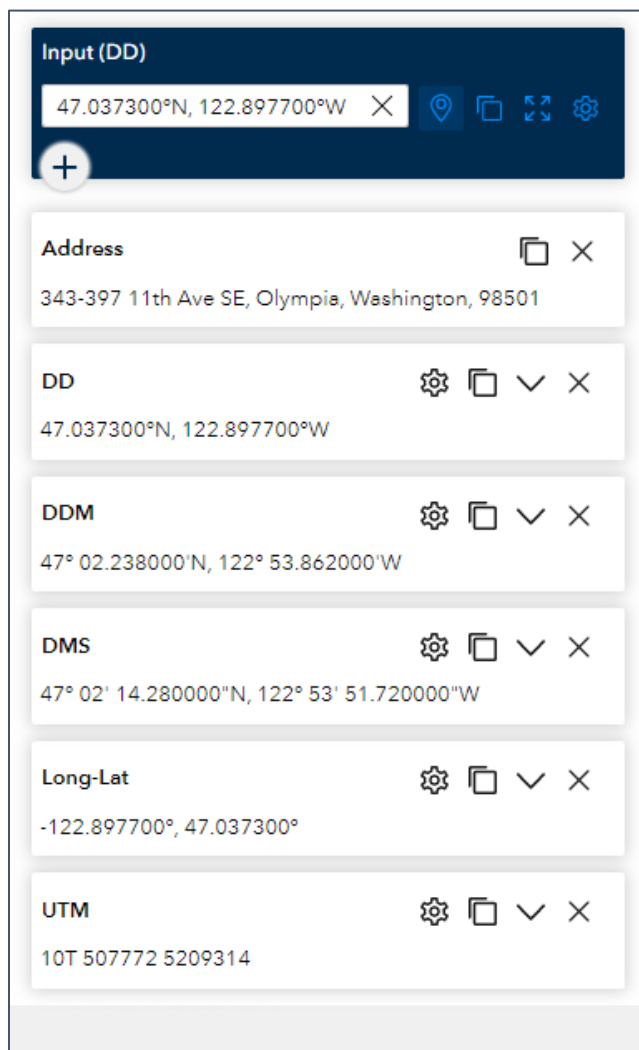
The Coordinates panel provides multiple functions for working with coordinates (latitude/longitude, UTM, and addresses).

 A screenshot of the Coordinates panel interface. It features a dark blue header with the text 'Input (DD)' and a search bar containing the placeholder 'Enter Coordinates/Address'. Below the header are four input fields: 'Address', 'DD', 'DDM', and 'DMS'. Each field has a settings gear icon, a copy icon, a dropdown arrow, and a close 'X' icon.

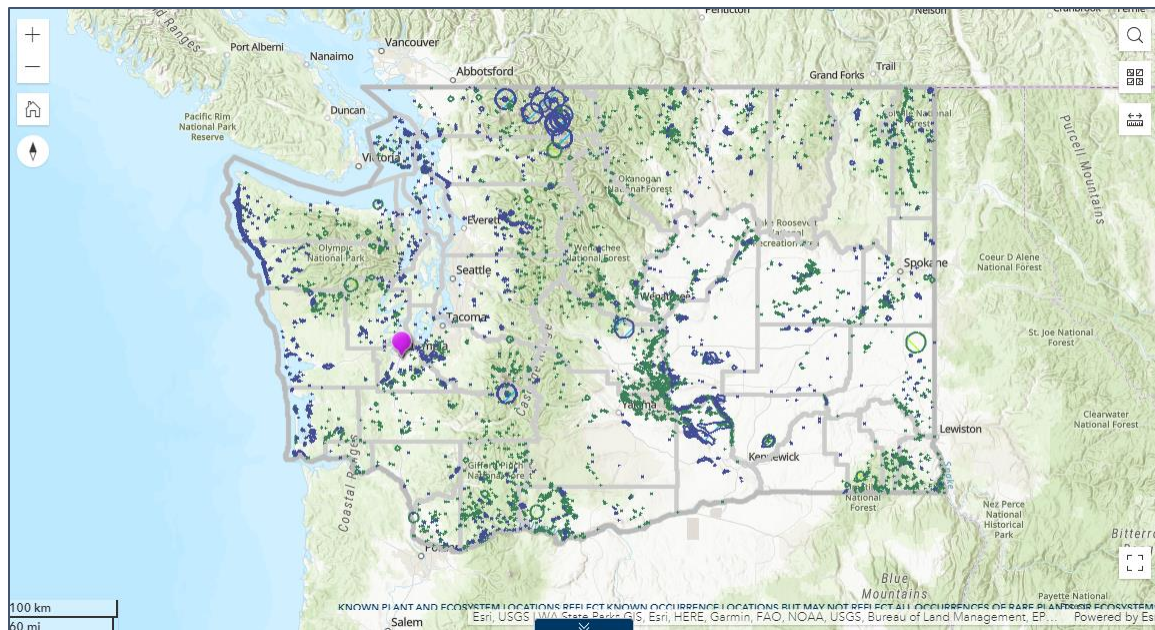
By default, the input box allows you to enter latitude/longitude coordinates in decimal degrees with positive latitude and negative longitude values, for example 47.0373, -122.8977. Alternatively, coordinates can be entered with full degree and directional notation, 47.0373°N, 122.8977°W. Please remember the number of decimal places used will affect the accuracy and precision of your results. Click return once you have entered your coordinates.




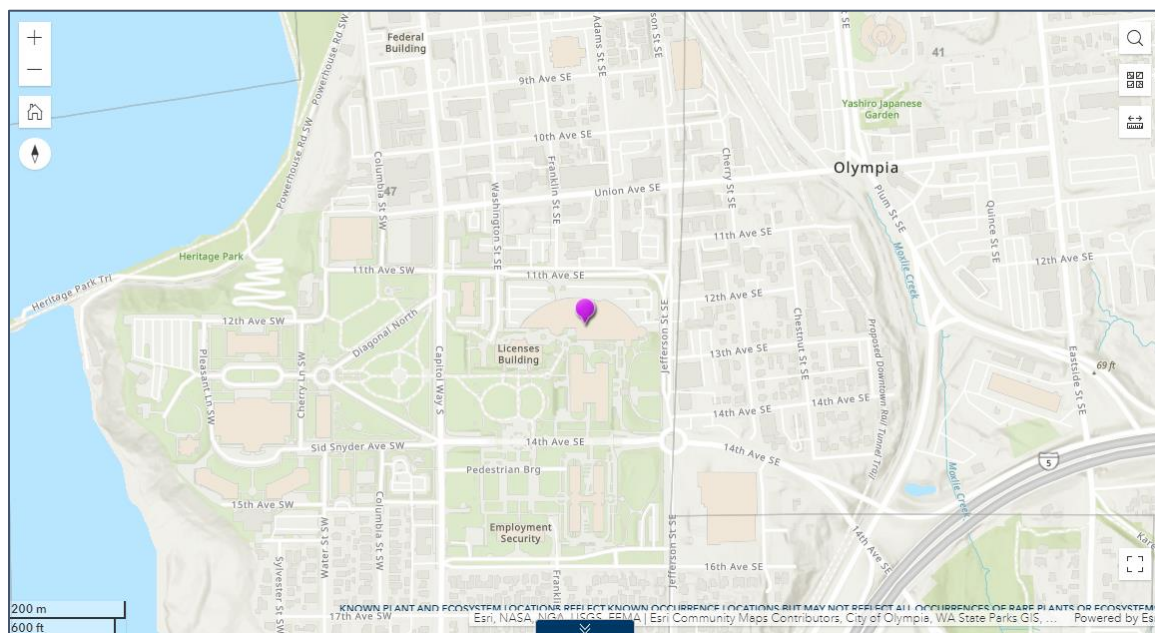
After entering coordinates, the tool will output the coordinates in alternate latitude/longitude and UTM coordinates and will reverse geocode to the closest matching address.




Likewise, the tool will add a pin symbol to the map and pan to the coordinate location (the map scale will remain the same).

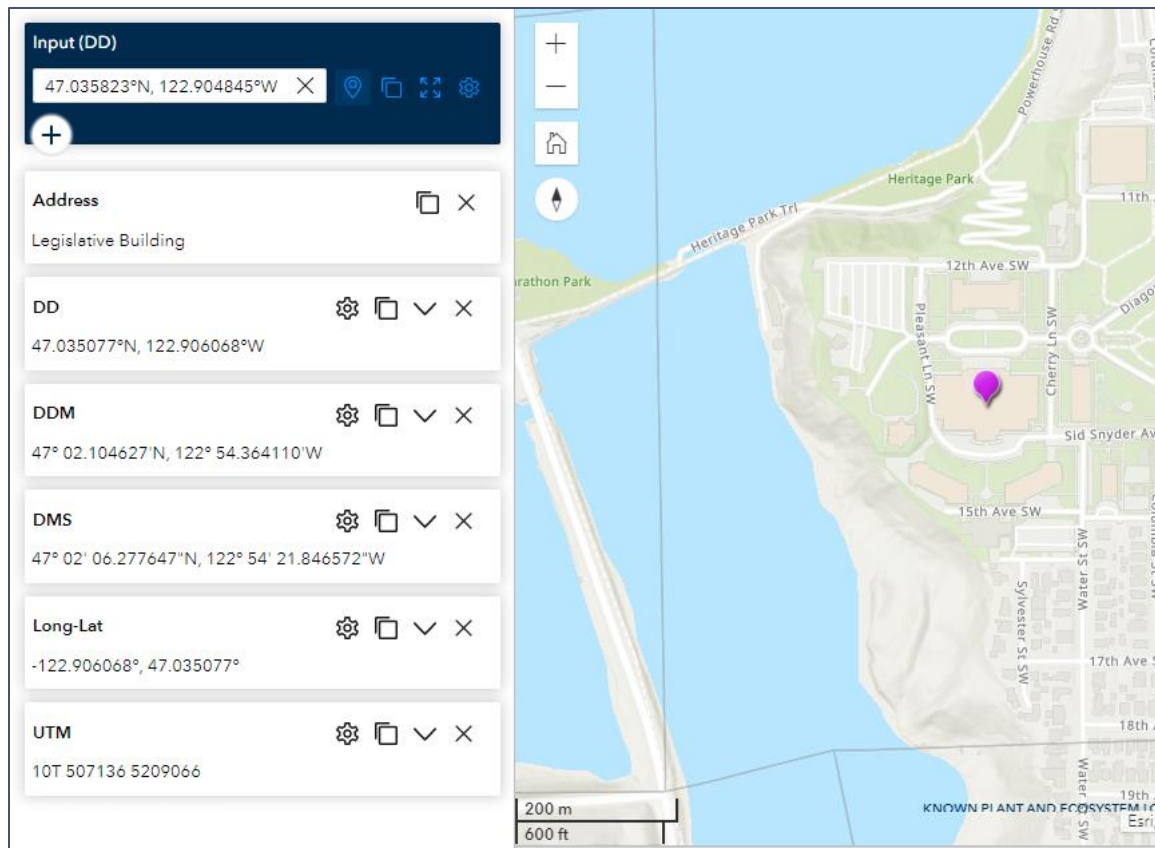


Clicking the Zoom button  in the input window will zoom the map to a scale of 1:5000 centered on the coordinate location.




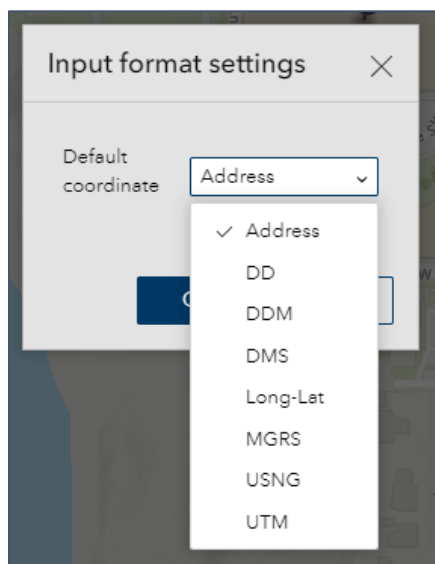
Get Coordinates Interactively

The Add Point tool  can be used to interactively get coordinate values from the map. Click on the tool to activate. The cursor will become a crosshair when hovering over the map. Click on the desired location. The tool will add a symbol at the location and output all coordinate values.





Input and Output Coordinate Settings



The Input and Output formats can be modified by clicking the respective format setting tool . The Input settings will allow for all of the coordinate formats available in the output frame including entering addresses. Select the desired input format.



Copy Coordinate Values to the Clipboard


The Copy tool is available in both the input and output panes . The Copy tool in the Input frame will copy all coordinate results. The Copy tool in individual output frames will copy the coordinates in the respective format. The Expand Output button  allows access for copying portions of output coordinates.



DD    

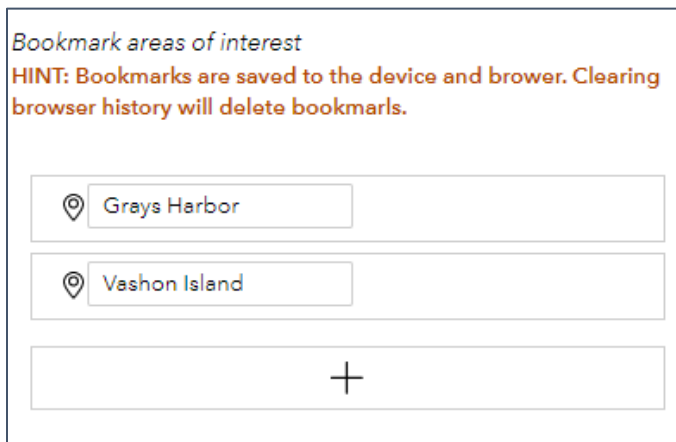
47.042911°N, 122.899485°W

Lat 

Lon 


Bookmarks


The Bookmark pane allows you to bookmark areas of interest to easily navigate the map back to that location in the future.




Bookmark areas of interest

HINT: Bookmarks are saved to the device and browser. Clearing browser history will delete bookmarks.

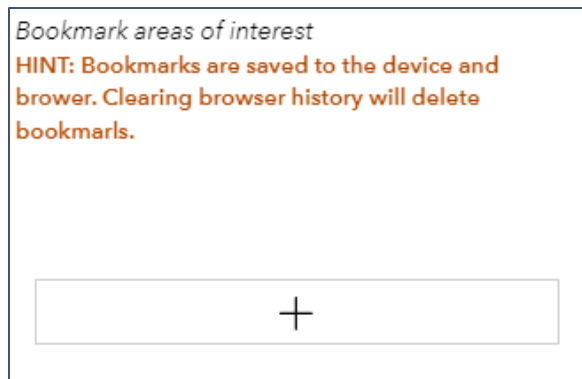




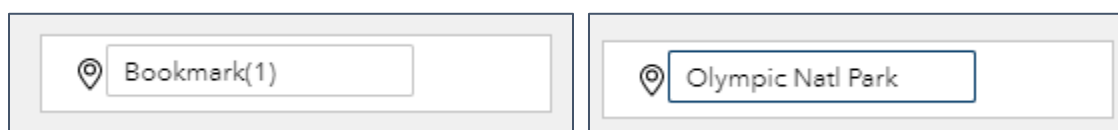


Bookmarks are specific to the machine, user, browser, and map page with which they are created. For example, if you create bookmarks in Microsoft Edge, then open the map in Google Chrome, those bookmarks will not appear. Likewise, if you clear your browser history, any saved bookmarks will be deleted.

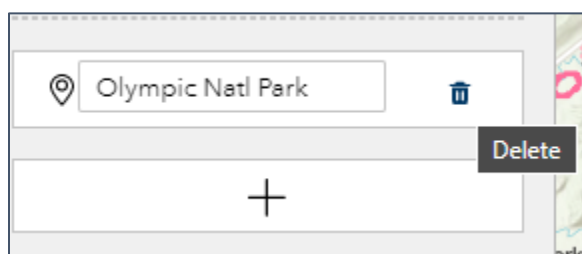
To add a Bookmark, navigate the map to your area of interest and click on the Add bookmark button.



Either accept the default, generic bookmark name, or type a desired name in the box.



To navigate to the desired bookmark, click in the bookmark button area. To delete any bookmark, click on the Delete icon.



Filter

Rare Plant and Rare & High-quality Ecosystem Locations Map Filters

The Filter panel provides options to filter WNHP layers. The Rare Plant and Ecosystem Locations map provides filters for Known Plants and Ecosystems.

About	Layers	Legend
<p><i>Filter Known Plants and Ecosystems</i></p> <p>HINT: The filters below are cumulative.</p> <p>Warning! - Ensure filters are turned off or set appropriately when determining presence of rare plants or ecosystems in your area of interest.</p>		
▶ Filter Plants & Ecosystems by Type		<input type="checkbox"/>
▶ Filter Plants & Ecosystems by County Name		<input type="checkbox"/>
▶ Filter Plants & Ecosystems by Federal State		<input type="checkbox"/>
▶ Filter Plants & Ecosystems by State Status		<input type="checkbox"/>
▶ Filter Plants & Ecosystems by Global Rank		<input type="checkbox"/>
▶ Filter Plants & Ecosystems by State Rank		<input type="checkbox"/>
▶ Filter Plants & Ecosystems by EO Rank		<input type="checkbox"/>

When selecting the Filter panel for the Rare Plant and Rare & High-quality Ecosystem Locations map, a warning panel appears cautioning users to remove filters if they need to examine areas of interest for all Element Occurrences. Select *I understand* to activate the filter panel. Select *Close this window* to remove the Warning. This warning will appear every time you access the filter panel.

×

WARNING!

This tool is intended for planning and other data exploration purposes.

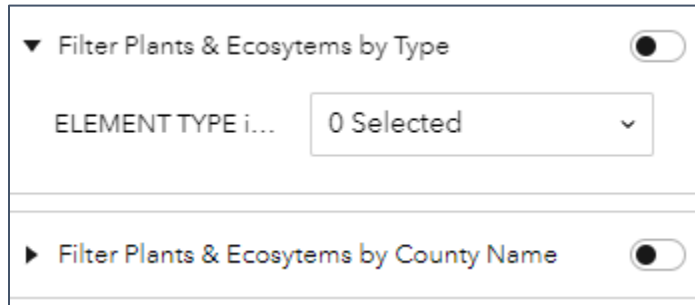
You will need to clear all filters when evaluating locations for Wetlands of High Conservation Value or for any other purpose where viewing all Element Occurrences are required.

I understand

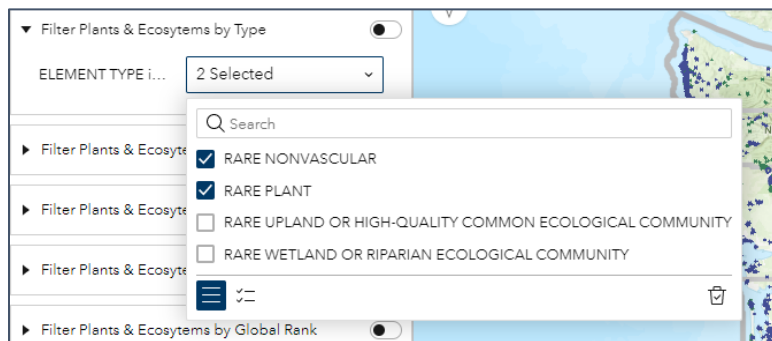
Close this window

There are several preset filter options available in the panels. The filters are cumulative, therefore, all active filters will be applied to the layer on the map.

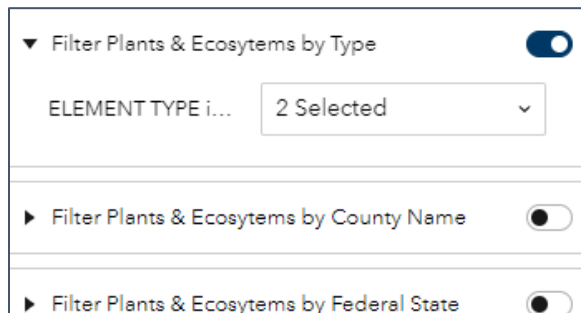
On the Rare Plant and Ecosystem Locations map, expand the desired filter to reveal filter options.



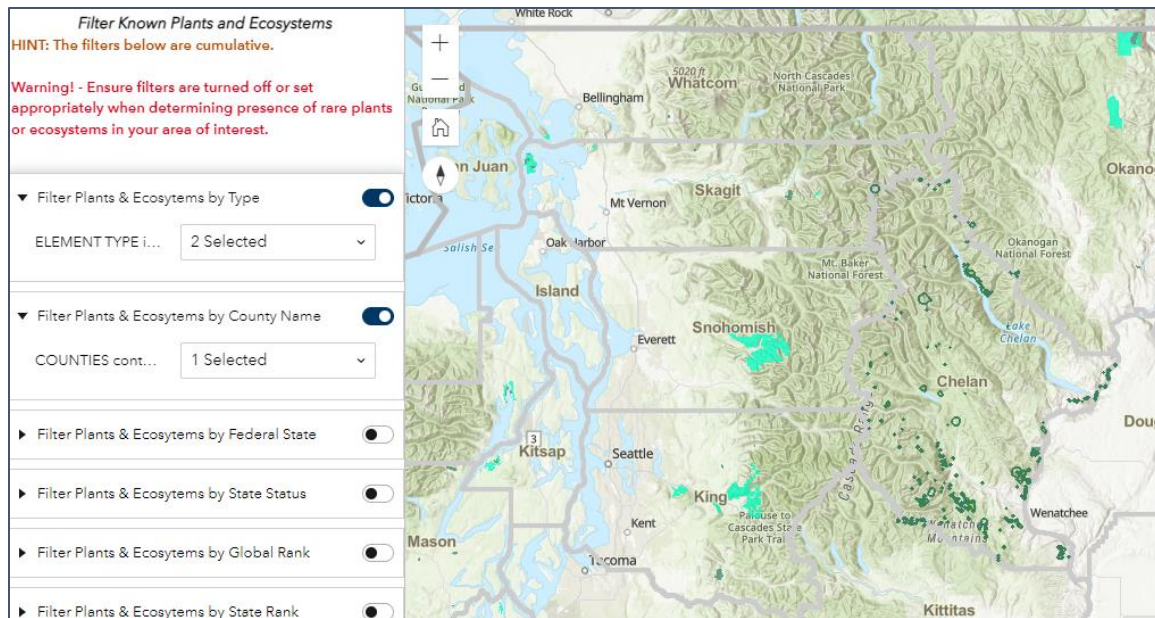
Expand the selection dropdown menu and chose desired parameter(s).



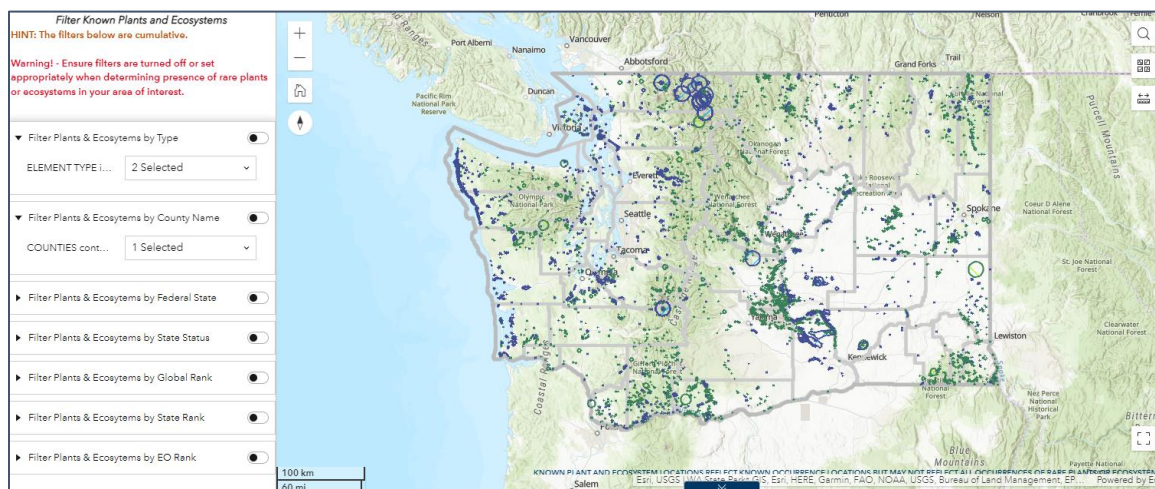
To activate each individual filter, click the toggle switch to the on position.



The map will then zoom to the extent of features matching the filter settings.



Remember, once you are done using the filter, turn all filter toggles to the off position to view all plant and ecosystem features.



Ecological Integrity Assessment Data Map Filters


The Ecological Integrity Assessment Data map provides filters for each EIA layer.


Filter EIAs


Filter items drawn on map by EIA layer attributes

HINT: The filters below are cumulative.


Warning! - Ensure filters are turned off or set appropriately when determining presence of rare plants or ecosystems in your area of interest.

 << Filter NVC Level 1 EIAs

 << Filter NWI Level 1 EIAs

 << Filter Level 2 EIAs

Select the filter icon for the layer of interest to expose filter options for that layer.

 << Filter NVC Level 1 EIAs

▼ NVC Level 1 Macrogroup Name ☒

Macrogroup Name is any of

0 Selected

▼ NVC Level 1 Macrogroup Code ☒

Macrogroup Code is any of

0 Selected

▼ NVC Level 1 EIA Rank ☒

EIA Rank is any of

0 Selected

▼ NVC Level 1 EO Rank ☒

EO Rank is any of

0 Selected

▼ NVC Level 1 Macrogroup Spatial Pattern ☒

Set filter options in the same manner as described for the Plant and Ecosystem map above.

Select

The *Select* panel provides the ability to interactively select features from WNHP layers based on spatial location. The Plant and Ecosystems map provides selection options for the Known Plants and Ecosystems layer.

Select Known Plants and Ecosystems

Interactively select Plant and Ecosystem features in the map.

HINT: The selection results will not be clipped to your area of interest. The selection will include all features from the layer that intersect the map area or drawn graphic including areas of the individual features that fall outside of the selection area.

Known Rare Plants and Rare & High-quality Eco...

Select Plants & Ecosystems in current map extent or drawn graphic

Choose the filter type

Current map extent

The Ecological Integrity Assessment map provides options for selecting Level 1 EIA layers.

Select EIAs

Interactively select EIA features in the map.

HINT: The selection results will not be clipped to your area of interest. The selection will include all features from the layer that intersect the map area or drawn graphic including areas of the individual features that fall outside of the selection area.

Western WA NVC Level 1 EIAs

Statewide NWI Level 1 EIAs

To select features in the current map extent, ensure the *Current map extent* option is selected in the filter type dropdown and click *Apply*.

Select Known Plants and Ecosystems

Interactively select Plant and Ecosystem features in the map.

HINT: The selection results will not be clipped to your area of interest. The selection will include all features from the layer that intersect the map area or drawn graphic including areas of the individual features that fall outside of the selection area.

Known Rare Plants and Rare & High-quality Eco...

Select Plants & Ecosystems in current map extent or drawn graphic

Choose the filter type

Current map extent

-

✓ Current map extent

Drawn graphic

Apply

Reset

To select features by interactively drawing graphics on the map, ensure the *Drawn graphic* option is selected in the filter type dropdown.

Select Known Plants and Ecosystems

Interactively select Plant and Ecosystem features in the map.

HINT: The selection results will not be clipped to your area of interest. The selection will include all features from the layer that intersect the map area or drawn graphic including areas of the individual features that fall outside of the selection area.

Known Rare Plants and Rare & High-quality Eco...

Select Plants & Ecosystems in current map extent or drawn graphic

Choose the filter type

Drawn graphic

-

Current map extent

✓ Drawn graphic

0

^

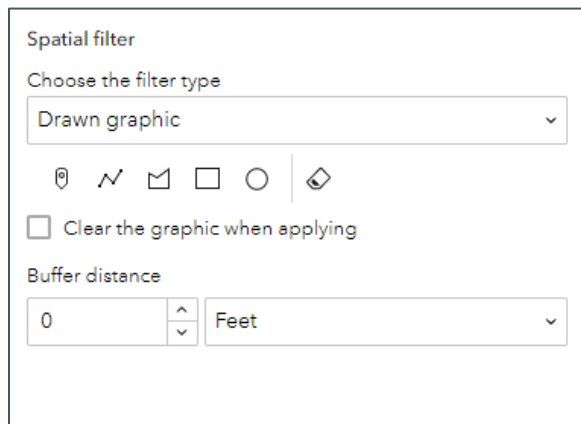
v

Feet

Apply

Reset

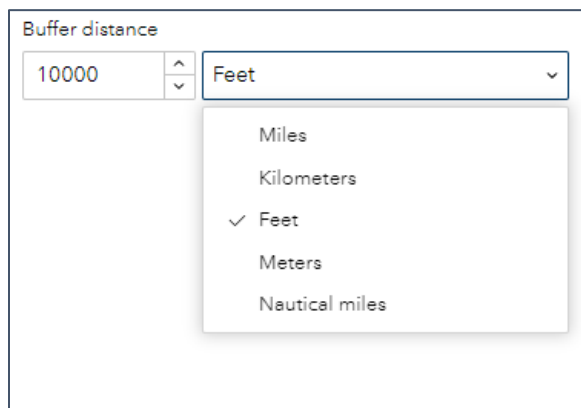
This exposes the pallet to choose the type of graphic you wish to use. From left to right they include point, polyline, polygon, rectangle, and circle.



The screenshot shows the 'Spatial filter' tool interface. It includes a dropdown menu for 'Choose the filter type' with 'Drawn graphic' selected. Below this are five icons representing different graphic types: point, polyline, polygon, rectangle, and circle. A checkbox labeled 'Clear the graphic when applying' is present and unchecked. At the bottom, there is a 'Buffer distance' section with a text input field containing '0' and a unit dropdown menu currently set to 'Feet'.

For all graphic types, features will be selected if they intersect with the drawn graphic. Simply select the desired graphic type. The mouse cursor will be a type of crosshair when over the map frame. Click back on the graphic button to deactivate the graphic tool. For a point graphic simply click in the desired location on the map. For polylines and polygons, click on the map to add shape points; double-click on the final shape point to finish drawing. For rectangles and circles, click and drag on the map area and release once the desired size is complete. To clear the graphic from the map, click the *Clear all* button (far right). Once the desired graphic is drawn, click *Apply* to select features intersecting the graphic.

Alternatively, check the *Clear the graphic when applying* option to remove the graphic when applied. Optionally, a buffer distance, in the desired units, can be applied to the graphic to select features within a specified distance from the drawn graphics. This is especially useful for point and line graphics.

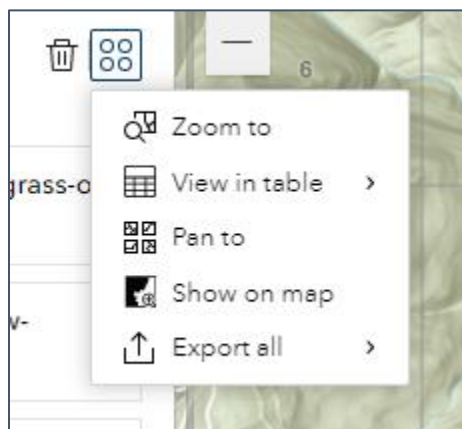


This screenshot is a close-up of the 'Buffer distance' section of the tool. It shows a text input field with the value '10000' and a unit selection dropdown menu. The dropdown menu is open, displaying a list of units: 'Miles', 'Kilometers', 'Feet' (which is selected and marked with a checkmark), 'Meters', and 'Nautical miles'.

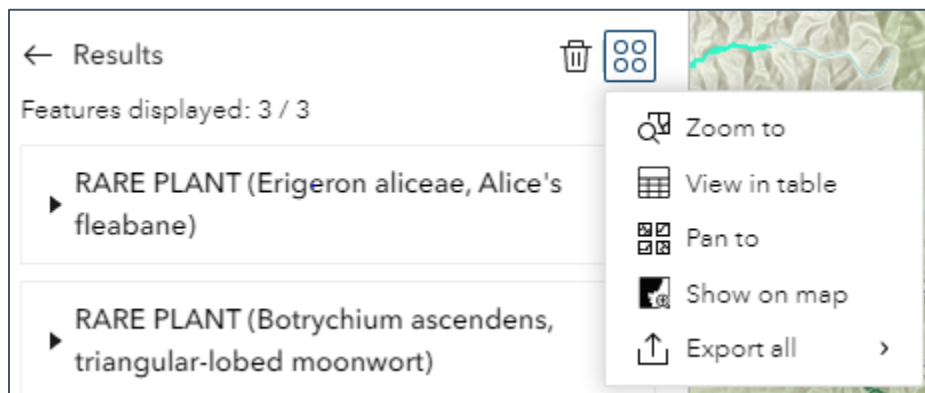
After applying the selection, a list of selected features will appear in the panel.



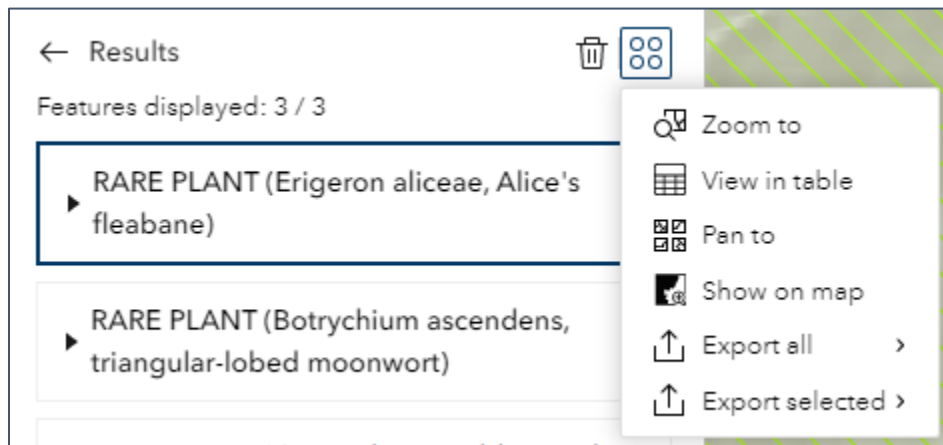
The Action button in the upper right of the results panel provides several functions on the select set of features.



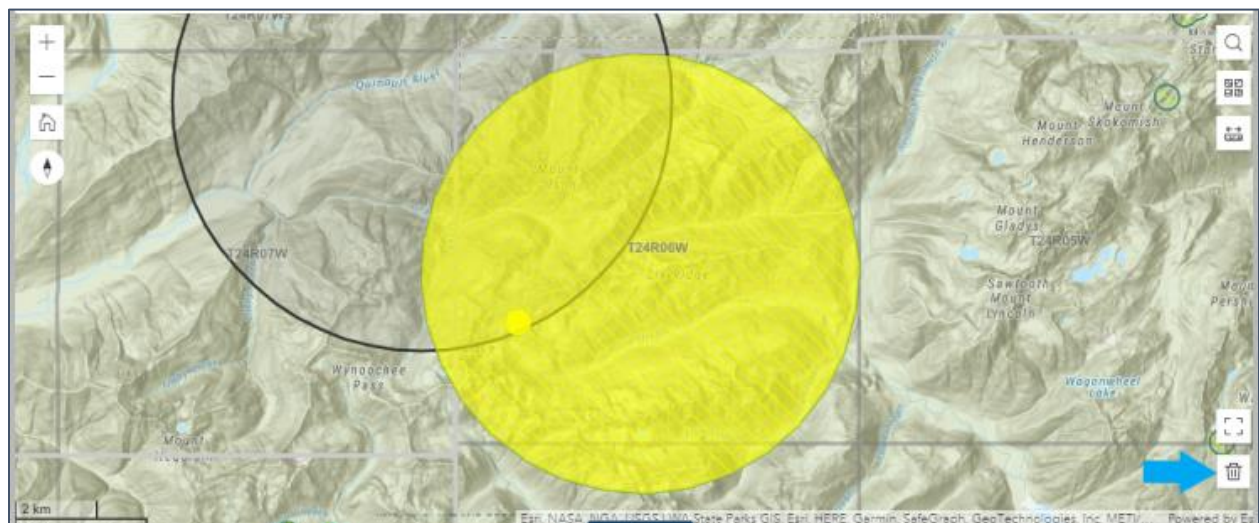
Navigate the map to the selected features by selecting *Zoom to* or *Pan to*. Chose *View in table* to open a table of the resulting features in the table panel. Select *Export all* to export all of the results to a JSON, CSV, or GeoJSON file.



Alternatively, with one of the results selected, chose *Export selected* to export tabular data for that feature.

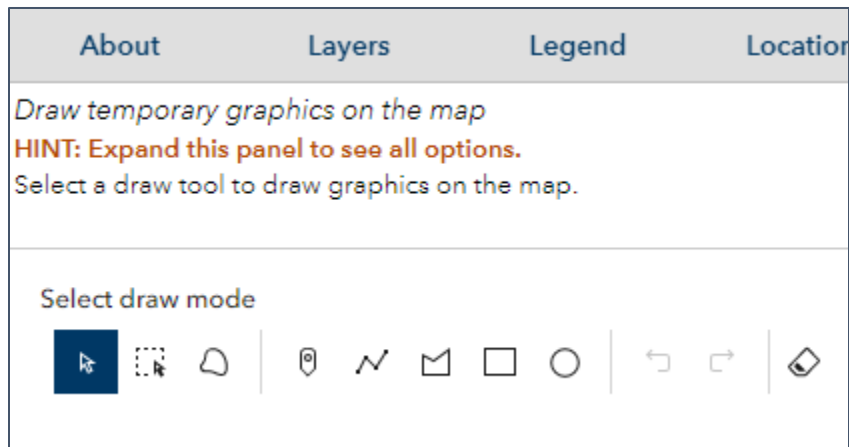


Select *Show on map* to highlight results on the map. When features are highlighted, a *Clear results* widget appears in the lower right of the map frame. This will clear the highlighting from the map, however, it is important to note this does not clear the selection, just the highlighted graphics.



Draw

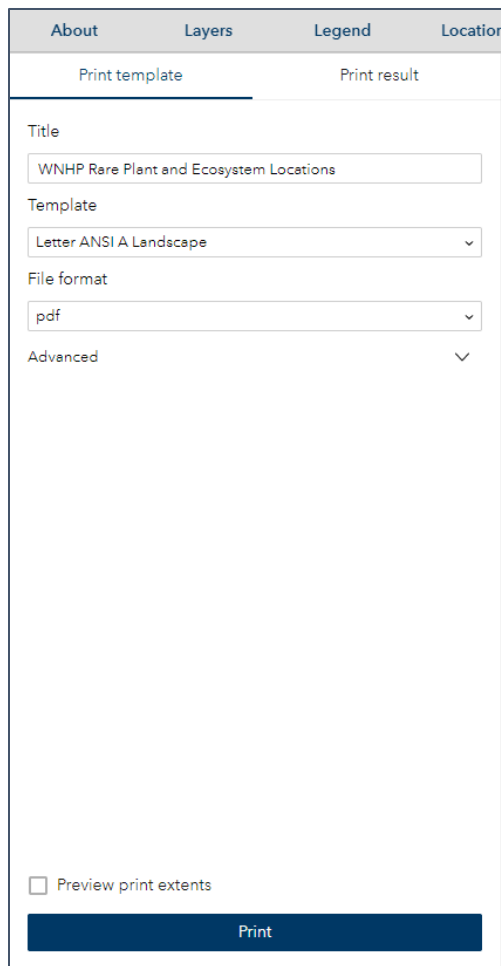
The *Draw* panel provides tools for creating temporary graphics on the map frame. You may need to increase the size of the left panel to see all available tools.



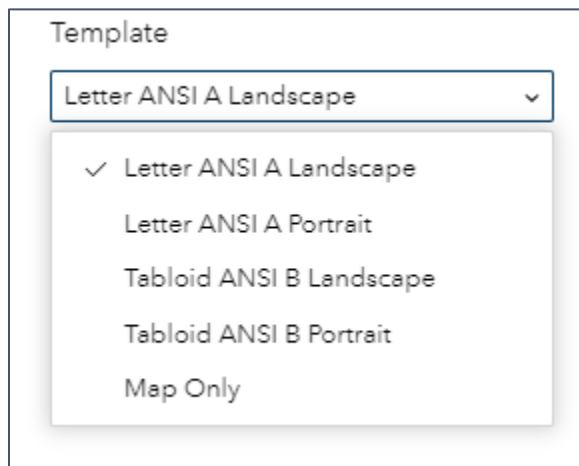
Use the five (5) tools in the middle of the panel to create graphic elements. Use the three (3) tools on the left to select and then move, edit, and delete added graphic elements. Use the *Clear All* tool on the far right to clear all added graphic elements from the map frame.

Print

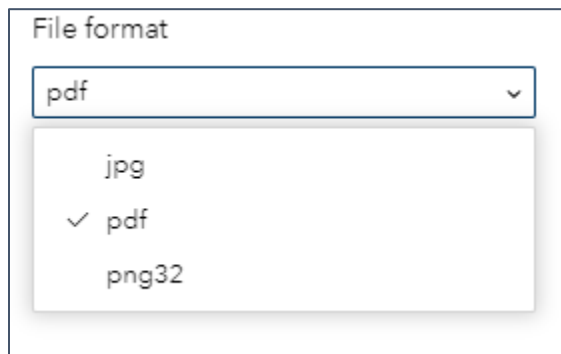
The *Print* panel provides preset options for creating files for printing and sharing.



The template dropdown lets you choose letter (8.5x11 inches) or tabloid (11x17 inches) paper sizes in portrait or landscape orientation, as well as a Map Only option that outputs only the map frame area.



The file format dropdown lets you choose between pdf, png32, and jpg formats.



Expanding the Advanced panel provides additional options to customize your map output such as including a legend.

Advanced
^

Map printing extents

☒ Current map extent

☐ Current map scale

☐ Set map scale

Output spatial reference WKID

102100

WGS_1984_Web_Mercator_Auxiliary_Sph...

Layout options

☐ Include legend

Scalebar unit Miles

Print quality

96
DPI

☐ Include attributes

Once you have selected the desired options, click on the *Print* button at the bottom of the *Print template frame*. Then select the *Print result frame*. While the map is processing, you will see a spinning oval next to the map name.

Print template
Print result

☐ WNHP Rare Plant and Ecosystem Locations

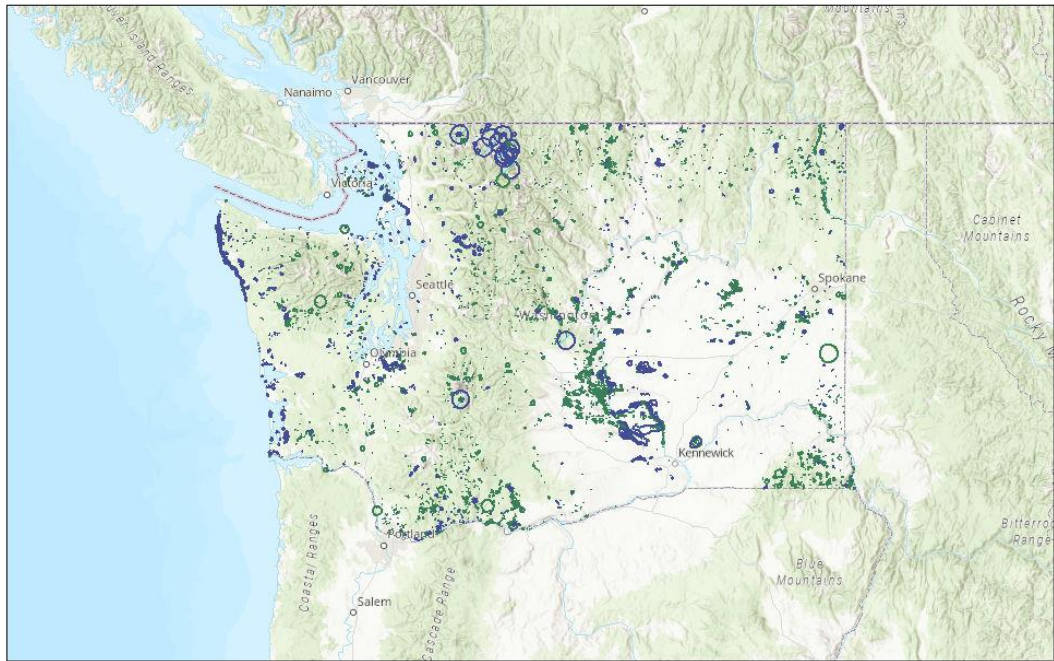
Once the map has finished processing, you will see a page icon.

Print template
Print result

☒ WNHP Rare Plant and Ecosystem Locations

Click on the page icon or map name to open you processed map to print or download.

WNHP Rare Plant and Ecosystem Locations



January 5, 2023

