

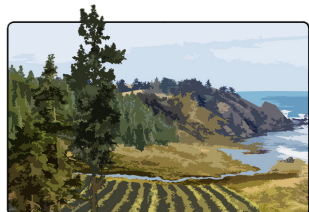
# Coastal Northwest Landscape Conservation Mapper

An ArcGIS Online tool for regional planning,  
decision-making, & dialogue

## User Guide

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Guide last edited: August 1, 2021



**Cascades to Coast  
Landscape Collaborative**

*designing for resilience*

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## Citations

### Citation for Overall Mapper

Cascades to Coast Landscape Collaborative. 2021. Coastal Northwest Landscape Conservation Mapper.

“Maps throughout this book were created using ArcGIS® software by Esri. ArcGIS® and ArcMap™ are the intellectual property of Esri and are used herein under license. Copyright © Esri. All rights reserved. For more information about Esri® software, please visit [www.esri.com](http://www.esri.com).”

### Citation for Datasets within Mapper

#### **Working Lands, Ecosystem Services and Conservation Value Synthesis datasets:**

Butts, Erin; Miewald, Thomas (2020): CCLC Spatial Syntheses: Working Lands, Ecosystem Services, and Conservation Values.

#### **Naturalness Connectivity:**

Gallo, John; Butts, Erin; Miewald, Thomas; Foster, Kai (2019): Comparing and Combining Omniscape and Linkage Mapper Connectivity Analyses in Western Washington. figshare. Book.

<https://doi.org/10.6084/m9.figshare.8120924.v3>

#### **Synthesis inputs:**

Sources can be found in the metadata for each input layer. IE all working lands input sources can be found in any of the working lands input datasets, open “Item Details” then “Metadata” then “Fields” to see each dataset source and how it was summarized into the planning unit hexagons.

### Citation for Non-ESRI Icons within Mapper

“Inputs” icon, remade using these free images:

```
<div>Icons made by <a href="https://www.flaticon.com/authors/pixel-perfect"
title="Pixel perfect">Pixel perfect</a> from <a href="https://www.flaticon.com/"
title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div>
```

```
<div>Icons made by <a href="https://www.flaticon.com/authors/those-icons"
title="Those Icons">Those Icons</a> from <a href="https://www.flaticon.com/"
```

```

title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div>
<div>Icons made by <a href="https://www.flaticon.com/authors/kiranshastry"
title="Kiranshastry">Kiranshastry</a> from <a href="https://www.flaticon.com/"
title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div>

```

“Priorities” Icon, remade using these free images:

```

<div>Icons made by <a href="https://www.freepik.com" title="Freepik">Freepik</a>
from <a href="https://www.flaticon.com/"
title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div>

```

Additional attributions:

“Connectivity”

```

<div>Icons made by <a href="https://www.flaticon.com/authors/dinosoftlabs"
title="DinosoftLabs">DinosoftLabs</a> from <a href="https://www.flaticon.com/"
title="Flaticon">www.flaticon.com</a></div>

```

“Location” Icons

```

<div>Icons made by <a href="https://www.flaticon.com/authors/pixel-perfect"
title="Pixel perfect">Pixel perfect</a> from <a href="https://www.flaticon.com/"
title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div>

```

“Magnifying Glass”

<https://favpng.com>

“Infographic”

```

<div>Icons made by <a href="https://www.freepik.com" title="Freepik">Freepik</a>
from <a href="https://www.flaticon.com/"
title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div>

```

“Threats”

```

<div>Icons made by <a href="https://www.freepik.com" title="Freepik">Freepik</a>
from <a href="https://www.flaticon.com/"
title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div>

```

“Resilience”

```
<div>Icons made by <a href="https://www.freepik.com" title="Freepik">Freepik</a>
from <a href="https://www.flaticon.com/"
title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div
>
```

“Strategies”

```
<div>Icons made by <a href="https://www.flaticon.com/authors/becris"
title="Becris">Becris</a> from <a href="https://www.flaticon.com/"
title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div
>
```

```
<div>Icons made by <a href="https://creativemarket.com/Becris"
title="Becris">Becris</a> from <a href="https://www.flaticon.com/"
title="Flaticon">[http://www.flaticon.com%3c/a%3e%3c/div]www.flaticon.com</a></div
>
```

## Mapper's Purpose

The Mapper's purpose is to act as a decision support tool at a regional scale by looking at spatial syntheses of shared priorities across the study area. The resulting maps are not a final plan for conservation, ecosystem services, working lands or connectivity. They should help focus additional conversations, collaboration, and additional finer resolution evaluations. The results can also be overlaid with other prioritization efforts in order to further define a focus area of interest.

For the main analysis method used, Marxan, planning unit resolution should generally be no finer than the target data can support and no coarser than is useful for management decisions. In keeping with the decision made in the landscape scale analysis done for the Arid Lands Initiative Spatial Conservation Priorities Report in the Columbia Plateau region, we also used 500-acre hexagons. Partners within the CCLC have brought up concerns that this would be too coarse for on-the-ground planning given that some of the targeted features are small and non-contiguous, or that their parcel level interests are smaller than the planning units. Small size of targets is not a major issue for the Marxan model, however, as it will obtain the specified amount of a target regardless of the target size. In addition, the output maps should not be regarded as a final plan, but as tools for focusing on valuable areas for additional local-scale evaluation. Some of the finer-resolution input layers that drove the Marxan model may be useful in these additional evaluations.

## Link to Coastal Northwest Landscape Conservation Mapper:

<https://fws.maps.arcgis.com/apps/webappviewer/index.html?id=a3c518e00ccf488db8cc0c8cd4646bce>

## Questions or issues:

Erin Butts: [erin\\_butts@fws.gov](mailto:erin_butts@fws.gov)

# Spatial Design Analysis

## Important Considerations

### Accuracy of Data

This analysis and these datasets represent a snapshot in time. There are concerns about how useful these analyses will be in the future. Some data used was modeled into the future such as climate resiliency, however, others such as where a given ecosystem type exists may change in the future. This is a starting place and there are others working in different areas on analyses with more real time data using programs like google earth engine. This is something to consider moving forward. For now this is a jumping off point on what conditions look like now, which areas are under threat, and where future conditions may persist. We can use these current data to identify what we want to conserve into the future, start planning, forming collaborations, making decisions and taking action.

### Layer Classification (high, medium, low)

Based on data values within hexagons, most input layers were categorized based on 3 quantiles within ArcGIS Pro. Original values are included in the attribute tables so users who wish to download data and display differently can do so.

Synthesis layers categorized by quartiles in most cases.

Please refer to metadata for additional details.

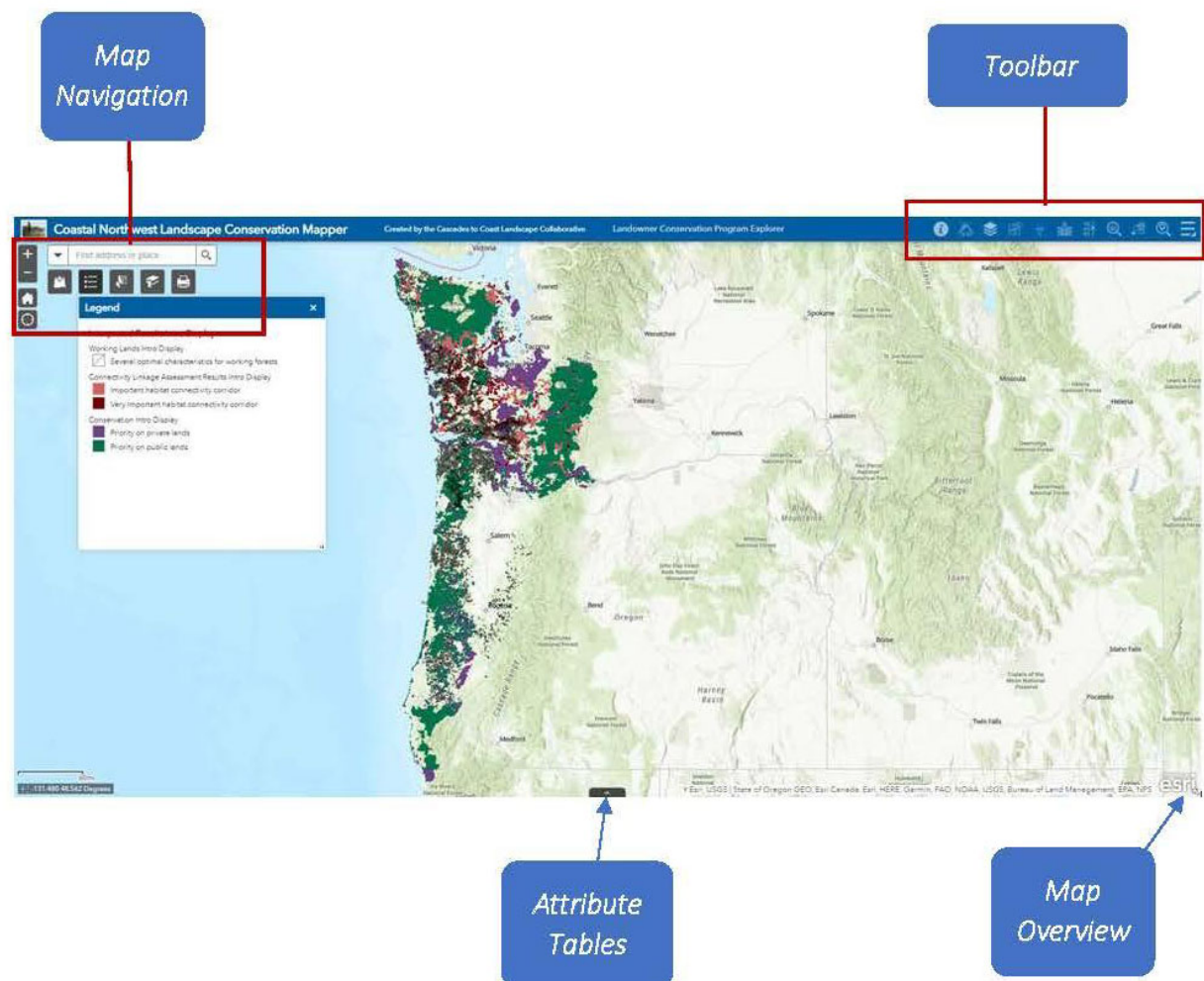


## General Map Notes:

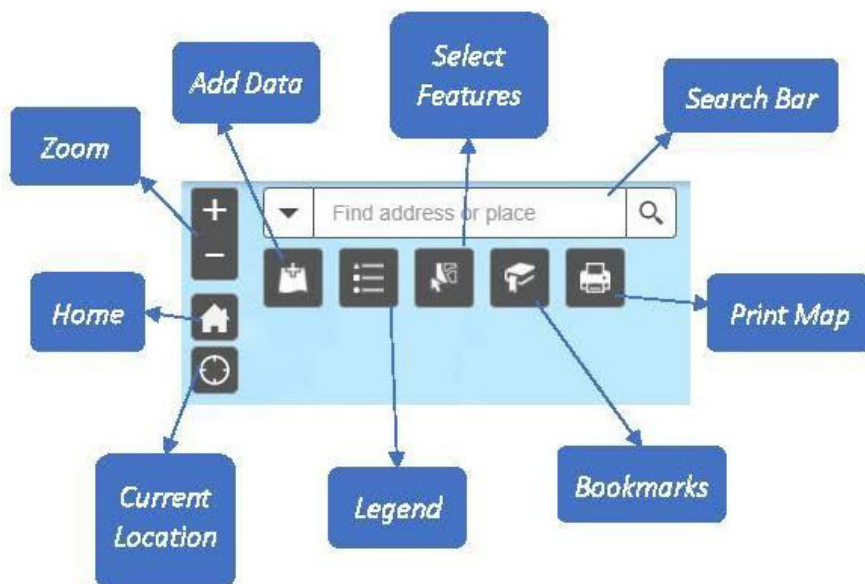
- **Splash screen appears each time the Mapper is opened, with a link to this user guide.**
- **The datasets and results shown are all available for download.**
- **The datasets and results are limited to the CCLC boundary.**

## Overview

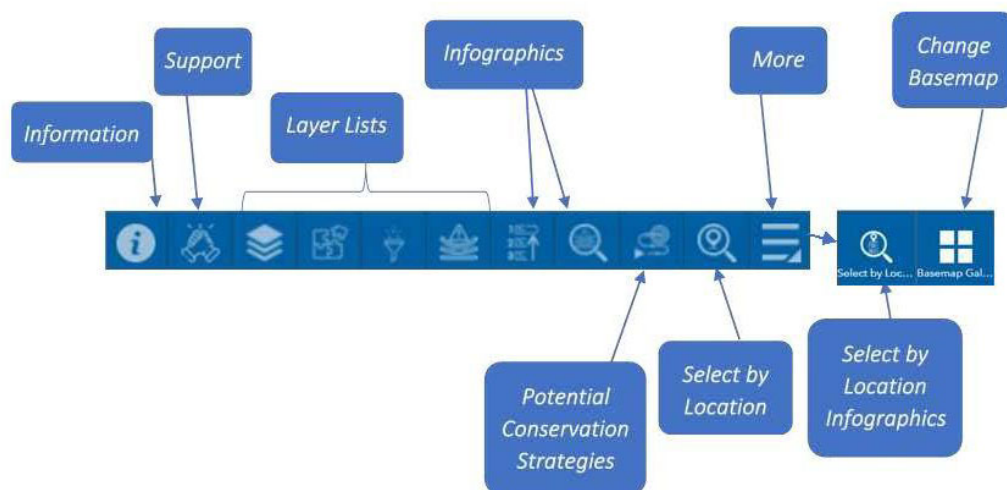
There are tabs available along the right header bar and tools available in the upper left-hand corner of the map under the search bar. In the lower right-hand corner is an arrow to show a location overview inset map. Arrow at the center bottom of the map will pull up attribute tables.



## Map Navigation:



## Toolbar:



## How to's

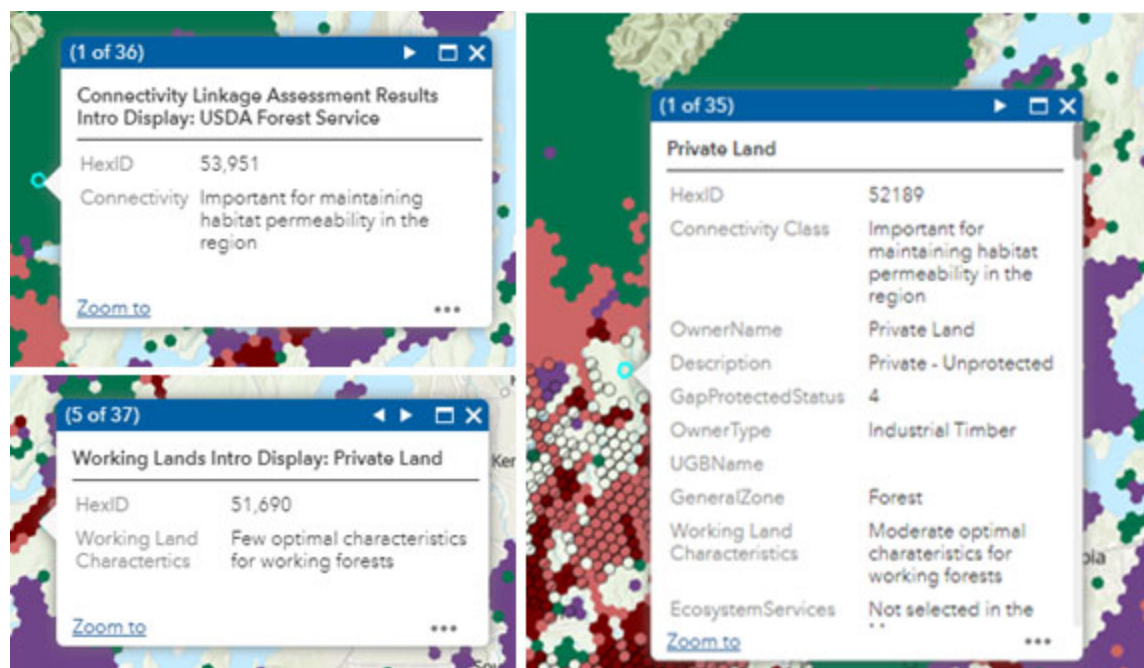
### Navigating the Mapper

To zoom in and out, use the + and - buttons in the upper left-hand corner of the map or use the scroll wheel on your mouse, or double-click to zoom in.

The home button will bring you back to the initial extent.

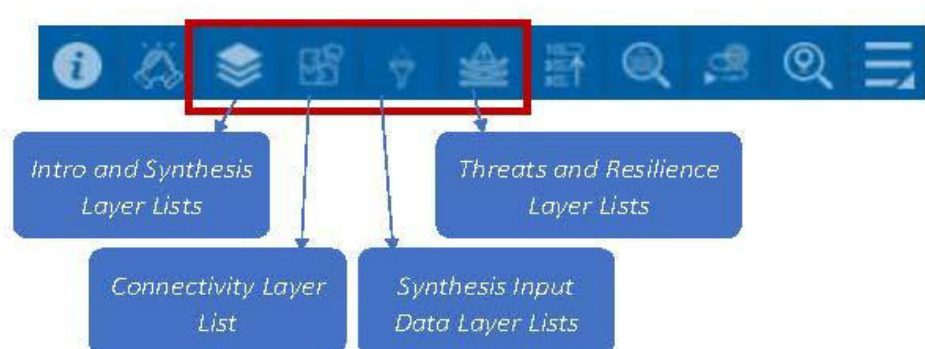
To see attributes of specific planning units click on the planning unit of interest. A pop-up with attributes will appear. If more than one planning unit is selected or more than one layer has pop-ups, you can use the arrows to scroll through the attributes.

Depending on which layers are visible, different pop-up attribute information may be available.



## Layer List

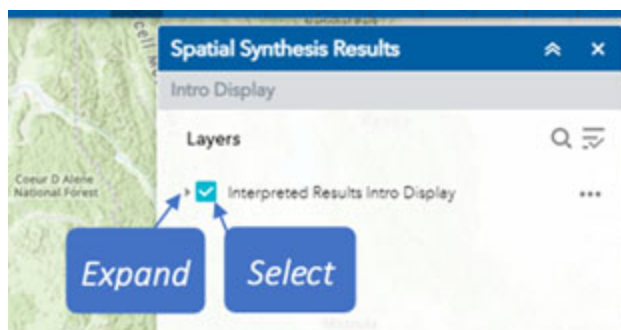
[ESRI documentation](#)



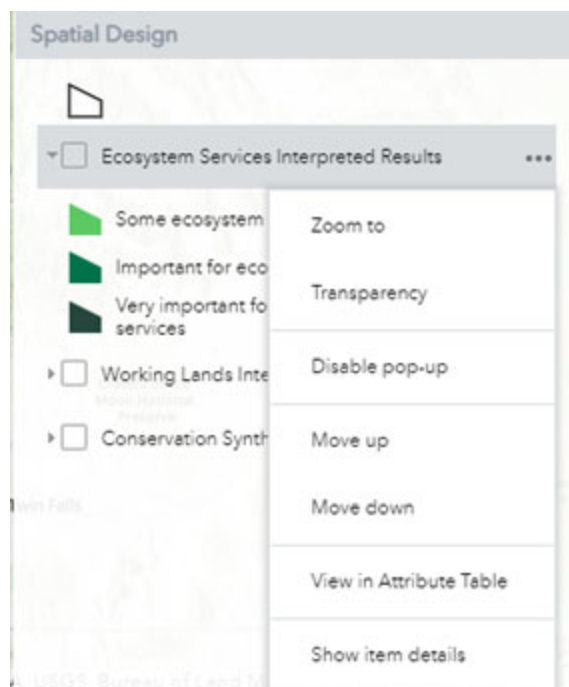
The Mapper has multiple layer lists organized into different categories. There is a layer list for the spatial synthesis results and layer lists for the input data into each of those syntheses (working lands, ecosystem services, and conservation). There is also a layer list for connectivity data, threat data, and resilience data. When a user adds their own data it will appear on all the layer lists.

The check boxes indicate if the layer is currently turned on for display in the map. When checked the layer will also appear in the legend panel.

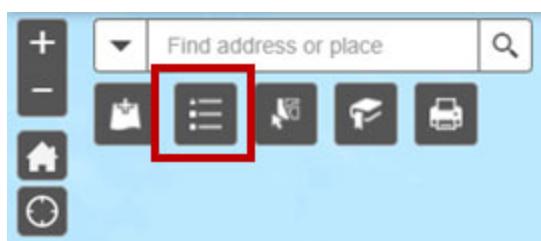
The arrow on the left-hand side will display the symbology for the dataset.



The ellipses on the right side display the layer menu.

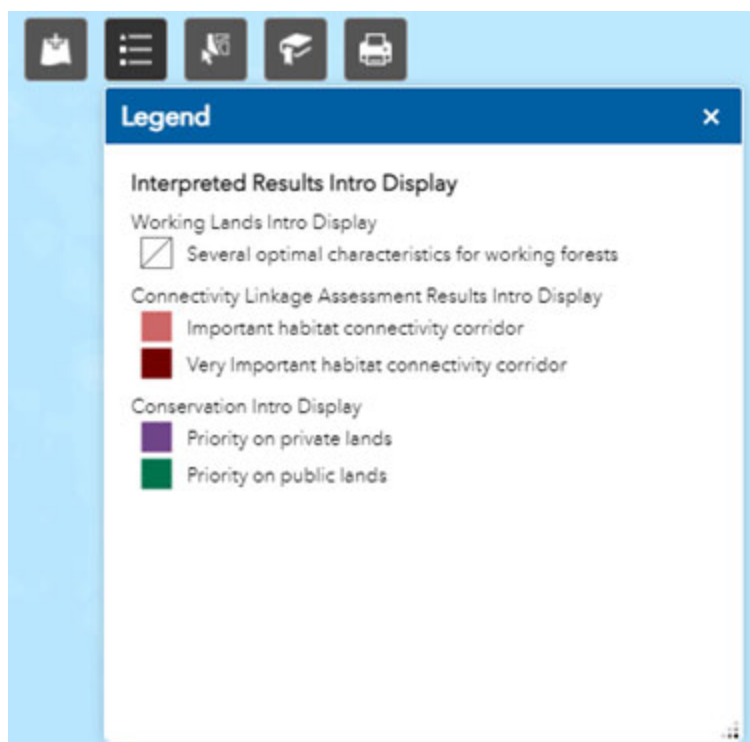


- **Zoom To**—Sets the map extent to the extent of the layer. Note: for most layers provided this will be the same as the initial extent.
- **Transparency**—Sets the transparency for the layer.
- **Enable Pop-up / Disable Pop-up**—Enables or disables the pop-up for the feature layer.
- **Move up/down**—Moves the layer one level up or down for this viewing session.
- **View in Attribute Table**—Opens the attribute table for the feature layer.
- **Show item details**—Opens the service description or the item details page for the service or the item associated with the layer, if available.



Legend

[ESRI Documentation](#)

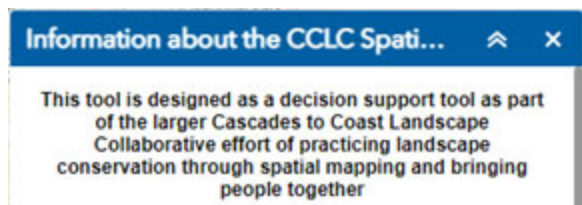


The legend panel shows the visible map layers and their associated symbols.

Any additional layers you have turned on in the layer list will also be shown here. If you add any additional data and they are turned on they will also appear here.

## Information

The information panel contains links to this user guide, other relevant documents and includes the citation for this Mapper and data.

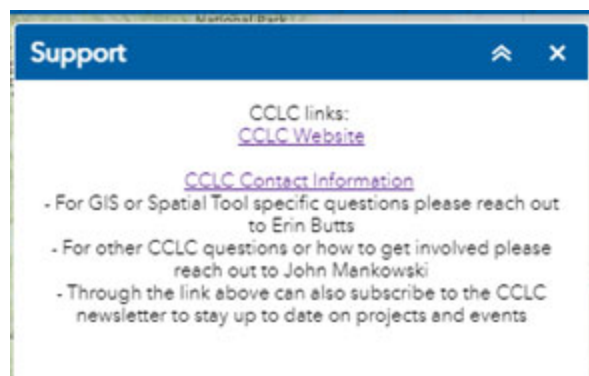




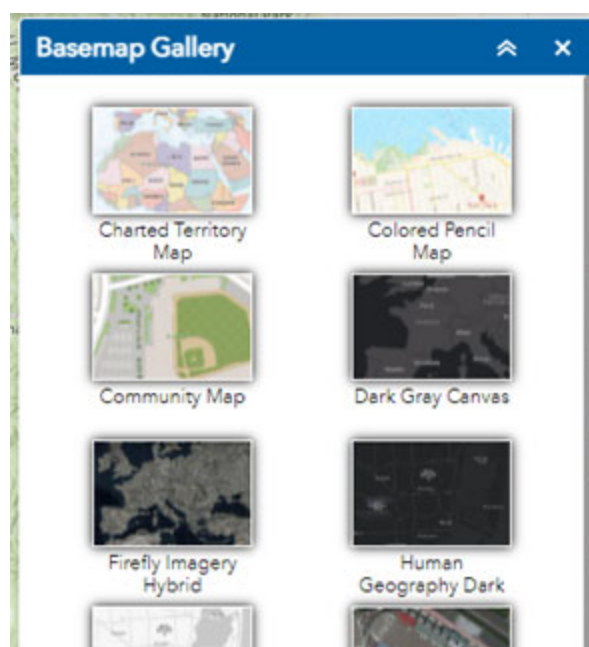
## Support



The support panel contains links to the CCLC website homepage as well as who to contact for additional information.

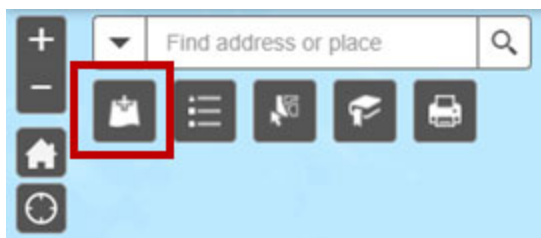


## Change Base Map

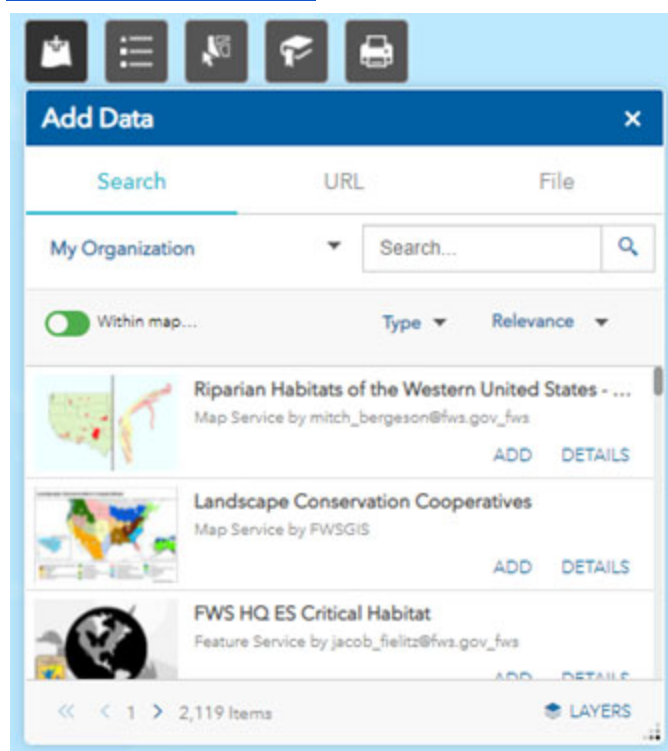


The basemap gallery panel allows you to choose a different basemap, ie. imagery or streets etc. This may be helpful as you zoom into your specific area of interest.

## Adding Other Data to the Mapper (from ArcGIS Online, a URL, or a File)



[ESRI Documentation](#)



The add data tool allows you to add other online data to the map. You can add data in three ways, from:

- ArcGIS Online
- a URL for a web service, KML file, GeoRSS file or CSV file URL,
- upload data from a file on your computer. The tool supports shapefiles in Zip format, and CSV, GPX, and GeoJSON files.

To see layers you have added or to remove layers you have added click “layers” in the bottom right-hand corner of the add data pane. To remove added layers click the trash can icon next to the layer you wish to remove. Clicking back will take you to the



main add data pane. Note: Data layers you have added can be turned on and off in the layer list panels.

## Additional Data Resources Commonly Added to the Mapper

Below are some commonly requested datasets that are not housed within the Mapper, however, users may add the URL to the map services through the add data tool to display within the Mapper.

This is not an exhaustive list and there are many other datasets that can be added that may be of interest to users. Datasets included in this list are suggestions and a starting point and not to be considered the only data options available.

The Cascades to Coast Landscape Collaborative Spatial Design AGOL Group has links to some of these datasets as well as others, users should check that list as well.

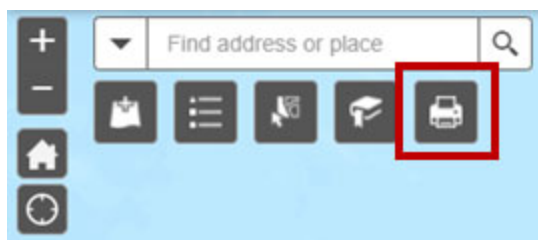
- **Washington parcel data from WA DNR:**  
[https://gis.dnr.wa.gov/site3/rest/services/Public\\_Boundaries/WADNR\\_PUBLIC\\_Cadastre\\_OpenData/MapServer/1](https://gis.dnr.wa.gov/site3/rest/services/Public_Boundaries/WADNR_PUBLIC_Cadastre_OpenData/MapServer/1)
- **USFWS lands:**  
[https://services.arcgis.com/QVENGdaPbd4LUkLV/arcgis/rest/services/FWSInterest\\_Simplified\\_Authoritative/FeatureServer](https://services.arcgis.com/QVENGdaPbd4LUkLV/arcgis/rest/services/FWSInterest_Simplified_Authoritative/FeatureServer)
- **USFS map services:** <https://data.fs.usda.gov/geodata/edw/datasets.php>
- **LANDFIRE** (vegetation, fuel, disturbance, and fire regimes):  
[https://www.landfire.gov/data\\_access.php](https://www.landfire.gov/data_access.php)
- **A guidebook to spatial datasets or conservation planning under climate change in the Pacific Northwest:**  
<https://www.sciencebase.gov/catalog/item/5e62cee0e4b01d509257dd8e>

## Accessing Datasets Outside ArcGIS Online

Can download from ArcGIS Online. All datasets can be found in the CCLC Spatial Design AGOL Group:

<https://fws.maps.arcgis.com/home/group.html?id=4bc4946539244d669871dd1fbd5c4b76#overview>

Map package on CCLC Website **COMING SOON.**



Download a Map

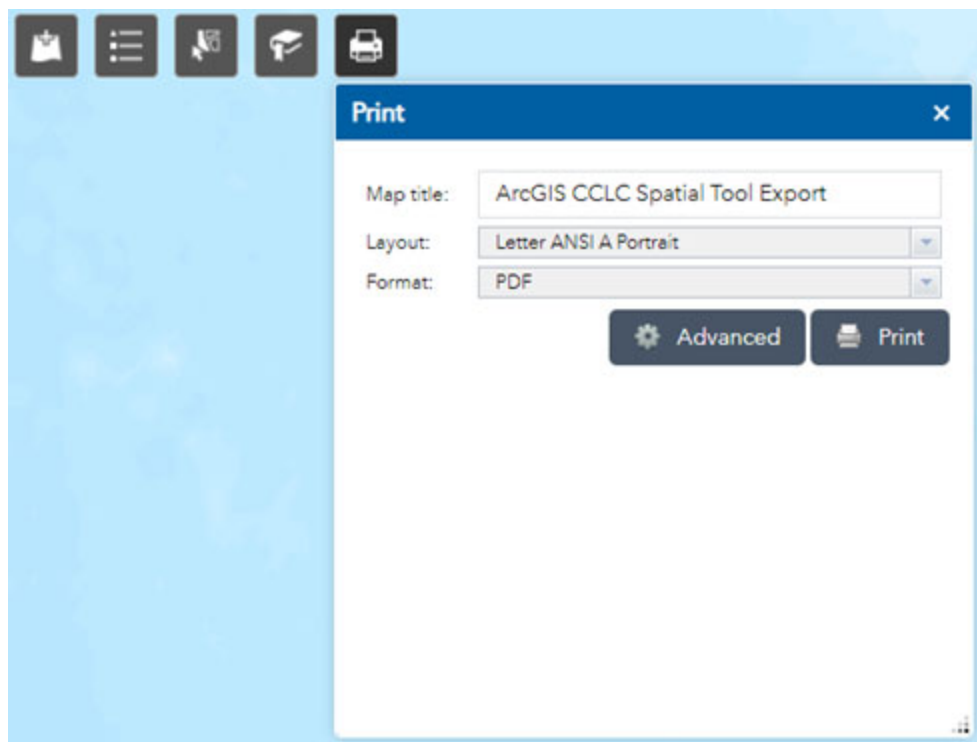
[ESRI Documentation](#)

Users can export a map of the current extent using the print tool. The default will export a PDF titled ArcGIS Coastal Northwest Landscape Conservation Mapper Export in a portrait layout with a legend, scale bar, and date of creation at the bottom of the layout.

Users can change the map title, and are encouraged to do so in order to keep track of their map exports. Users can also change the layout and format if desired.

To export the map click Print. Then the export will appear in a list below. Click the name to view the pdf. Users can export multiple maps and they will appear in a numbered list. Remember to save the maps to your computer before exiting your Mapper session, the exports will not be saved once your session is ended.

There are also advanced settings so users can change the scale/extent, scale units, print quality and additional information included in the export.



**Print** [X]

Map title: ArcGIS CCLC Spatial Tool Export

Layout: Letter ANSI A Portrait

Format: PDF

[Advanced] [Print]

**Map scale/extent:**

Preserve: ☒ map scale ☐ map extent

Force scale:  [current](#)

Output spatial reference WKID: 102100  
WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

**Layout metadata:**

Author: ArcGIS Web AppBuilder

Copyright: CCLC Spatial Tool v1.0

Include legend: ☒

Scale bar unit: Miles

**MAP\_ONLY size:**

Width (px): 670

Height (px): 500

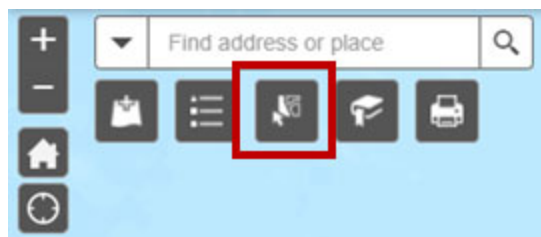
**Print quality:**

DPI: 96

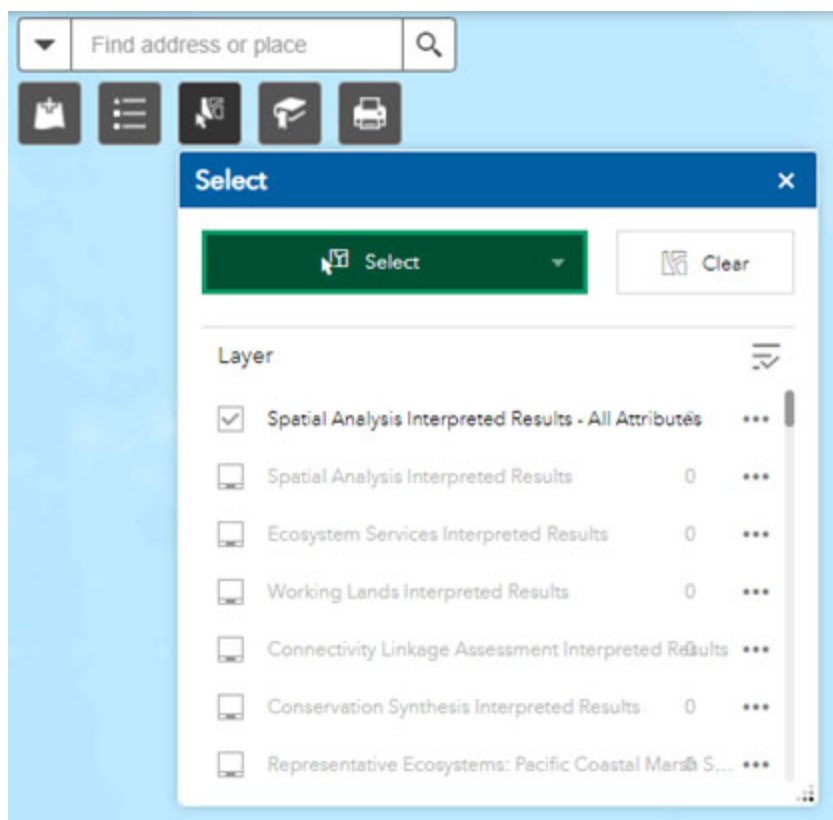
**Feature attributes:**

Include attributes: ☐

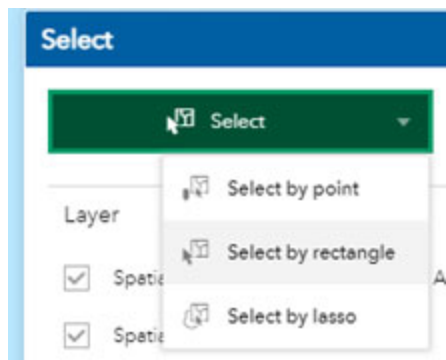
Select Planning Units by point, rectangle, or polygon



[ESRI Documentation](#)



Clicking the select button allows you to select planning units on the map that are turned on in the layer list, and have a check box in the select tool pane. The arrow on the select button allows you to select planning units by a point, rectangle or lasso.

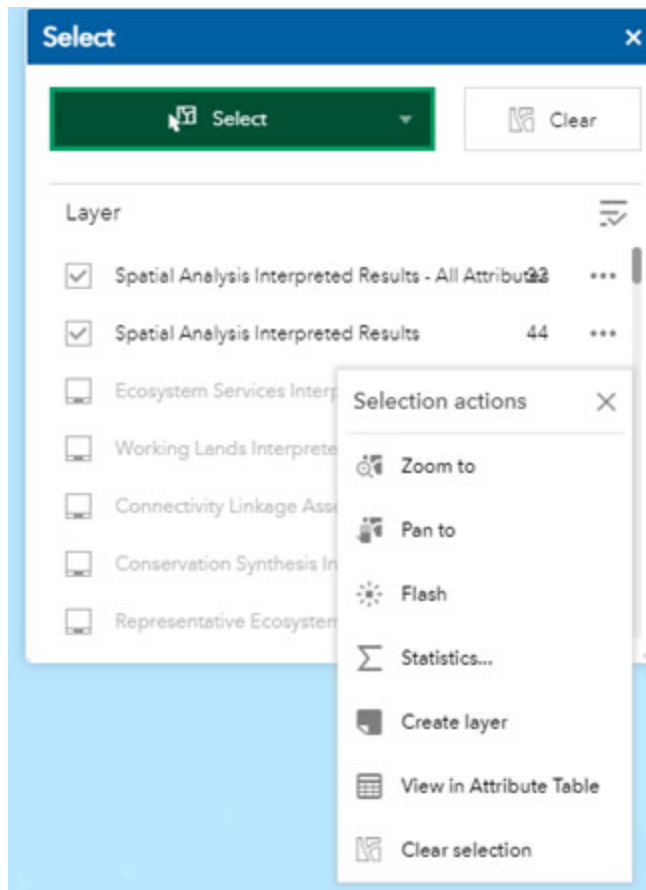


Select by rectangle will draw the shape for you. Select by lasso requires that you draw your polygon boundary and you will need to click on the map to start the lasso and drag to create the selection area.

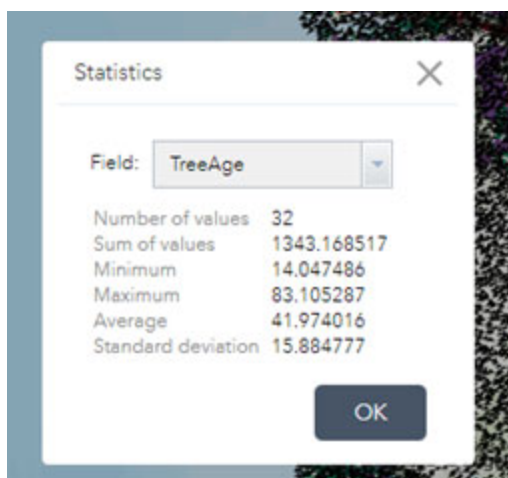
You can clear your selection by clicking the “Clear” button in the Select pane.

When a selection is made numbers will appear next to each layer indicating the number of selected features.

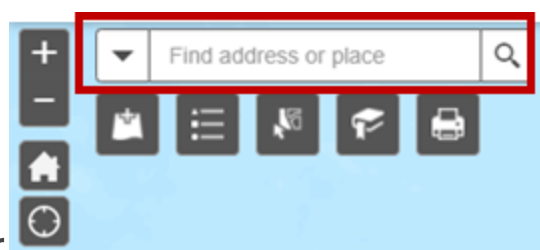
Clicking the ellipses next to the layer in the select pane with a selection made displays a selection actions menu.



- **Zoom To**—Sets the map extent to the extent of the selection.
- **Pan To**—Sets the map extent to the extent of the selection.
- **Flash**—Flashes the selected feature(s) to see the exact location of the feature(s) in the map.
- **Statistics**—Calculates statistics based on numeric value attributes - when statistics is selected a pop-up with a drop down of statistic capable fields will appear.



- **Create Layer**—A new layer based on the selection is added to the map. A pop-up will ask what you would like to name the layer. The layer will then appear in the layer lists. Note: This will only work for one selected layer at a time. If additional layers are desired based on the selection the user must click the ellipses next to the layer of interest.
- **View in Attribute Table**—Opens the attribute table for the feature layer limited to the selected features.
- **Clear Selection**—Deselects all currently selected features in the associated layer. To clear all selections from all layers use the Clear button on the Select tool pane.



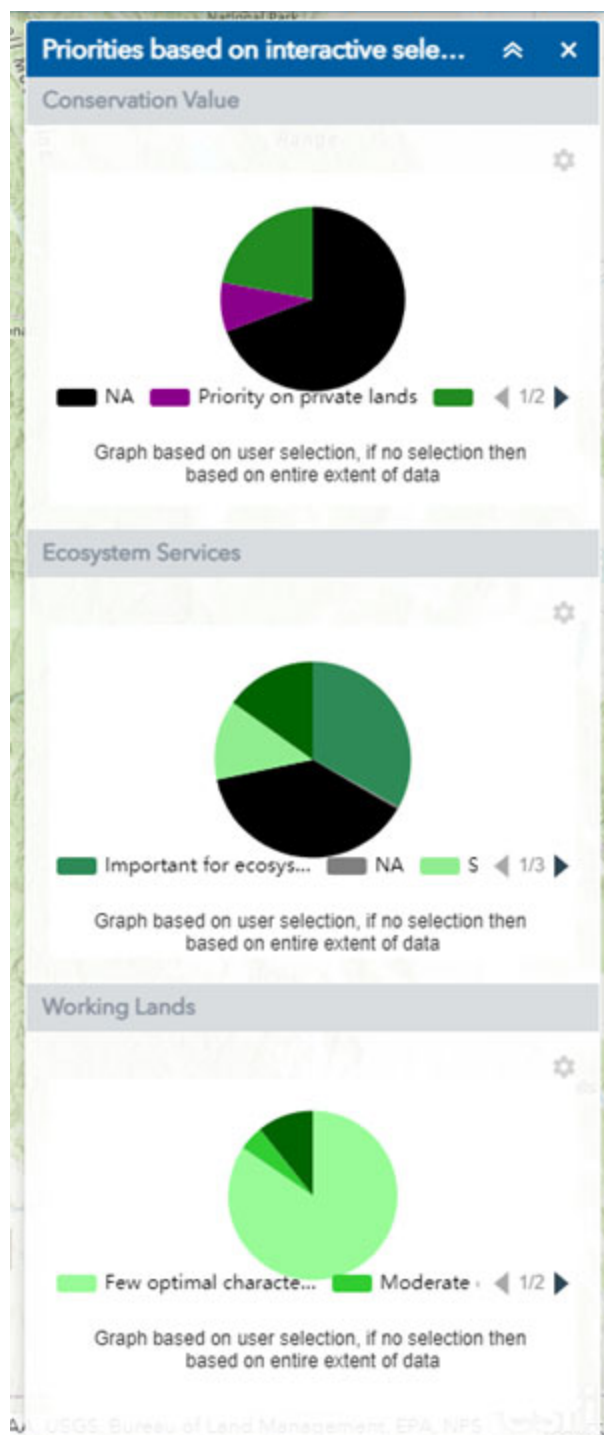
## Search Bar

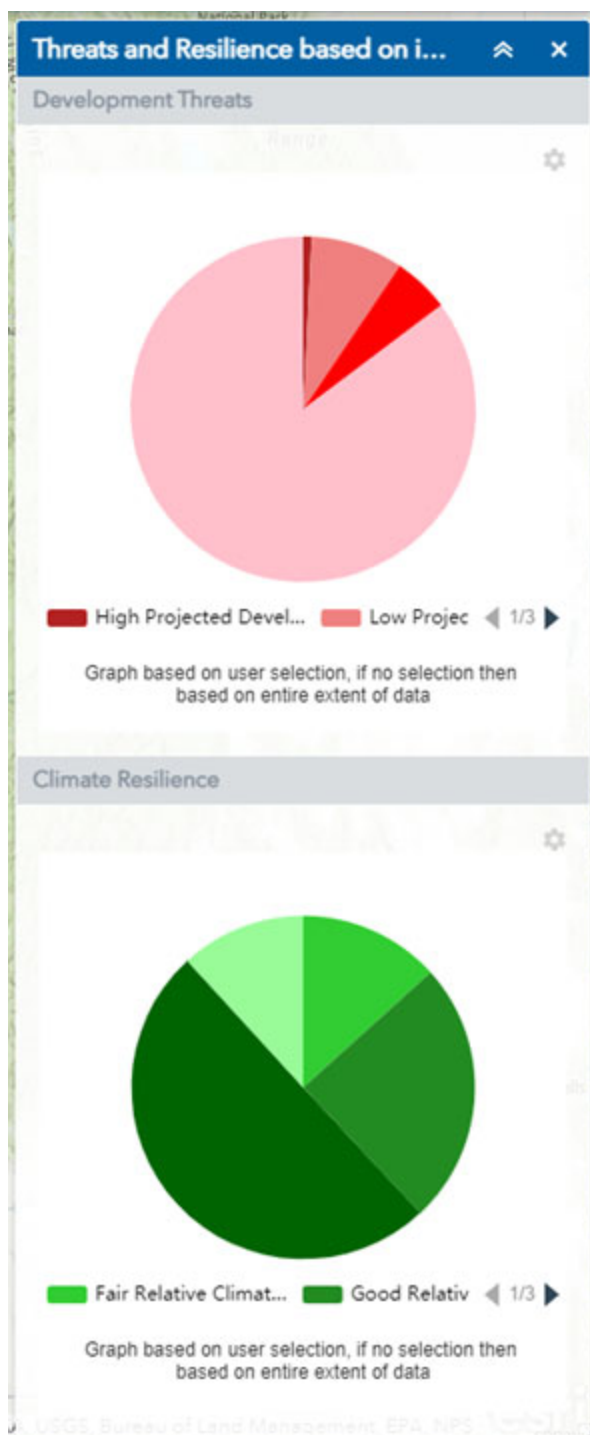
Search for a location of interest in the search bar. As you type matches will appear, select the one that matches the location you are searching for and the map will zoom to that location.

Infographics



[ESRI Documentation](#)







## Based on Interactive Selection



The infographics titled “Priorities based on interactive selection” are based on the interactive selection tool found in the upper-left hand corner of the map. If no selection is made the infographics will be based on the entire extent of the data.

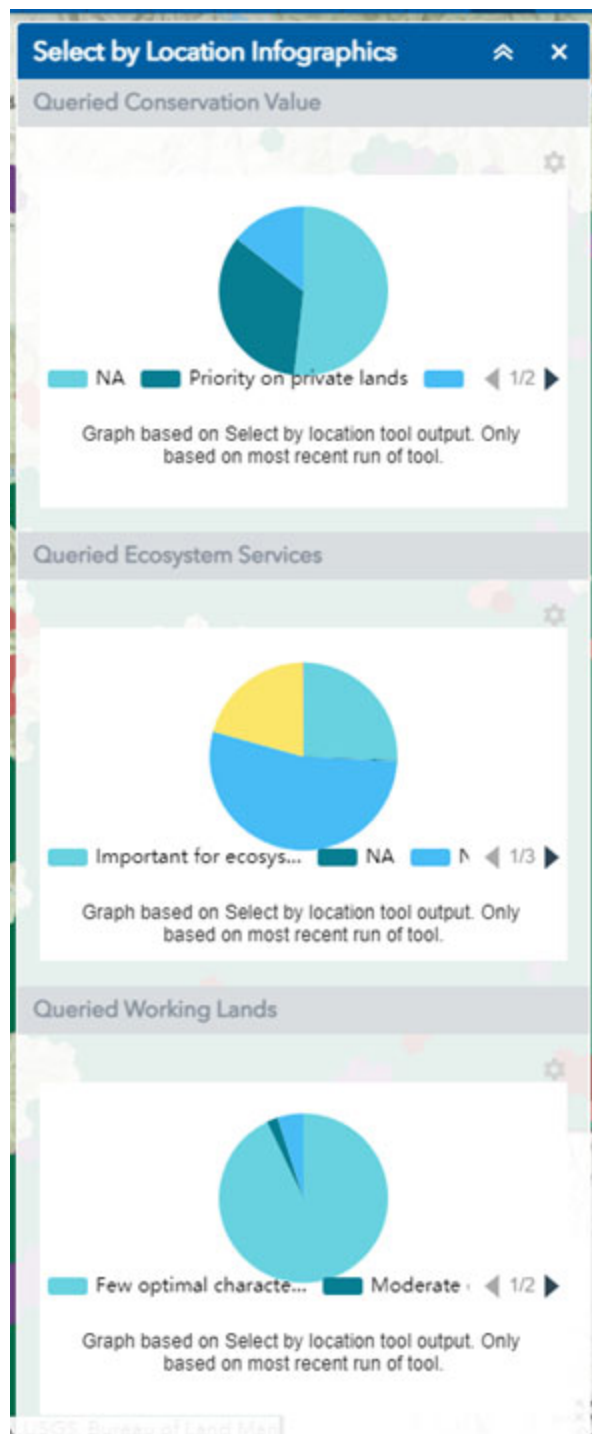
There are 2 panels with infographics based on interactive selection, one has the synthesis products (conservation, ecosystem services and working lands), the other panel shows threats and resilience infographics.

The gear icon allows the legend to be turned off, it is on by default, and the data labels to be turned on, they are off by default. The data labels tend to get cut off in the panel so aren't entirely visible which is why we use the legend. For these infographics the display colors match the corresponding symbology of the data layer they represent.

By clicking on the title of each infographic you can minimize the pie chart allowing the other pie charts to be larger which may help with the visibility of the chart depending on your screen size used to view the Mapper.

Hovering over each section of the pie chart also reveals the number of planning units in that category and what percentage of planning units they represent and will highlight the corresponding planning units in the map. If a selection is made the percentage and number will be based on the selection and the highlighted areas will be limited to within the selection.

Based on Selected Area of Interest



The infographics titled “Select by location infographics” are based on the most recent output of the select by location tool. If the select by location tool has not been

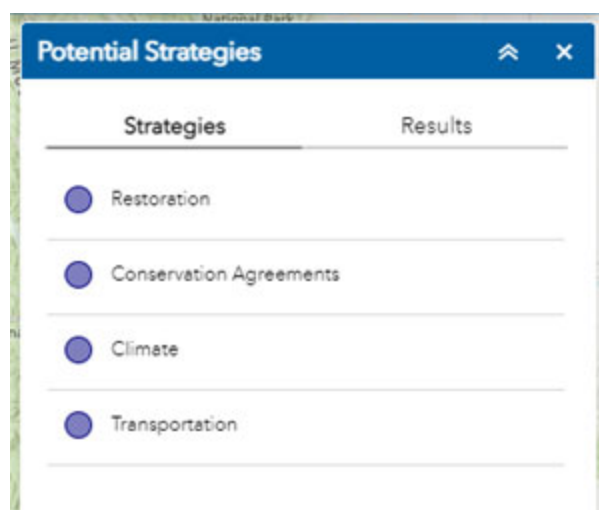
run there will be no infographics visible. If the tool is run again with different results the infographics will update to the last run of the select by location tool.

The gear icon allows the legend to be turned off, it is on by default, and the data labels to be turned on, they are off by default. The data labels tend to get cut off in the panel so aren't entirely visible which is why we use the legend.

By clicking on the title of each infographic you can minimize the pie chart allowing the other pie charts to be larger which may help with the visibility of the chart depending on your screen size used to view the Mapper.

Hovering over each section of the pie chart also reveals the number of planning units in that category and what percentage of planning units they represent and will highlight the corresponding planning units in the map.

## Strategies



The strategy pane acts as a query of the data to pull out attributes that overlap and may be areas to focus on for a given strategy. The results of these strategies are to provide basic overlays of data in order to continue further investigation and discussion of potential strategies and collaboration. The areas highlighted in the results are areas that could benefit from focus through a given strategy, they could also benefit from additional efforts.

Click on strategy of choice and a query will run and return the results on the map and add that layer to the Layer list. From the Results tab users can view the attribute table, change the symbology of the created layer, and zoom to the layer. There is an option for statistics but since most of the attributes are text values the statistics option will only work for a few of the working lands values.

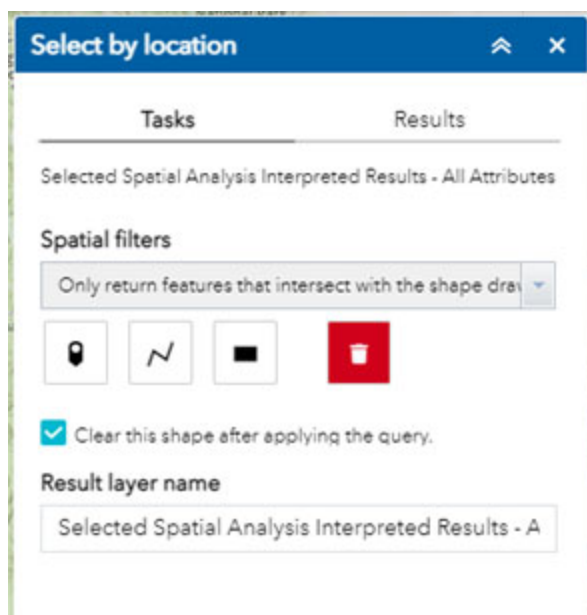
This is not a comprehensive list of potential strategies. Each strategy is listed with a description and detailed information on how the query is formatted within the tool.

- Restoration: areas that have high conservation values and have a landscape condition that is impacted or somehow degraded from their natural state and could benefit from restoration efforts.
  - Query: conservation value on public or private lands. And condition either heavily impacted / Non- natural or Semi-natural
- Easements: areas where land agreements, easements, purchases, or other sorts of agreements, could be a potential strategy. Important areas for connectivity in forest or private land ownership, that face some level of development threats and don't have as many working lands characteristics. These are still important working lands, the strategy focus is to prevent development on these lands by keeping them as working lands that also provide conservation/wildlife connectivity benefits.
  - Query: Important or High connectivity corridors, and few – moderate working lands characteristics, and OwnerType IN ('Industrial of Small Forest','Oregon SFLO','Potential OR SFLO','Private Unknown','Small Forest Land Owner','Unknown', and has development threats at low, moderate or high levels.
- Climate: lands that are more resilient to climate change impacts, that could potentially act as refugia, and have high conservation values.
  - Query: Moderate to high support for climate change impacts to terrestrial habitat and conservation value on public or private lands
- Transportation: Areas where highways intersect with connectivity. These areas could benefit from enhanced wildlife passages, underpasses, overpasses, etc.
  - Query: Highways present and Important to High priority for connectivity corridors.

## Select by location: Extract Planning units by Area of Interest



[ESRI Documentation](#)



The select by location tool enables users to select planning units that intersect or fall within their area of interest. The tool will create a layer based on the spatial filter chosen by the user. The infographics based on the select by location tool will be updated based on the last selection applied.

Users have the option in the drop down under Spatial Filters to base the selection off a shape they draw or off another layer in the Mapper.

### **Select by Shape**

If a user chooses the shape option then point, line, and polygon drawing options will appear. Clicking the trash can will clear the shape if you need to re-draw. A check box to clear the shape after applying the spatial query is checked by default. This will remove the shape drawn.

### **Select with features in another layer**

If a user chooses to return features with a spatial relationship with features in another layer then a few other options will appear. Users can choose the spatial relationship, either intersect or within. Intersect will select planning units if any part of them intersects the chosen spatial filter. Within will only select planning units that fall completely within the chosen spatial filter.

In the related layer drop down is where the user will pick the layer for the spatial filter. The spatial filter can be based off a selection in a layer, for example, if a user added watershed boundaries, selected a watershed(s) of interest, and an option to check a box to Use selected features (#) with the number of features selected will appear. Users also have the ability to add a search distance from the selecting features which will increase the spatial filter by the distance chosen.

The Result layer name is where the user should change the name of the resulting layer to remember what selection they made.

In the results tab the list of features selected will appear. The ellipses choices have zooming options, exporting and saving options and the ability to change the symbology of the layer. The options to save the layer are in a variety of formats, exporting to CSV, a feature collection, or a GeoJSON, and saving to your AGOL account.

The resulting layer will also be added to the map and the layer lists.

## Attribute Table

The attribute tables can be opened and closed by clicking the arrow located at the bottom of the map. Initially the only tables shown are for the “Spatial Analysis Interpreted Result - All Attributes” and the intro display layers. The “Spatial Analysis Interpreted Result - All Attributes” table contains a lot of planning units and may take a few moments to load. To view other tables click the ellipses (...) to the right of the desired layer and click “View in Attribute Table”. The attribute table will pop-up at the bottom of the map.

You can click the “Options” button in the upper left-hand corner of the table to create a filter or to view different columns. As you zoom in on the map, the default is to filter the attribute table based on the map extent. Clicking “Filter by map extent” will turn that option off.

You can filter and select planning units and zoom to the selected locations.

There is an option to export the table to CSV. If no selections are made the entire table will export, if a selection is made it will only export the selection.

To select more than one unit use the shift key on your keyboard to select multiple rows.

To clear a selection click the “Clear selection” button at the top.

To clear a filter click the red X to the right of the filter expression and click OK.

San, US22 / WA State Parks DTS, San Canale, San, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS

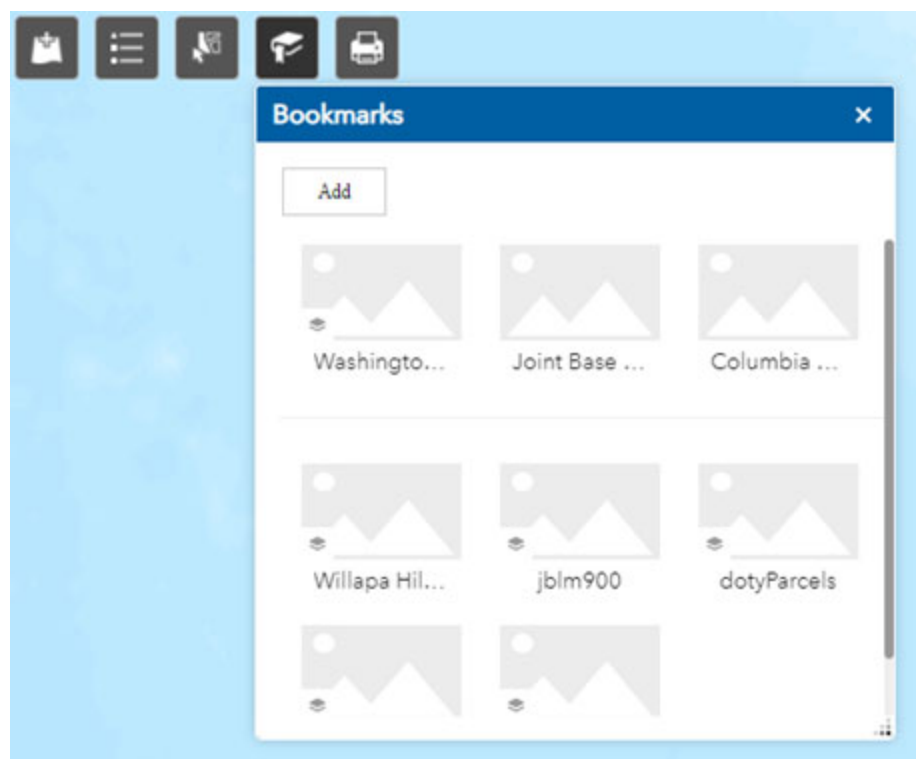
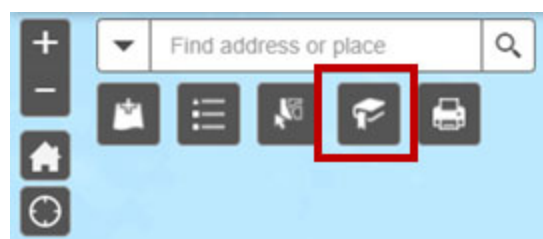
Spatial Analysis Integrated Results - All Attributes | Working Lands into Display | Connectivity Linkage Assessment Results into Display | Conservation Info into Display

Options | Filter by map extent | Zoom in | Clear selection | Refresh

HeadID	ConnectivityClass	OwnerName	Description	GapProtectedDist	OwnerType	USName	GeneralZone	WorkingLandOrEcosystemService	TenureOrComp	AcquiesOrImpact	DevelopmentOrResilience_Text	ConditionText	Wildlife	MUC12T	Conservation Value	See Level: Full
2050	Connectivity assessment for OR & under construction! Check back in Feb 2023	Private Land	Private - Unprotected	A	Oregon BPO		Public Forest	New optimal characteristics for working forests	Important for ecosystem services	High Support for Climate Change Impacts to Terrestrial Habitat	Moderate Support for Climate Change Impacts to Aquatic Habitat	No or very low Projected Development Or Resilience	Good Relative Climate Resilience	Managed landscape / Relatively Natural Land Cover	NA	NA
2052	Connectivity assessment for OR & under construction! Check back in Feb 2023	Private Land	Private - Unprotected	A	Private Unknown		Public Forest	New optimal characteristics for working forests	Important for ecosystem services	High Support for Climate Change Impacts to Terrestrial Habitat	High Support for Climate Change Impacts to Aquatic Habitat	No or very low Projected Development Or Resilience	High Relative Climate Resilience	Lower Impact / More Inland	NA	NA

34076 features selected

## Bookmarks



## Other Tips



The lower right-hand corner has an arrow, when clicked this will display a small inset overview map.

## Connectivity Data

Currently the connectivity data within the Mapper is landscape connectivity in the Washington portion of the study area. More information about the connectivity data found in the Mapper can be found here:

[https://figshare.com/articles/book/Comparing\\_and\\_Combining\\_Omniscape\\_and\\_Linkage\\_Mapper\\_Connectivity\\_Analyses\\_in\\_Western\\_Washington/8120924](https://figshare.com/articles/book/Comparing_and_Combining_Omniscape_and_Linkage_Mapper_Connectivity_Analyses_in_Western_Washington/8120924)

In the future we will add additional connectivity data:

- WA: Fisher, American Beaver, Cougar, Mountain Beaver, Western Gray Squirrel, composite analysis of all 5 species. Data should be up before Summer 2021
- OR: Marten, Northern Red-legged frog, and Pacific-slope flycatcher. Work is still in progress.

## Other Valuable Spatial Tools

Below are some great spatial tools that are in or near our study area. Some of the data in these tools could be added into the Mapper to see how they overlay.

This is not an all inclusive list. We are sure many other great tools are out there!

Barriers to Tidal Connectivity:

<https://psmfc.maps.arcgis.com/apps/webappviewer/index.html?id=99b908681adf46ca808ef90ee8cabaa3>

WAFWA CHAT:

<https://www.wafwachat.org/>



NorWeST Stream Temperature Interactive Map:

<https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=bf3ff38068964700a1f278eb9a940dce>

Cascadia Partner Forum, TerrAdapt: <https://cascadiapartnerforum.org/terradapt>

## Future Features

We want the Mapper to be useful and continue improving. The following list are potential future features we are considering adding to the Mapper. Some items on the list will be added and others we will be looking into and testing before deciding if they enhance the Mapper.

- Filter
- User defined strategies
- Making current strategies permanent layers within the Mapper.
- Washington species connectivity data
- Oregon connectivity data

Additional potential visualizations:

- Land ownership
- Land cover
- Landscape condition
- Summarized by watershed
- Social Network Analysis data

## EXAMPLES

### **Filter attribute table example:**

Filter attribute table to see only rows with Several optimal characteristics for working forests

**Spatial Tool v1.0**

Find address or place

0mi  
1420847.966 Degrees

Intro Display

Spatial Analysis Interpreted Results - All Attributes | Working Lands Intro Display | Connectivity Linkage Assessment Results Intro Display | Conservation Intro Display

Options

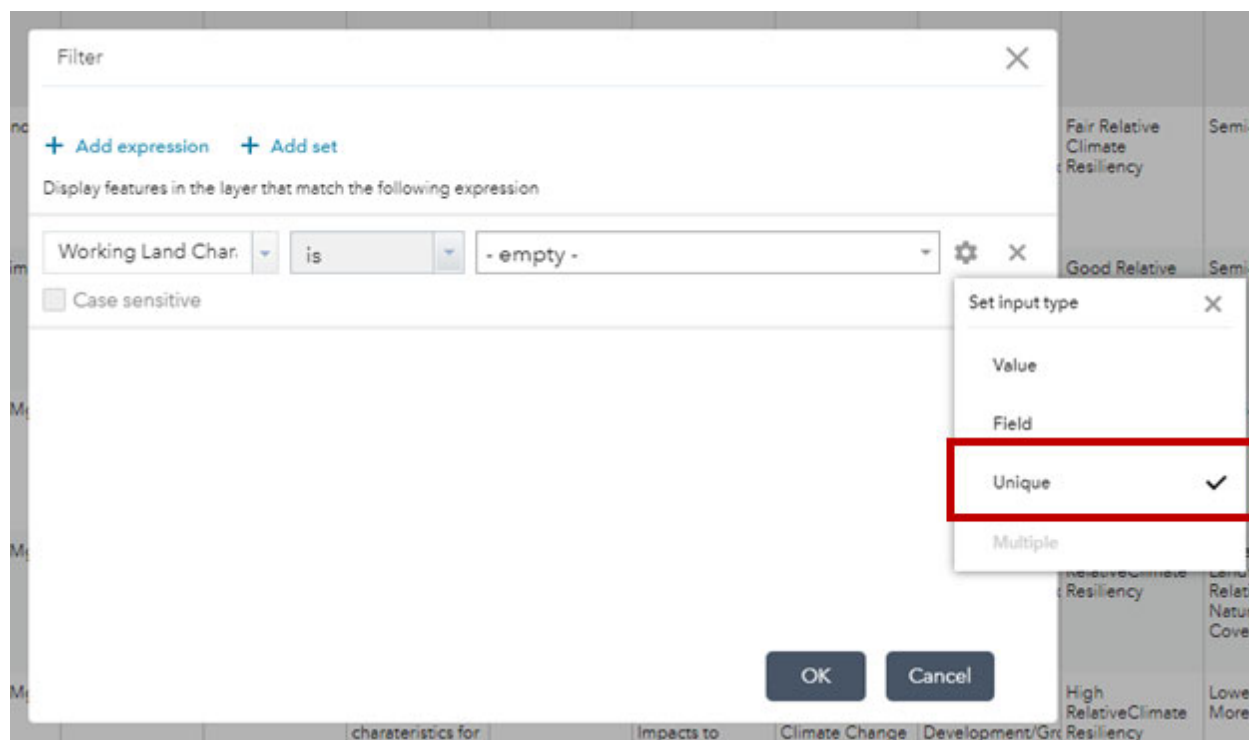
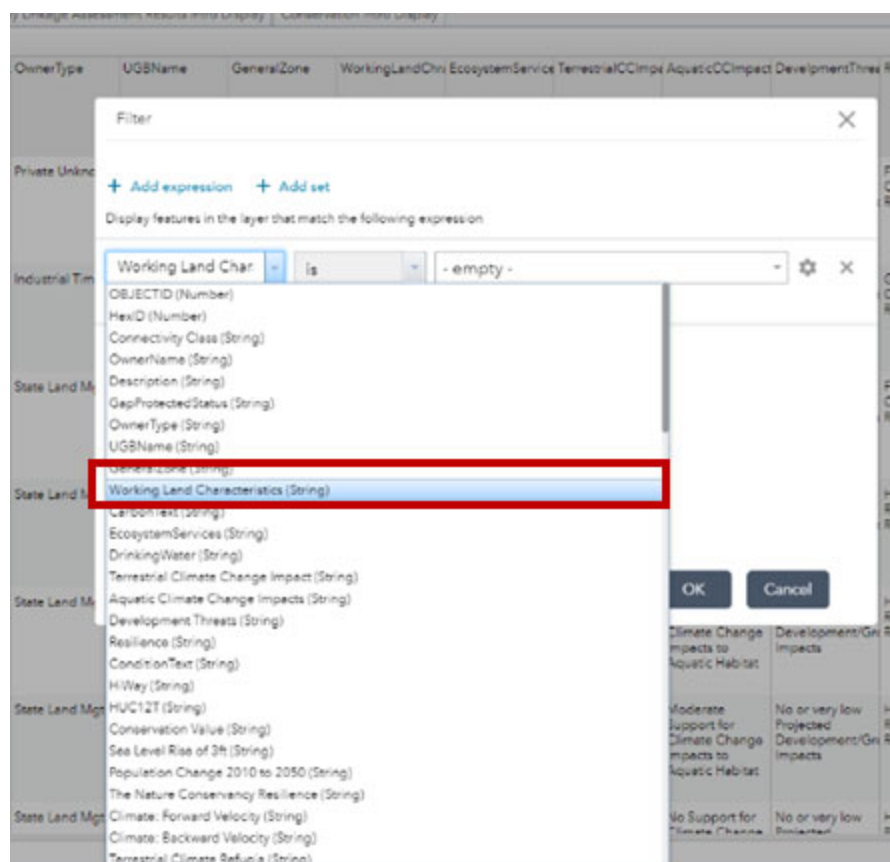
☒ Show selected records  
☒ Show related records

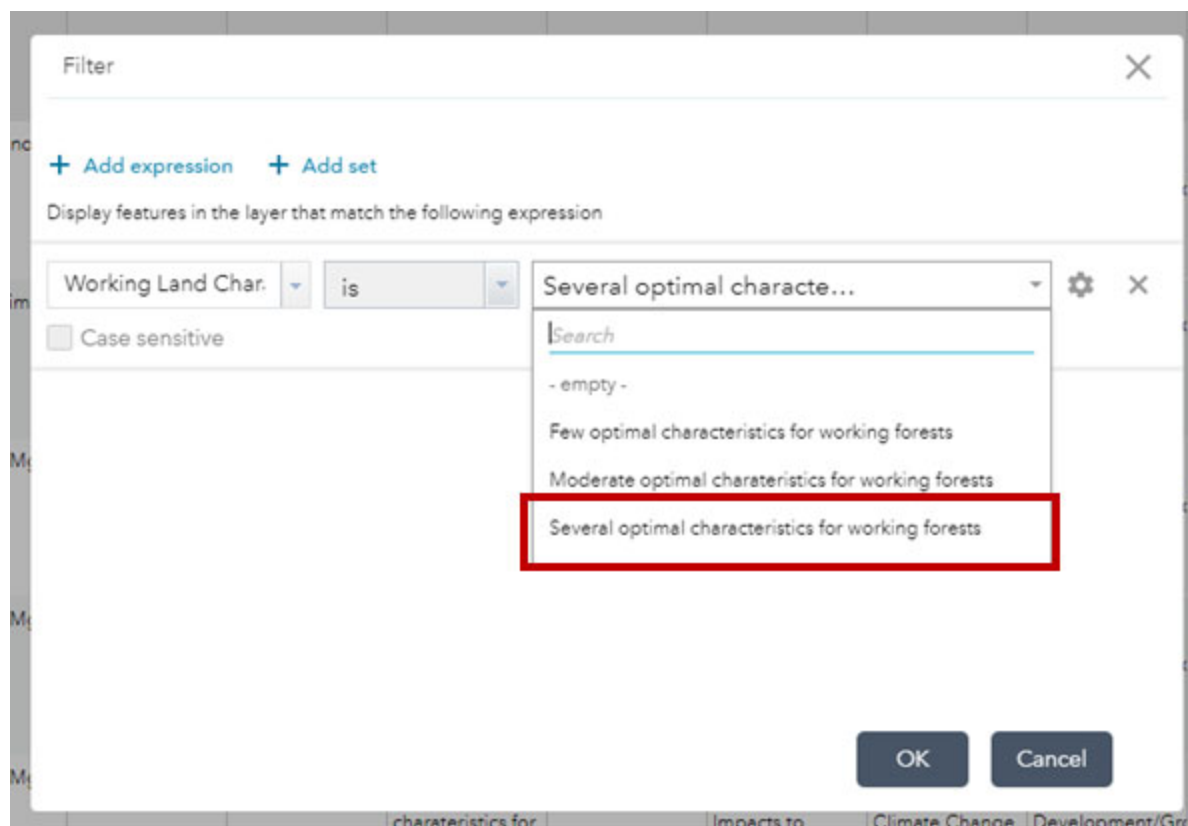
	CityClass	OwnerName	Description	GapProtectedStat	OwnerType	UGBName	GeneralZone	WorkingLandChri	EcosystemService	TerrestrialCCImp
34784	Connectivity assessment for OR is under construction! Check back in Fall 2020	Private Land	Private - Unprotected	4	Private Unknown	Rockaway Beach	Open Space and Recreation	Few optimal characteristics for working forests	Not selected in the Marxan ecosystem services analysis	No Support for Climate Change Impacts to Terrestrial Habitat
34786	Connectivity assessment for OR is under construction! Check back in Fall 2020	Private Land	Private - Unprotected	4	Industrial Timber		Forest	Few optimal characteristics for working forests	Not selected in the Marxan ecosystem services analysis	No Support for Climate Change Impacts to Terrestrial Habitat
34788	Connectivity assessment for OR is under construction! Check back in Fall 2020	Oregon Department of Forestry	Tillamook	3	State Land Mgt		Forest	Few optimal characteristics for working forests	Not selected in the Marxan ecosystem services analysis	No Support for Climate Change Impacts to Terrestrial Habitat
34790	Connectivity assessment for OR is under construction! Check back in Fall 2020	Oregon Department of Forestry	Tillamook	3	State Land Mgt		Forest	Moderate optimal	Important for ecosystem	No Support for Climate Change Impacts to Terrestrial Habitat

Filter

Display features in the layer that match the following expression

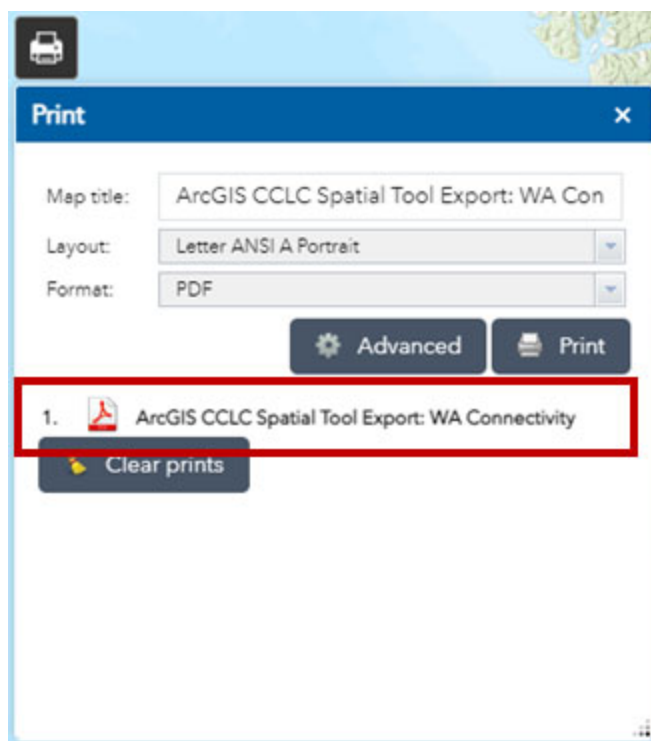
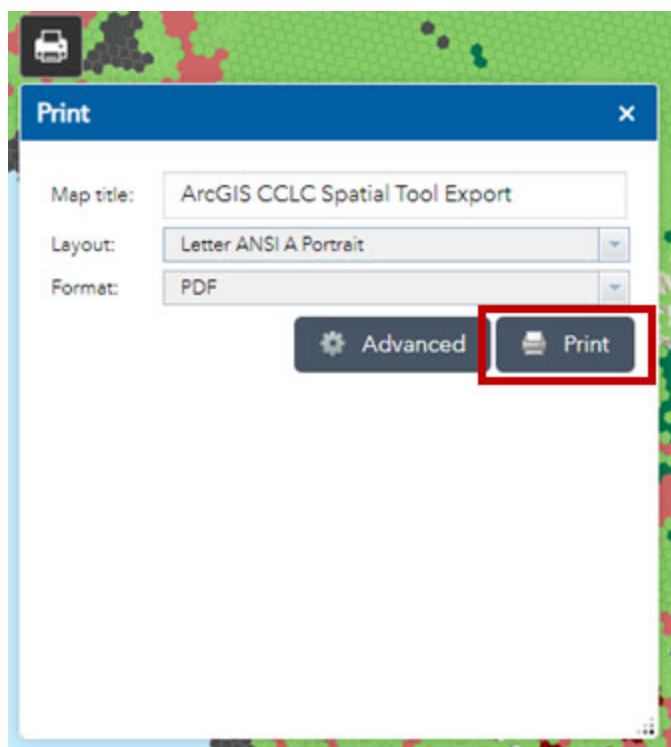
Without filter expressions defined, this query task will list all features in the specified data source.

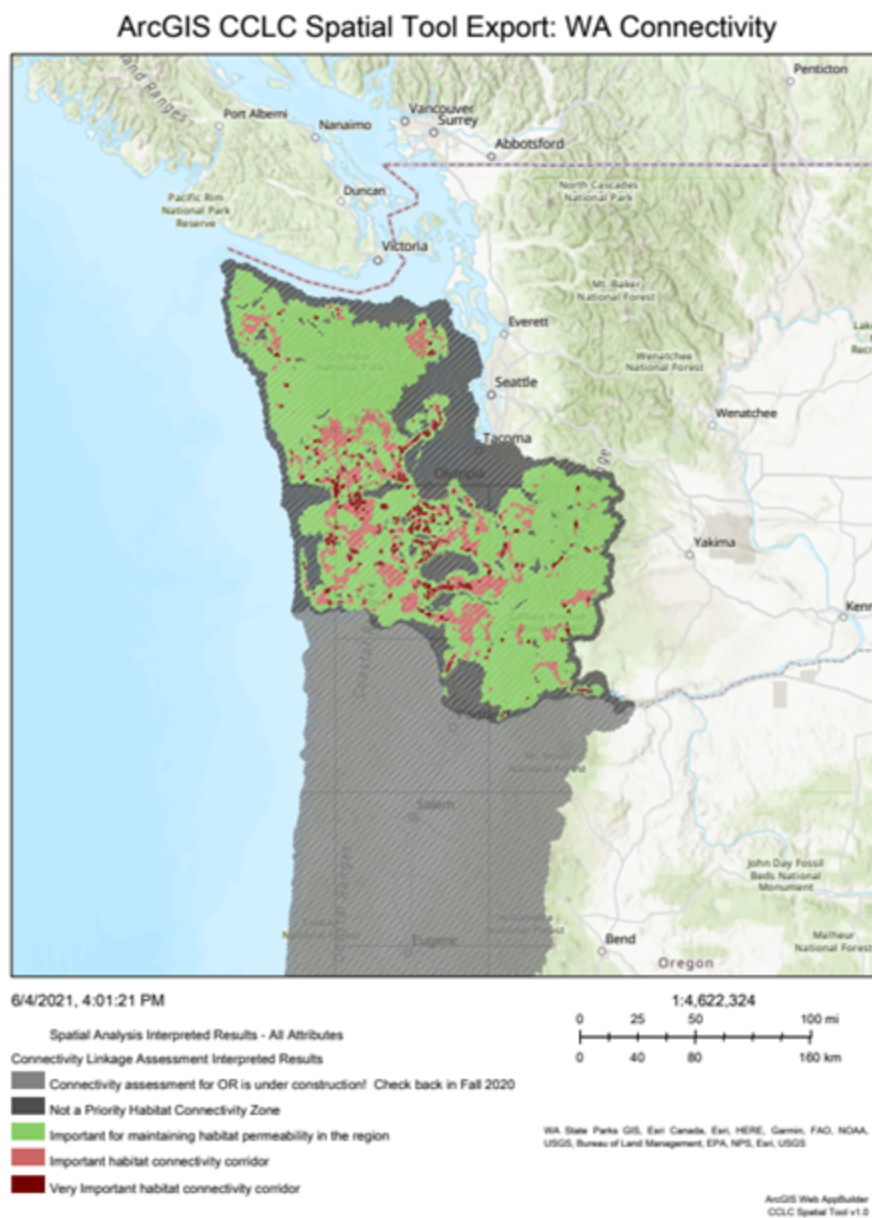




Then click “OK” to see the filtered attribute table. Once filtered the table has 4,391 features with Several optimal characteristics for working forests.

### Export Map Example

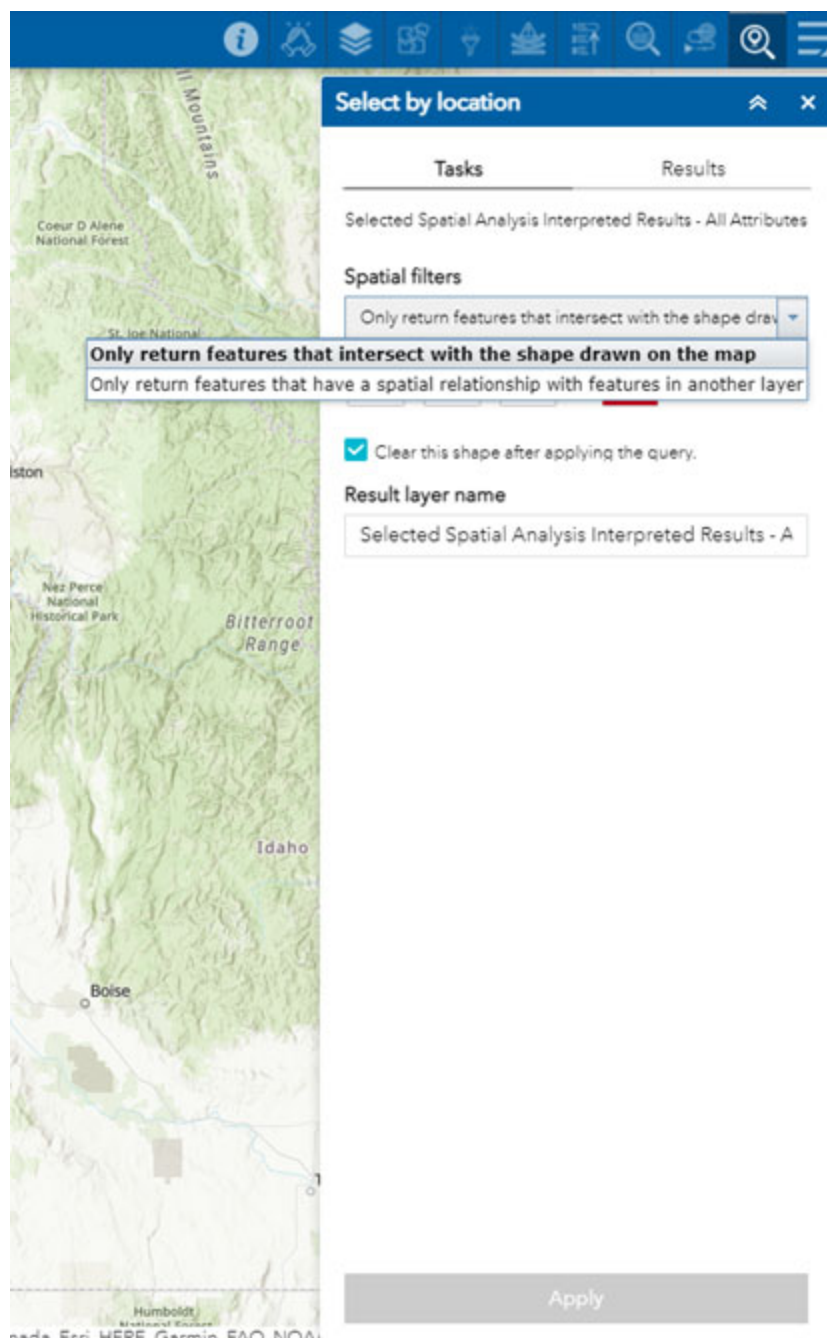




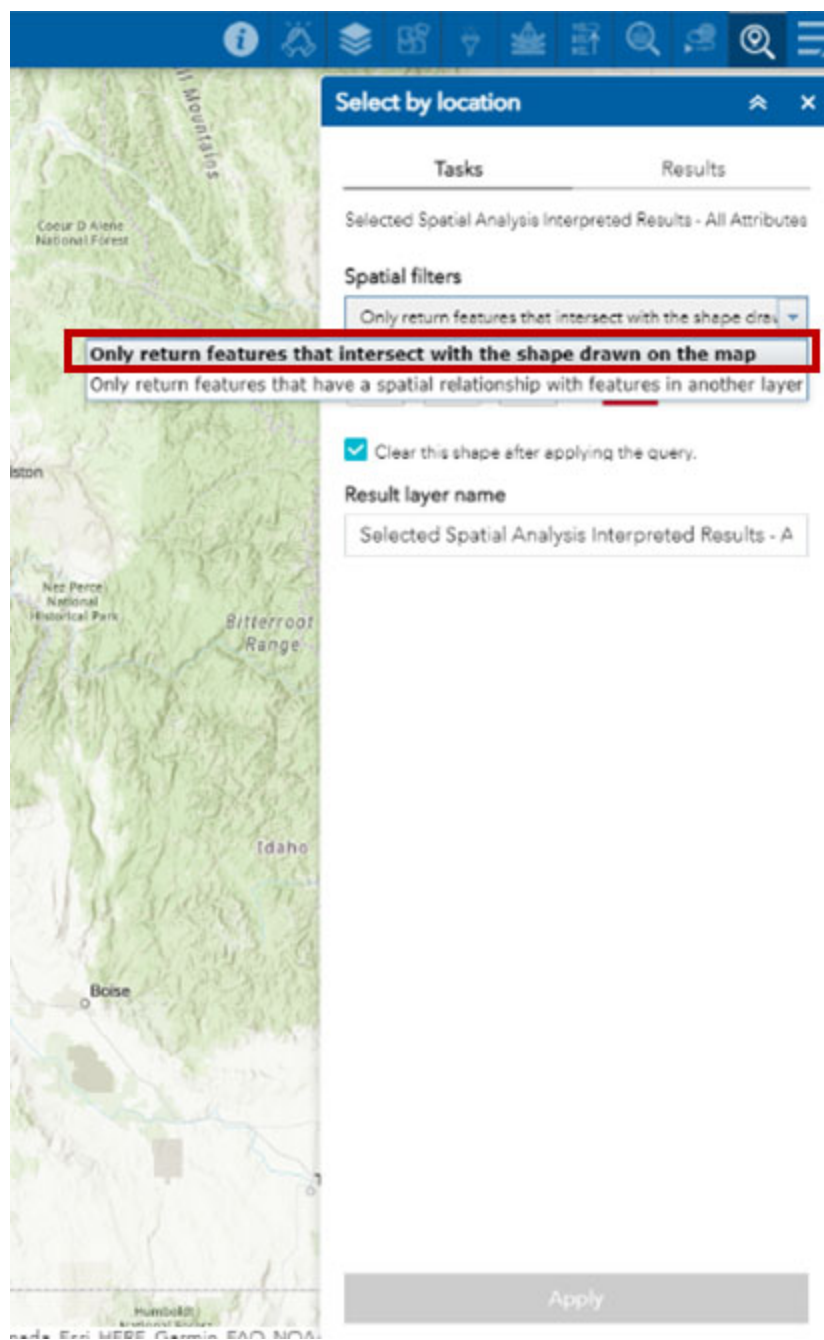
Then right click and click “Save as” to save the map to your computer.

### Select by Location Example

Decide if the selection will be based on existing features within the mapper, either a layer that is in the map by default or one that has been added, or based on a shape drawn on the map.

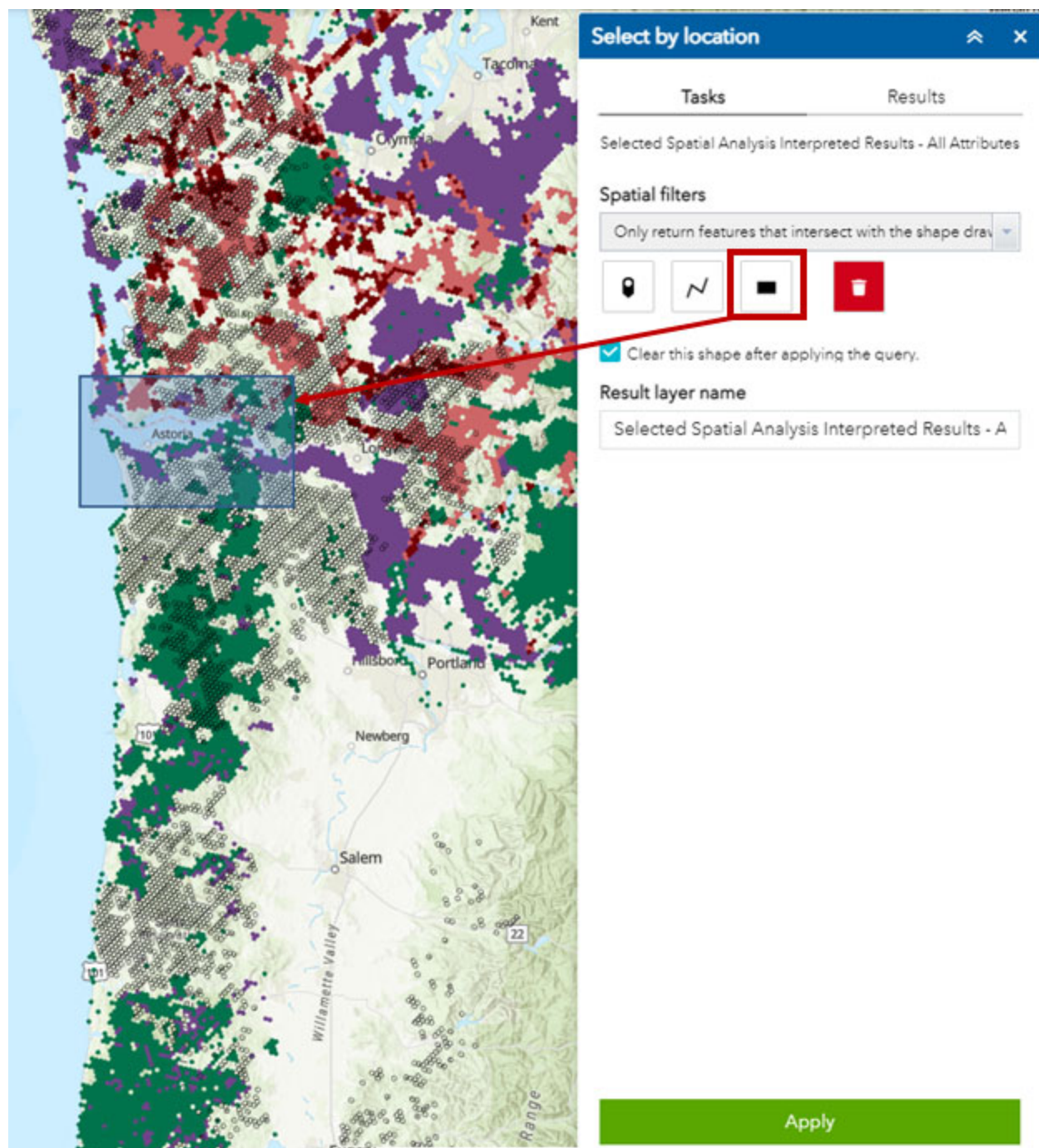




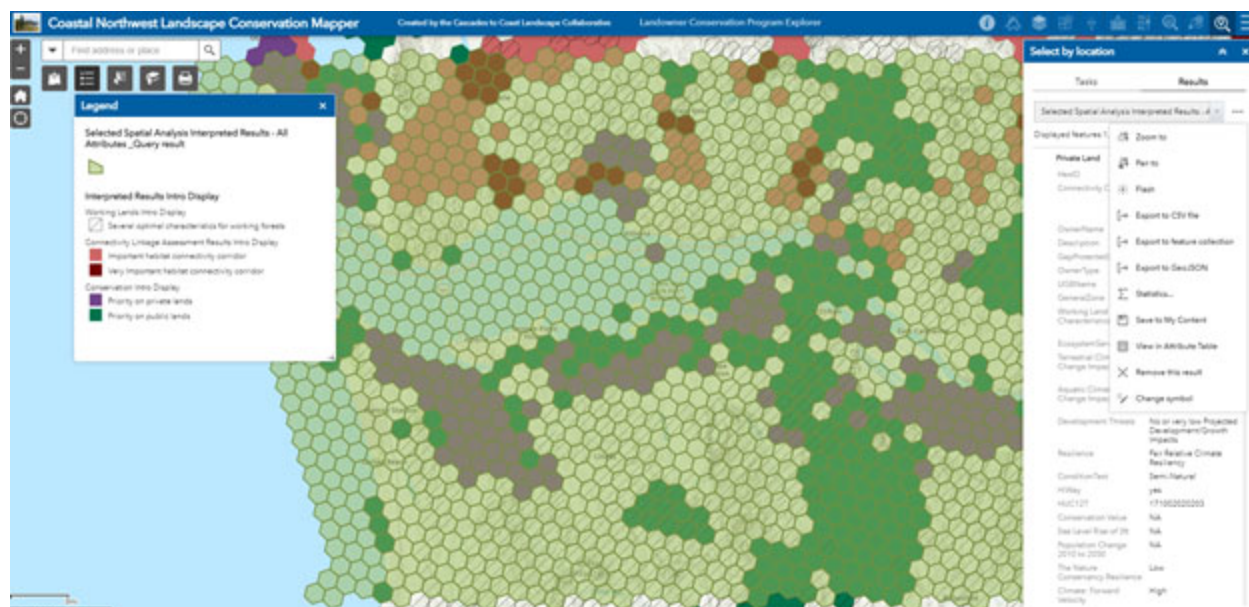


In this example an extent will be drawn on the map by the user. If you want to rename the result layer then you can do that before clicking "Apply."





Once you click apply the tool will run and create a selection of the interpreted results layer with all attributes in the attribute table. This layer will be added to the layer lists.



You then have options by clicking the ellipses on the result tab. Options include exporting as a CSV file, as a feature collection, saving to your AGOL content, changing the symbology, viewing the attribute table and more.

After running the select by location tool the select by location infographics will also be populated. If you run the tool again the infographics will update to the latest select by location tool run.

