Roadkill Observation and Data System (ROaDS)
Data Analysis Manual

Table of Contents

Important Key Terms

Application (App): refers to the Survey123 for ArcGIS software program owned by Environmental Systems Research Institute (ESRI). The App can be designed to fulfill particular data collection purposes of the user.

Survey: a programmed questionnaire (ROaDS) that fulfills this project's purpose, which is primarily to identify where wildlife-vehicle collisions occur on federal lands roadways.

WVC: wildlife-vehicle collision(s)

Purpose and Usage of this Manual

This manual explains how to access, view, and filter wildlife-vehicle collision (WVC) data collected using the ROaDS survey project, using the ArcGIS Map Viewer. It provides:

- Instructions on how to access data using the ArcGIS Map Viewer
- An overview of the functions and features of the Map Viewer
- Tips for understanding the collected data on the map
- Guidance on accessing and filtering the data from the surveys

This manual is primarily intended for agency managers to understand the data collected on the ROaDS survey. Users can view collected WVC data from the ROaDS surveys on a laptop or computer by using the Map Viewer on arcgis.com. The ArcGIS Map Viewer allows users to visualize collected data and download observations that may be further analyzed using other types of analysis software. This manual introduces the features of Map Viewer and explains how to access, review, and retrieve data. For a complete operational manual of Map Viewer, visit the ArcGIS website at:
https://doc.arcgis.com/en/arcgis-online/get-started/view-maps.htm

Overview of ArcGIS Map Viewer

This section introduces the general features of the ArcGIS Map Viewer. Instructions and tips for viewing ROaDS data in the Map Viewer will be presented in subsequent sections. Before you can view ROaDS data on the Map Viewer, confirm you are signed into www.arcgis.com with the same credentials used to collect data on the Survey123 app (see ROaDS User Manual for details).

VIEW DATA MAP ONLINE
1. Go to www.arcgis.com.
2. Click "Sign-In" at the top-right corner of the page and use the same login information provided by your agency.
3. Click on the "Groups" tab at the top of the screen.
4. Click on the "WVC at MSU" group.
5. Click on the "ROaDS Phase 3" icon that will "Open in Map Viewer."
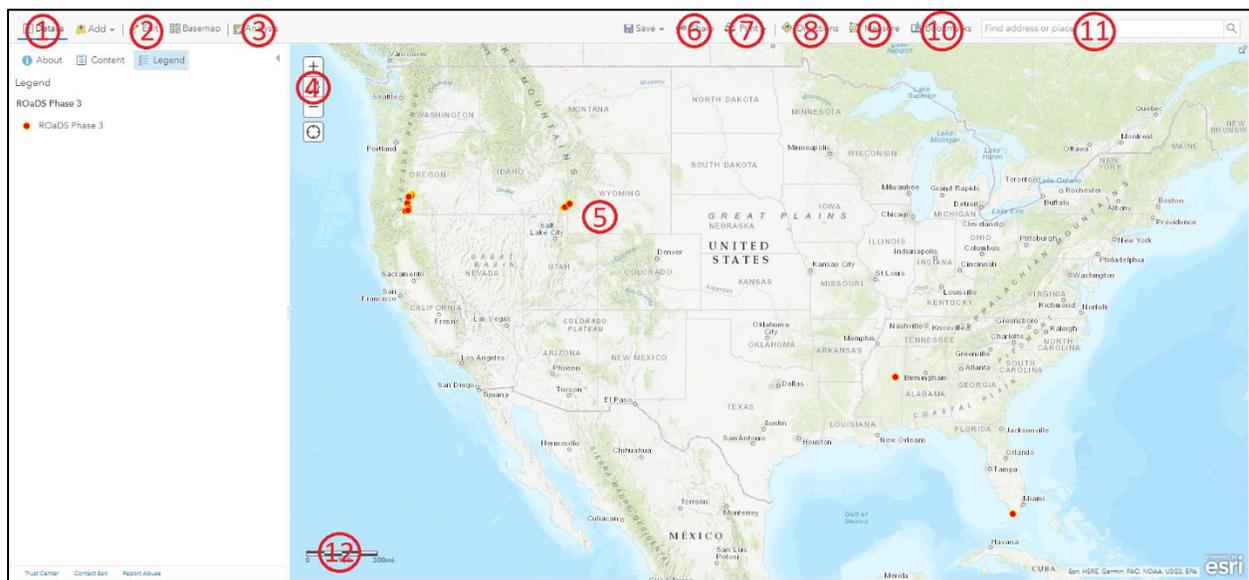
General layout of the ArcGIS Map Viewer interface. Descriptions of the numbers referenced in the image can be found below.

See Map Details (1)

- Details includes options to see information about the map, the map contents, and the legend.
  - About: displays descriptive information about the map, such as summary, the map owner, the last modification date, user ratings, and a link to more detailed information.
  - Content: displays a list of the layers in the map. Different layers can be added by the group owner to establish map preferences. Click the name of the group layer to see individual layers in the group. Click the box to the right of the name to turn a layer on and off. Click the arrow to the right of the layer name and click "Show Item Details" or "Description" to open a page with detailed information about the layer.

o Legend: displays the legend for layers in the map. You will not see a legend for basemaps, layers that are not accessible externally, or layers in which the map author has hidden the legend.

Edit Features (2)

- If you can see an "Edit" button, you are viewing a map with an editable feature layer and you have privileges to edit it. Use the edit button to add, change, or remove features on the map.

Perform Analysis (3)

- Use analysis tools to find patterns, understand relationships, and interpret the data in your map. The "Analysis" button appears when you are signed in with an organizational account that has privileges to perform analyses.

Navigate (4)

- Use the Zoom buttons, the mouse wheel, or the arrows on the keyboard to change the zoom of the map.

- To zoom the map to its initial extent, click the "Default Extent" button . You can also browse the map to a predefined extent through a "Bookmark."

- To pan, use your mouse and wheel button or the arrow keys on your keyboard.

- To find your current location, click the "Find My Location" button . You may need to authorize the site to access your location information. Your results may vary based on your connection type, internet service provider, physical location, network, and browser.

- To open an overview map, click the "Overview Map" button in the upper right corner.

- If you're using a Mac with OS X 10.6 or later, you can use multitouch gestures by dragging two fingers to pan and zoom the map. The default behavior is to pan. To zoom in or out, press and hold the "Shift" key. Dragging two fingers toward you zooms in; dragging two fingers away zooms out.

View Pop-ups (5)

- Click on data points on the map to display the attributes associated with each feature layer in the map, such as type of animal, date collected, and who collected the observation. They can contain images and charts can be linked to external web pages.

Share (6)

- If you can see a "Share" button, you have privileges to share the map. Your sharing options depend on your privileges and can include posting maps on social media sites, sending an email with a link, embedding maps on a website, and creating apps with the maps.

Print (7)

- Use the "Print" drop-down menu to display a printer-friendly web page of your map. You have the option of printing only the map or the map and its legend. Once the print page has finished loading, you can use your browser's print option to print a complete and well-formatted map. Layers that are not accessible externally, KML ground overlays, and network links without refresh properties do not appear on a printed map.

o If your organization has configured custom print layouts, you will see them listed in the Print drop-down menu. Choose the layout you want to use for printing.

Get Directions (8)

- Use "Directions" to get a set of turn-by-turn driving and walking directions. The button appears when you are signed in with an organizational account that includes privileges to use network analysis.

Measure (9)

- Use "Measure" to measure the area of a polygon or the length of a line or to view the coordinates of a point.

Access Bookmarks (10)

- Use "Bookmarks" to access a set of predefined locations on the map. If you are a map author, you can create bookmarks.

Search (11)

- Enter keywords into the search box at the top of Map Viewer to find locations on the map, such as addresses, places, and points of interest.

Understand Map Scale (12)

- The scale bar shows the scale of the map, which is set by the basemap. If you zoom beyond the visibility of the basemap, the map may not draw correctly. Your administrator sets the default units for the scale bar (and measure tool, directions, and analysis). United States standard sets the units to miles, feet, and inches; metric sets the units to kilometers, meters, and centimeters. You can change the units you see by editing your profile.

Tips for Understanding Data Points

CHANGE THE BASE MAP
The base map can be changed using the command above the legend.

FILTER DATA FIELDS AND VISUAL CHANGES
Users can select the Content menu on the left-hand side of the map to filter collected and reviewed data, change the style of map, and view cluster points. These tools allow users to visually interpret different aspects of the data collected: species, date, dead/alive, etc.

This is a visual interpretation and does not consist of any statistical measurements that can be used to analyze the factors associated with animal collisions. Further analyzes are required to identify contributory factors and specific cluster locations along roadways.

STATISTICAL ANALYSES
This feature allows users to do more detailed analyses of the complete set of data, or data viewable in the map extent. Analyses include summarize, enrichment, hotspots, and more.

Users who wish to interpret WVC data should fully understand the assumptions and analyses used and only interpret results based on their level of statistical expertise.
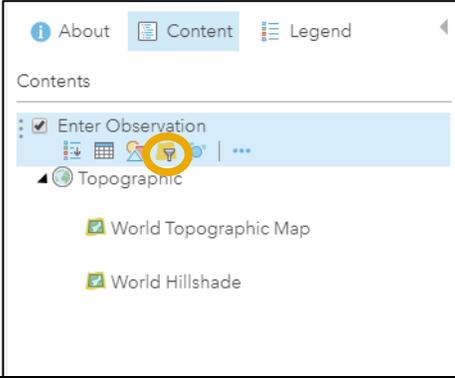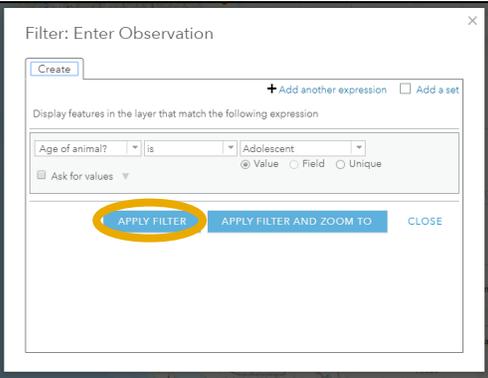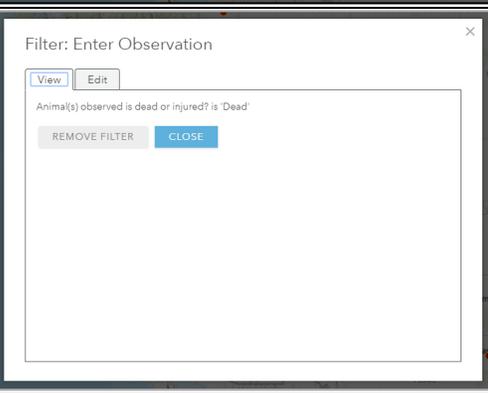
EXPORTING DATA
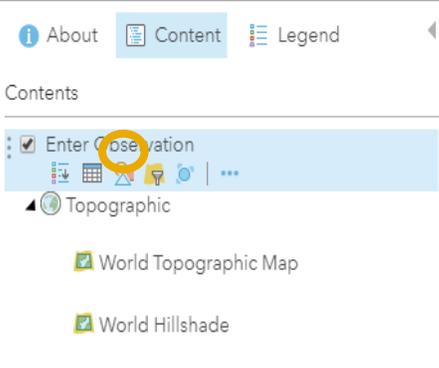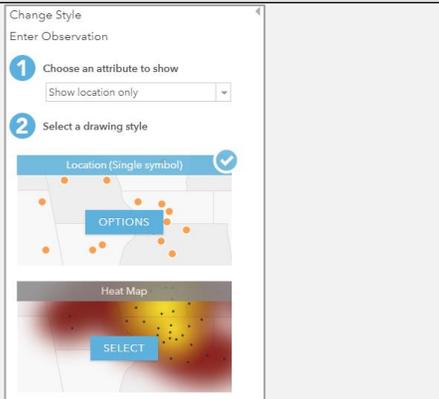Click on "Analysis," then "Manage Data," and then "Extract Data."
- Select "ROaDS Phase 3_stakeholder" layer (1) and "Same as Display" or "Draw" (2). Select format of the data (3) and choose a file name (4). Data will save to the "Contents" folder on the home page and can be downloaded to a computer from there.
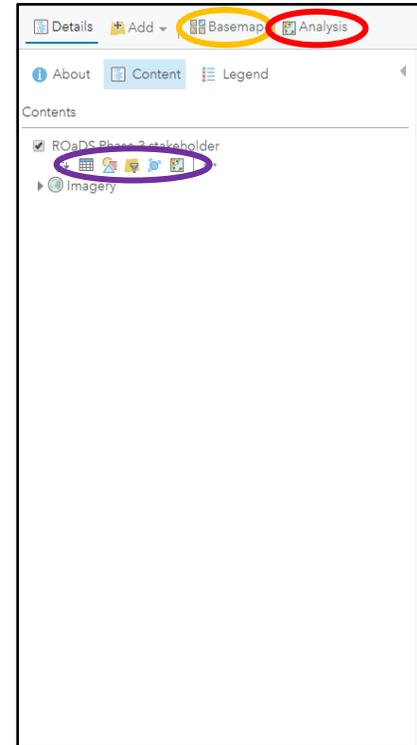
Filter and Analyze Data

After exporting ROaDS data (see previous section), users can select the Content menu on the left-hand side of the map to filter collected and reviewed data, change the style of map, and view cluster points.

<table>
<tr>
<td colspan="3">

FILTER BY DATA FIELD
</td>
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<tr>
<td>Select the filter button under "Enter Observation."</td>
<td colspan="2">

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<td>

Filter options will appear. Data can be filtered using any of the data fields in the survey such as:
- Username
- Location
- Type of Animal
- Species

Select the options you wish to display and select "Apply Filter."
</td>
<td colspan="2">

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<tr>
<td>To remove or change filter, select the filter button again and select to remove filter or edit filter.</td>
<td colspan="2">

</td>
</tr>
</table>

CHANGE STYLE OF MAP

Select the change style button under "Enter Observation."	
You can choose a data field (attribute) to show- or you can select a style of map to show such as a heat map. Select "Done" when finished selecting desired style.	
For more advanced style changes, go to the "Change Style" button again and select options under each of the location or heat map options. Users can adjust the area of influence, visible range, and transparency of data indicators as desired. Select "OK" when complete.	
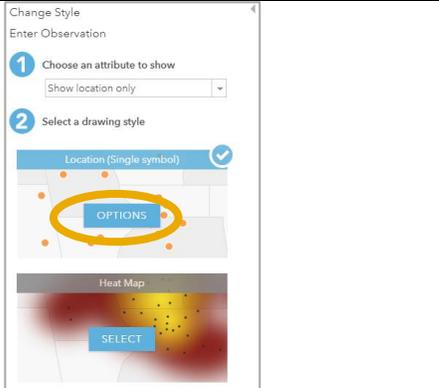
VIEW CLUSTER POINTS

Select the cluster points button under "Enter Observation."	
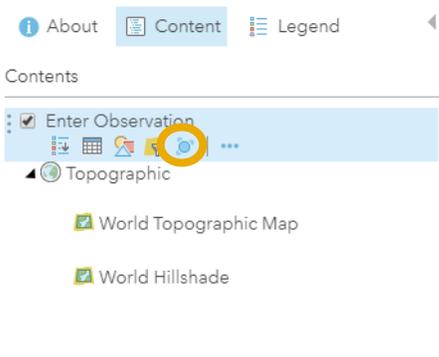
Data on the map will automatically change to a cluster points view. Users can adjust the cluster point map as needed in the left-hand menu.	

CHANGE BASEMAP STYLE

Select "Basemap" in top menu. Select the desired map style. The map style will adjust accordingly.	
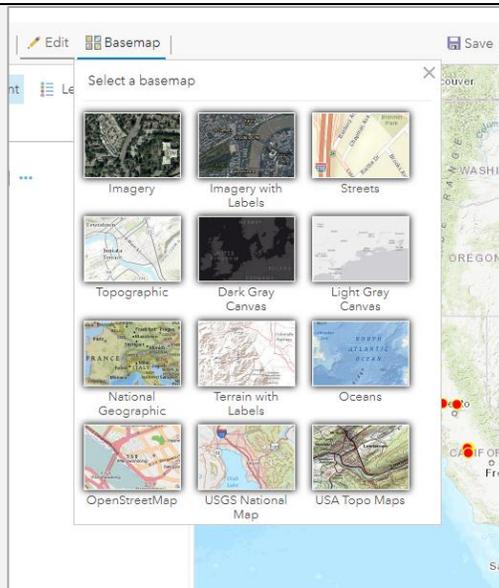
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