

# EXERCISE 1

## Crosswalk to ArcGIS Pro



### Introduction

The goal of this lesson is to cover basic operations, such as adding data and navigating, as well as workflows, such as making map layouts, exploring tables, analysis and importing data.

### Objectives

- Introduce ArcGIS Pro user interface
- Learn to navigate maps and scenes
- Import data from multiple resources
- Create a project template

### Required Data

- Course data downloaded and unzipped.



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# Part 1: Introduction to ArcGIS Pro User Interface

ArcGIS Pro is a ribbon-based application. Many commands are available from the ribbon at the top of the ArcGIS Pro window; more advanced or specialized functionality is found in panes (dockable windows) that can be opened as needed.

ArcGIS Pro allows you to store multiple data views—maps, layouts, tables, and charts—in a single project and keep them open at the same time. As you work, tabs on the ribbon change depending on the view and data you are working with.

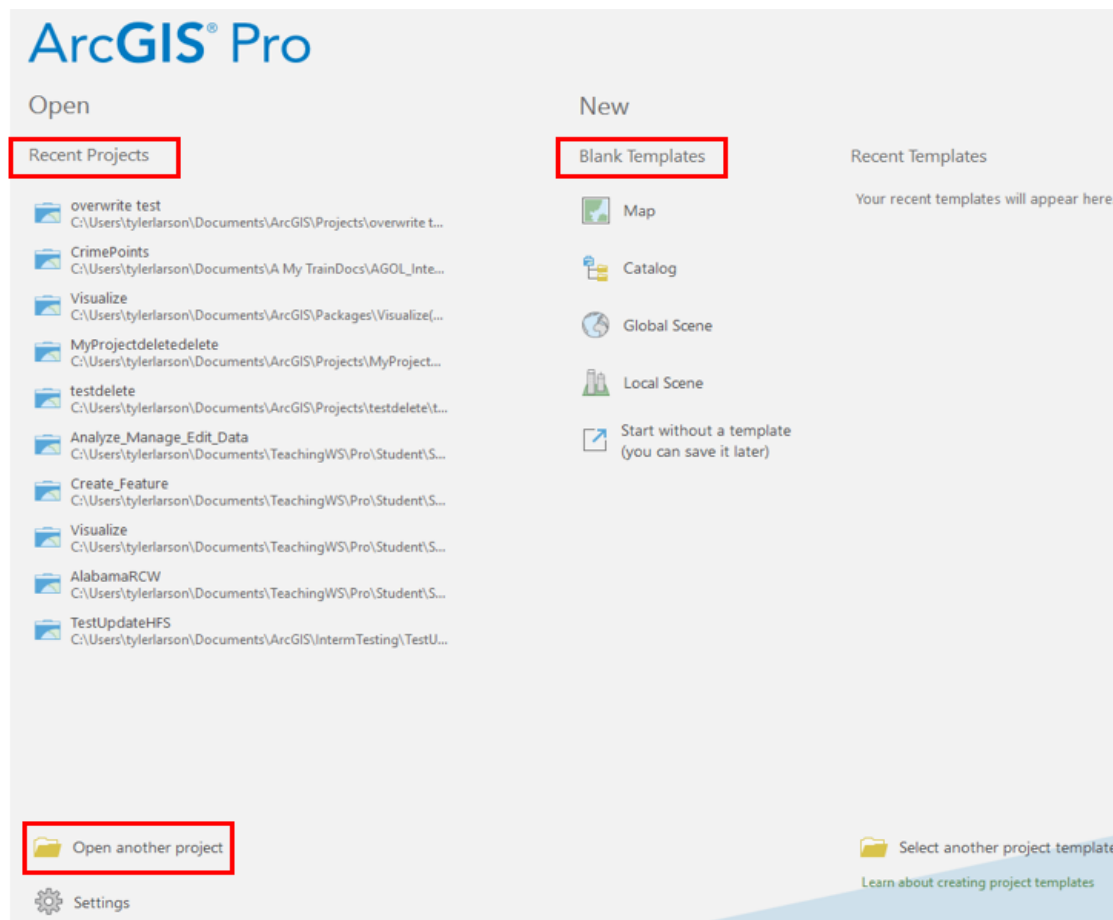
In Part1, you'll explore the main components of the ArcGIS Pro user interface—the ribbon, views, and panes—and their interactions.

## A. ArcGIS Terminology

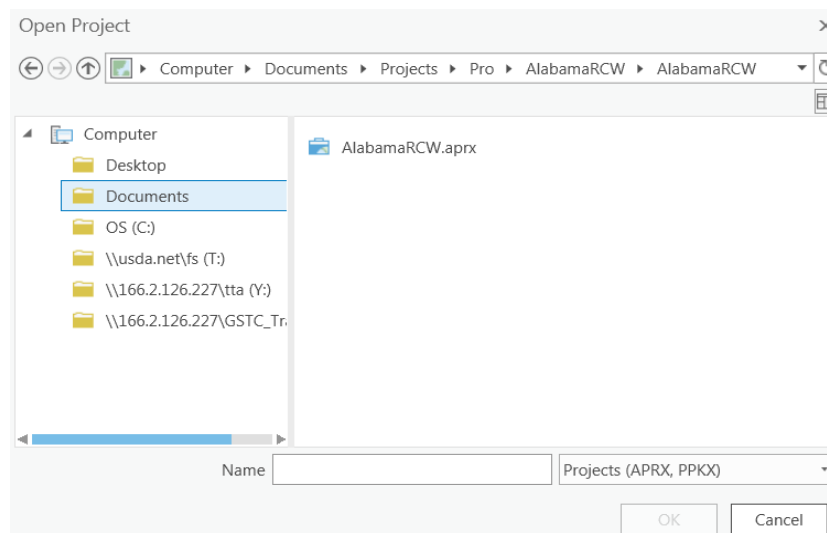
1. [Project](#)  : A collection of related geographic datasets, maps, layouts, tools, settings, and resources saved in an .aprx file. Projects can reference and include items from your organization's portal or your saved network files.
2. [Portal](#)  : A connection to ArcGIS Online or Portal for ArcGIS. You can connect your project to a portal to access content from your organization, ArcGIS Online, or the Living Atlas.
3. [Map](#)  : A project item used to display and work with geographic data in two dimensions.
4. [Scene](#)  : A project item used to display and work with geographic data in 3D. Scenes can be viewed in global view (suitable for maps with large geographic areas) or local view (suitable for maps with small geographic areas).
5. [Basemap](#)  : The project item that is often displayed under other content to provide a geographic context to the map's operational layers.
6. [View](#)  : The window representing the primary work area of the application. You can have multiple views open at the same time and display them side by side.
7. [Layer](#)  : A representation of spatial data in a map or scene.
8. [Preset layers](#)  : A prebuilt layer embedded in ArcGIS Pro that only requires a data source.
9. [Task](#)  : A set of preconfigured steps that guide you through a workflow. Task items are also project items.
10. [Layout](#)  : An arrangement of one or more maps and supporting elements such as a title, legend, and text. A layout is typically shared as a printed map, poster, or PDF.
11. [Geoprocessing](#)  : A framework and set of tools for processing geographic and related data. Geoprocessing tools can be used to perform spatial analysis and manage GIS data efficiently.

## B. Open the project

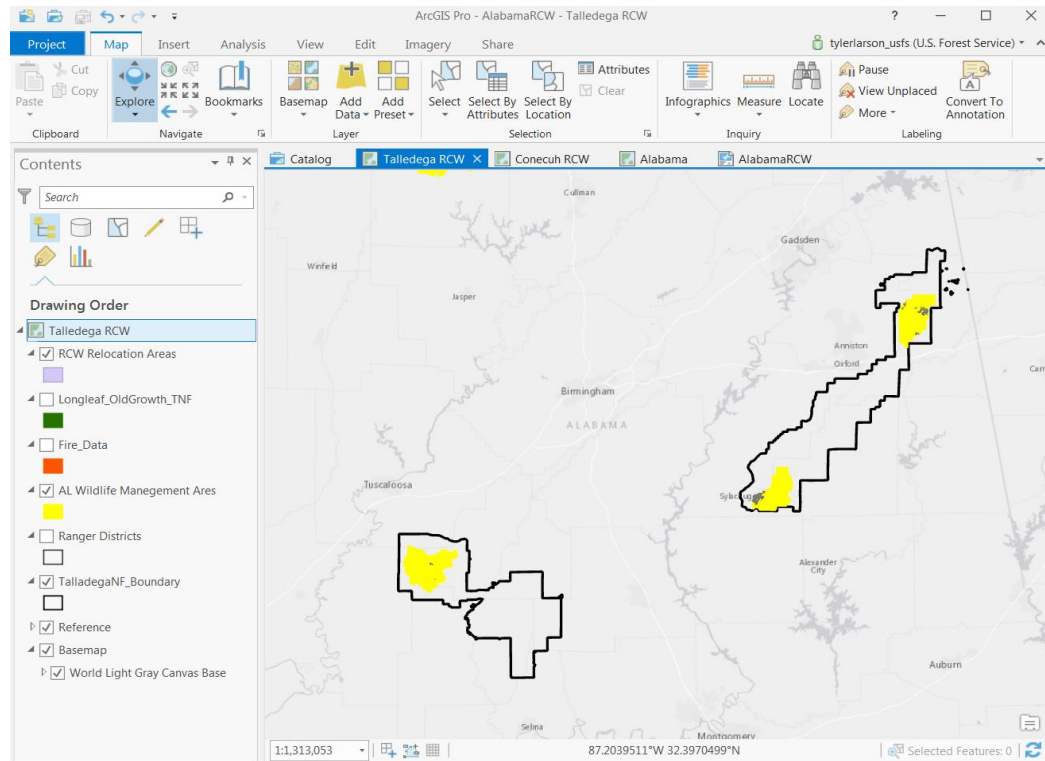
1. Start ArcGIS Pro. If necessary, type your username and password (same as AGOL sign in) in the **ArcGIS Sign In** screen and click **Sign in**. A list of recent projects and templates for creating new projects is displayed.



2. Click **Open another project** to launch the Open Project window.
3. In the **Open Project** window, browse to where you stored your data **...ArcGIS\_Pro\2.3\Student\Exercises\Exercise1\AlabamaRCW\AlabamaRCW** and click **OK**.

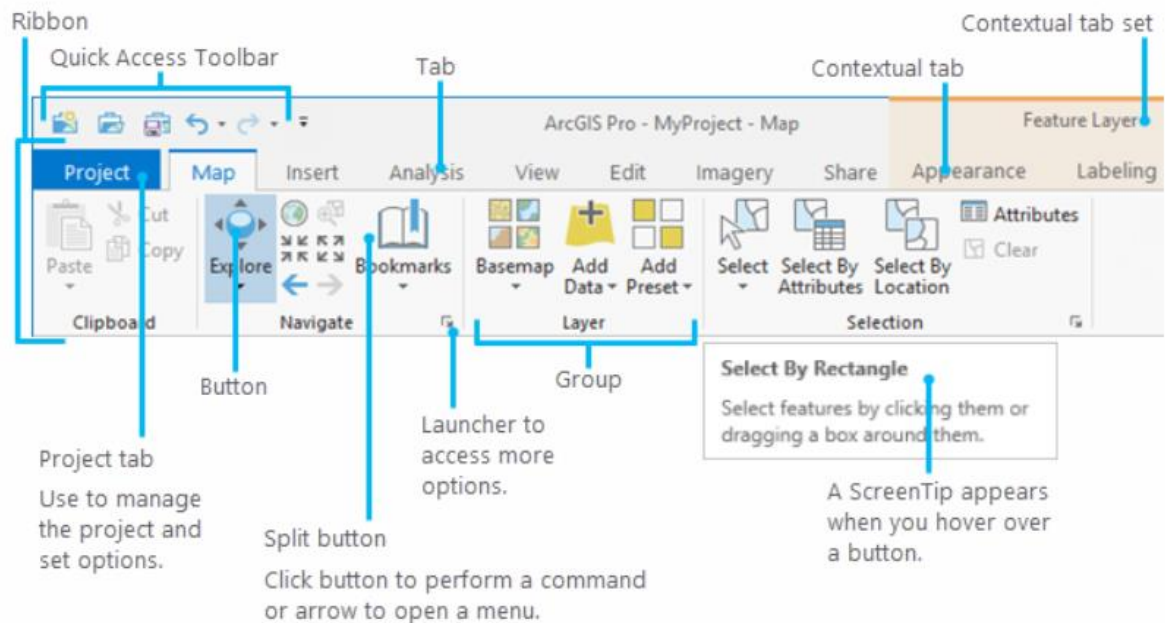


*When the project opens, you see a map of Talladega National Forest. The window containing the map is called a map view. The highlighted tab at the top of the map view tells you which map view is active. The name of the view is **Talladega RCW**.*



## C. The ribbon and tools

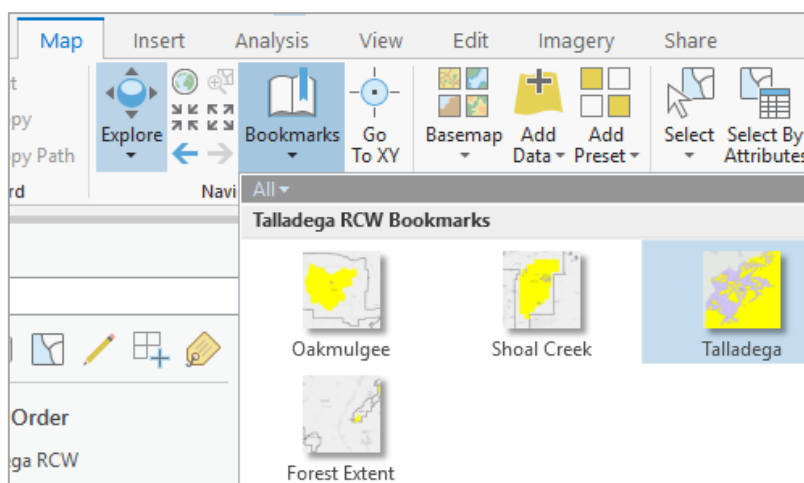
Above the map view is the ribbon. The ribbon has a set of core tabs—Map, Insert, Analysis, View, Edit, Imagery, and Share—that are always present when a map view is active. Each tab has its own set of tools, organized in groups. The Map tab, selected by default, has tools for interacting with the map. On the Map tab, the Explore tool is selected in the Navigate group.



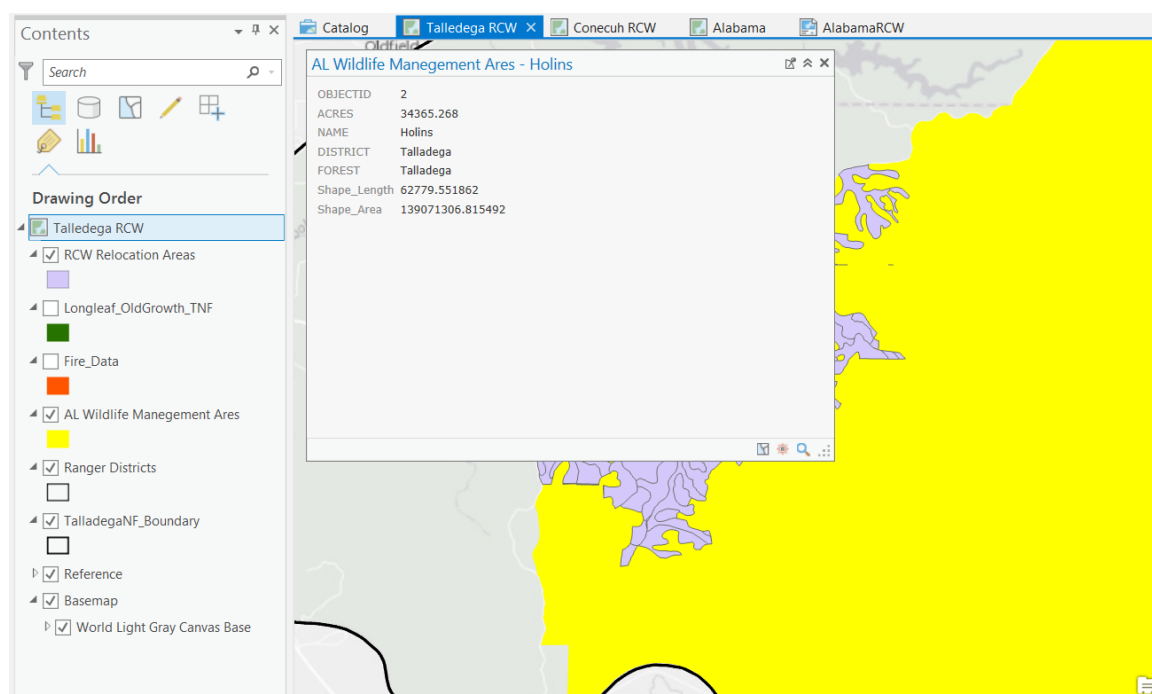
1. With the Explore tool selected on the ribbon, drag the map to a different location.

*Tip: you can roam around the map by holding the Q key on the keyboard and moving the mouse pointer in the direction you want to go.*

2. On the ribbon, from the **Map** tab, in the **Navigate** group, click **Bookmarks** . Each bookmark has a thumbnail image to give you an idea of what the bookmark extent is. Explore the bookmarks you like then **click on the Talladega bookmark**.

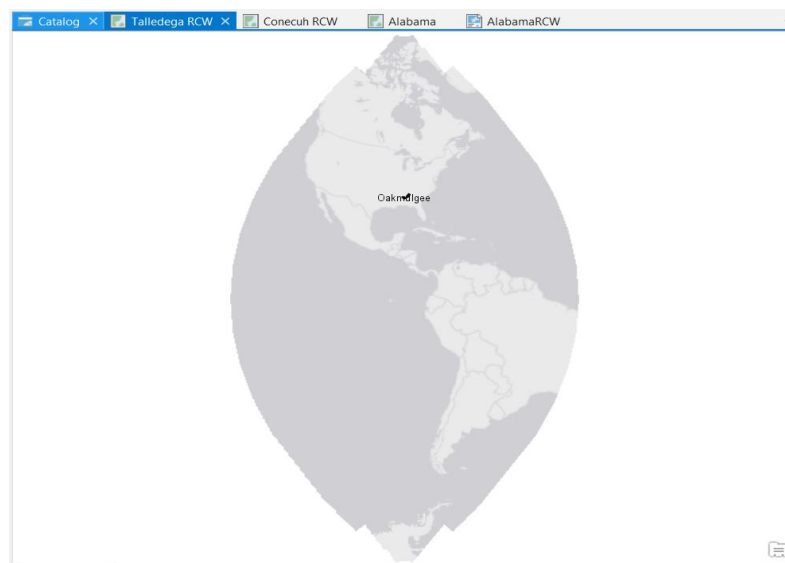
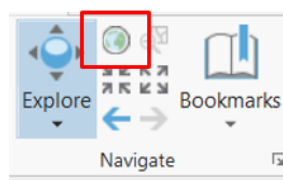


3. **Click on any of the polygons within the extent to display from either the AL Wildlife Management Areas or RCW Relocation Areas.** A pop-up appears displaying information about the polygon you have selected.



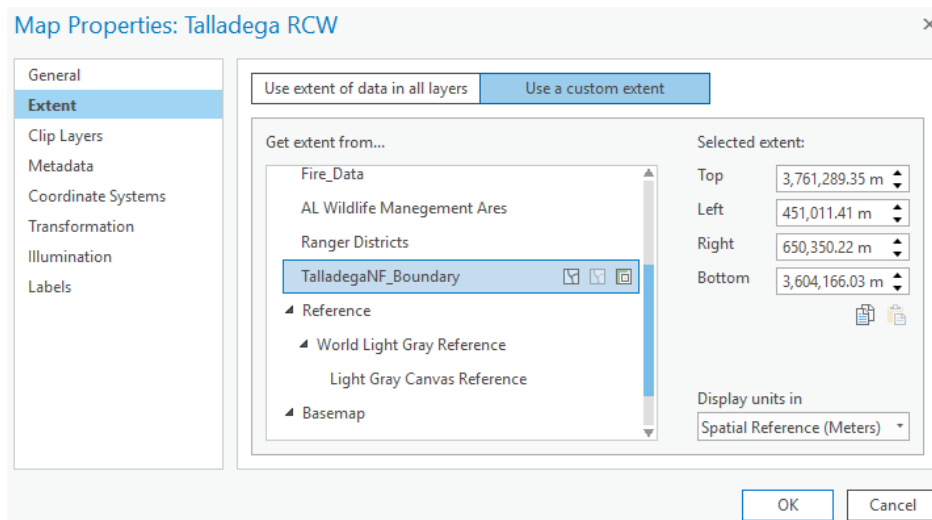
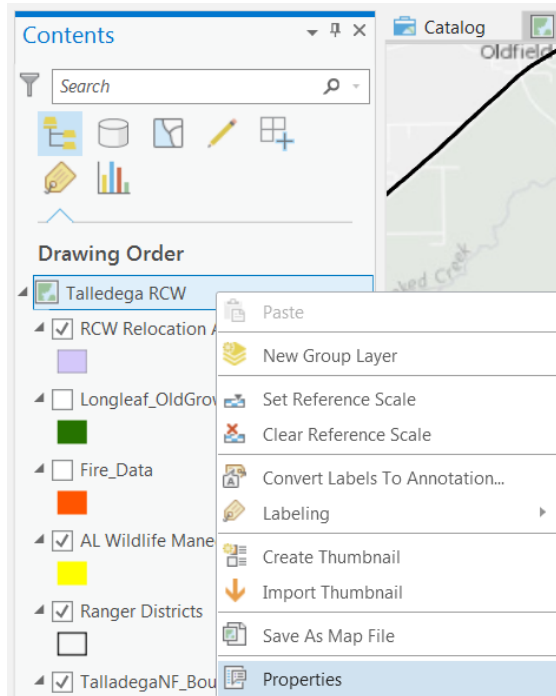
4. **Close** the pop-up.

5. **Click on the full extent button.** The map by default will go to the full extent of all layers.



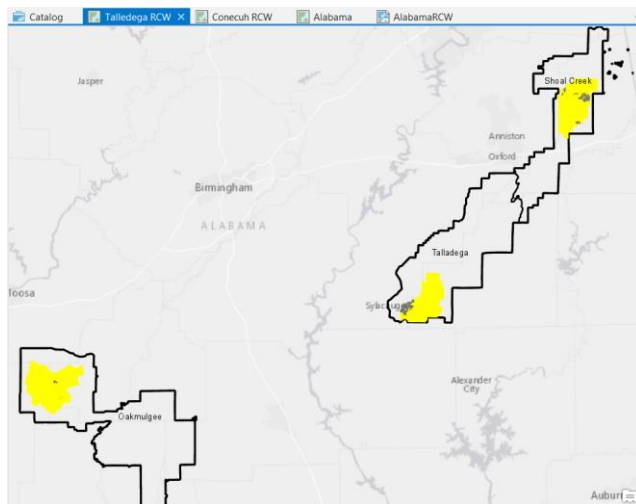
- To set the full extent button, from the contents pane, **Right click** on the map name (formerly called data frame) titled **Talladega RCW** and **select properties**. Click on the **Extent** tab. Click **Custom extent** and select **TalladegaNF\_Boundary** and click OK.

*Note: If your contents pane is not displayed click on the **View** tab and select **Contents**.*



- Click the **full extent** button again and it will take you to the Talladega National Forest Boundary extent.



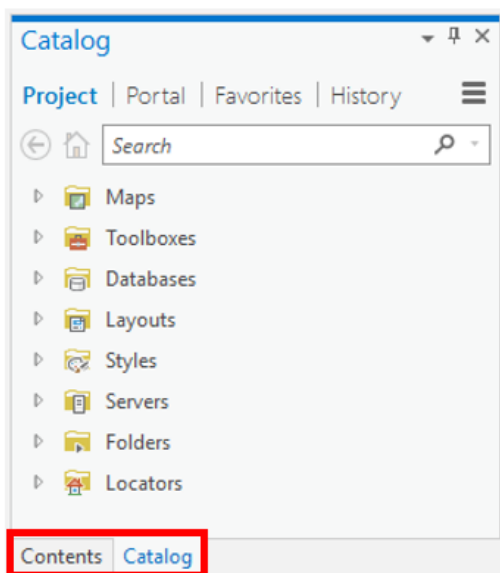


## D. Explore panes

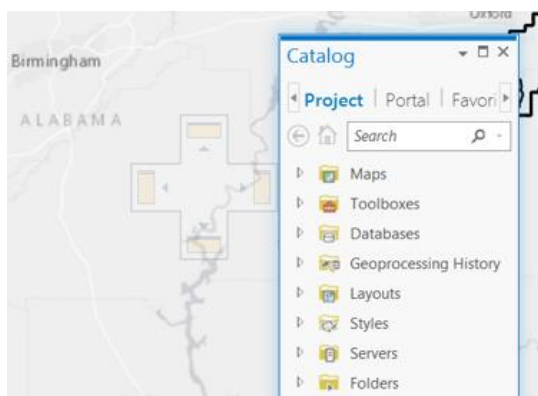
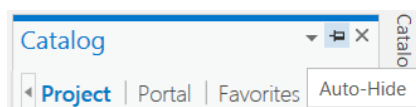
Panes are windows that help you manage views and projects, or that give you access to specific functionality. The Contents pane lists items in the active view, such as map layers. The Catalog pane lists items saved or associated with the project, such as databases, toolboxes, and folder connections. The Catalog pane also provides access to portal items, such as web layers. These can be floating, docked or pinned just like in ArcMap. Pane states are independent of the project. If you closed a pane in your last ArcGIS Pro session, it will still be closed when you start a new session, no matter which project you open. If you arranged your panes in a certain way in a previously saved session, they will still be arranged that way now. To learn more about ribbons, views, and panes, see [About ArcGIS Pro](#).

1. **Close** any open panes (not views) i.e. Catalog, Contents or Geoprocessing.
2. On the **ribbon**, click the **View** tab. In the **Windows** group, click **Contents** and click the **Catalog Pane**.

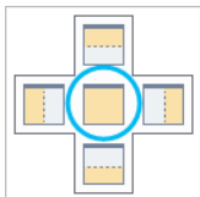
*The Contents and Catalog panes open. The two panes appear in the positions they occupied before you closed them. They may be docked on opposite sides of the ArcGIS Pro window, or one may be stacked on top of the other. If the panes are stacked, they will have tabs at the bottom that allow you to switch from one to the other.*



3. **Drag** a pane by its **title bar** over the map view. As you drag the pane—represented by a blue shadow—**docking targets** appear in the center of the map view and along its edges. Each target represents an area of the screen where the pane can be positioned.
4. Drop the pane on a target (if your pane is pinned, it must be unpinned to be able to move it).

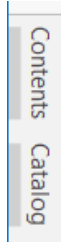


5. Arrange the two panes however you like. If you want to stack them, drag one pane over the other and drop it on the center docking target that appears.

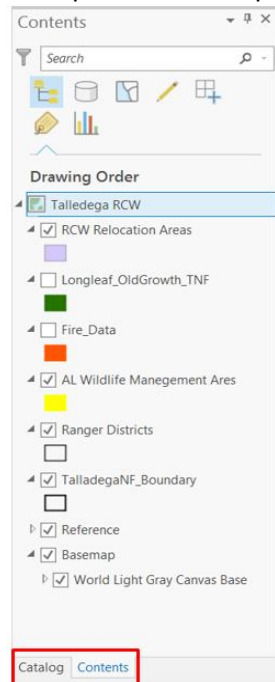


*By default, panes stay open as you work. You can auto-hide a pane when you are not using it.*

6. In the upper right corner of the pane, click the **Auto-Hide or Pin** button. You will see a tab on the edge of the map view. If you have stacked panes you will see them stacked.



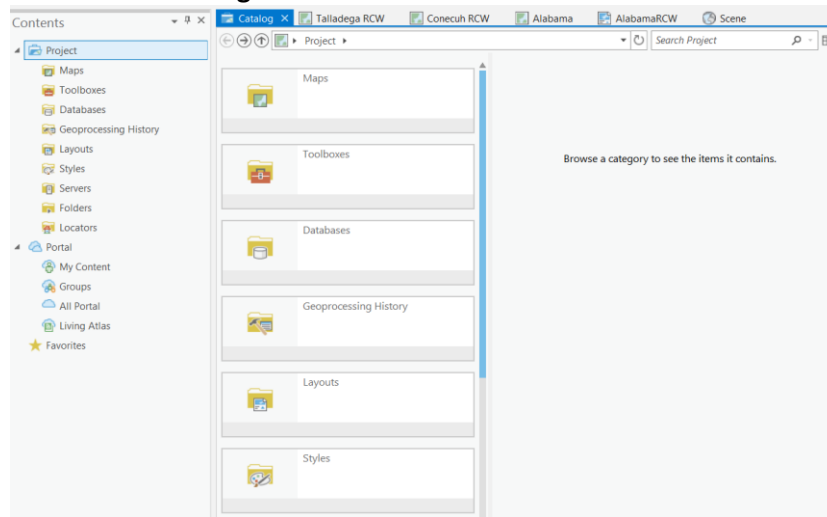
7. To separate stacked panes, grab a pane by its title tab at the bottom of the pane and drag it.



## E. Explore Views

An ArcGIS Pro project can contain multiple maps, scenes (3D maps), and map layouts, as well as other views, such as tables and charts. Several maps can be open at the same time. Maps can also be linked so they pan and zoom together. Views can be opened and closed similar to panes.

### 1. Click on the **Catalog** view.

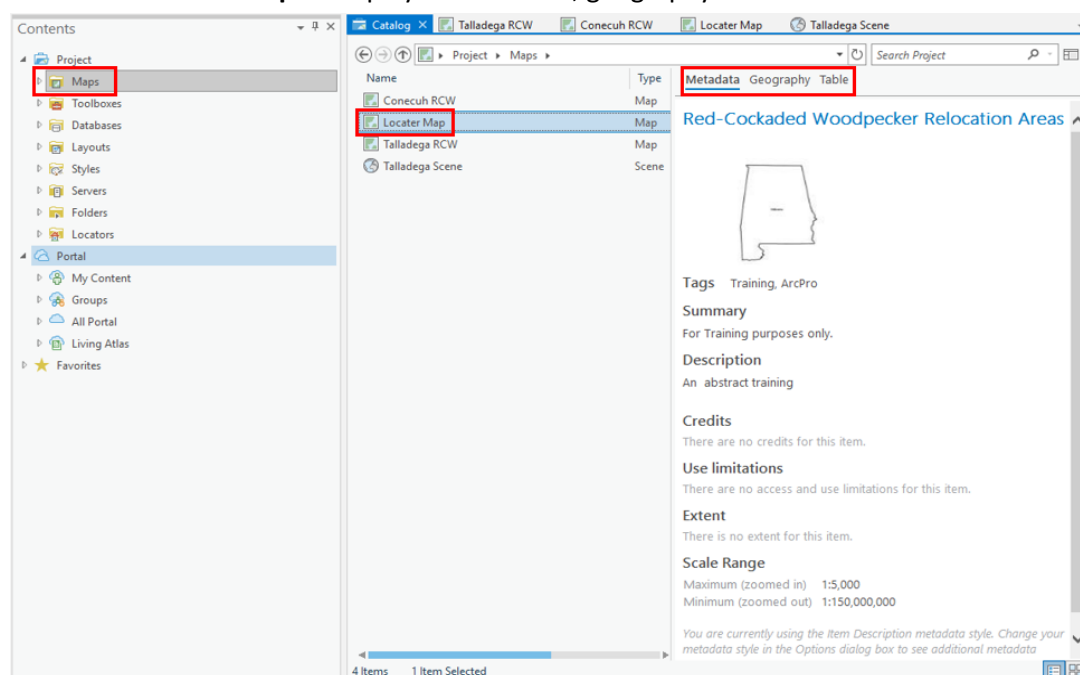


*The Catalog Pane and the Catalog View are geared towards different tasks. In general, use the Catalog Pane to browse data and do some simple data management while working with a map or a scene. The Catalog View provides a more rich experience for exploring and managing items without having to add them to a map or scene.*

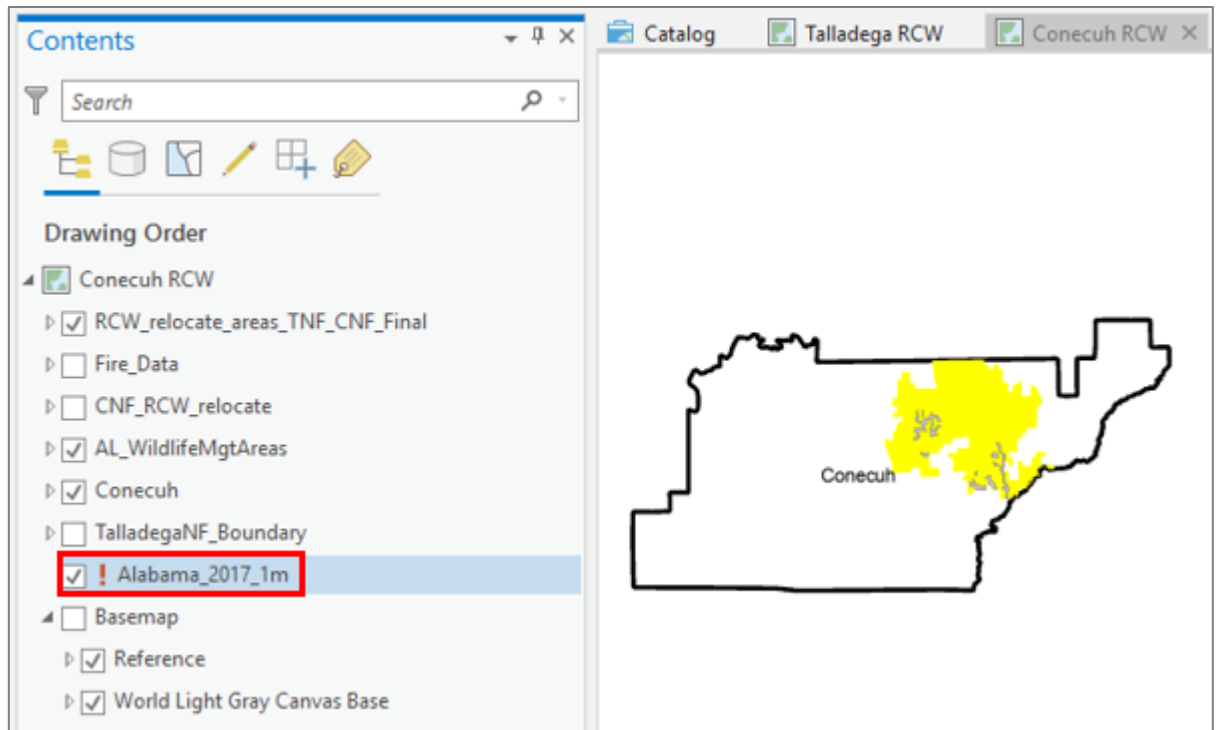
### 2. Click on **maps** from the **Content** pane (notice the Content pane updates depending on the view you have selected).

*The 4 maps from our project are displayed. You can edit your metadata from here by clicking edit from the Home tab among other things.*

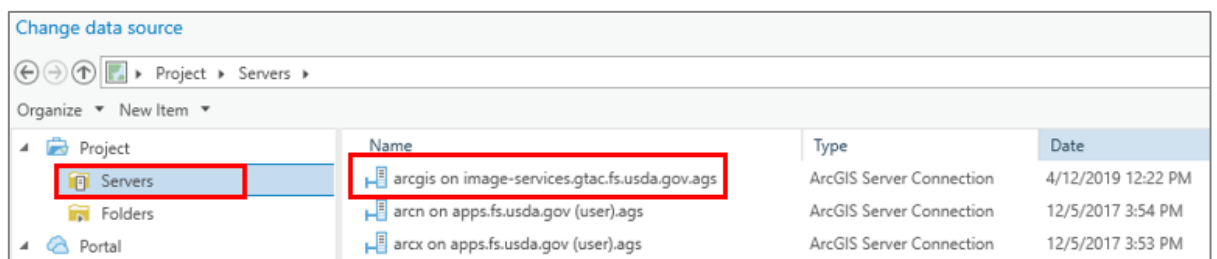
### 3. Click on **Locator Map** to display its metadata, geography or table details.



4. Click on the **Conecuh RCW map view tab**.
5. Notice there is a broken link for **Alabama\_2017\_1m**. The imagery is not displaying so the layers source needs to be fixed. Click the **red exclamation point** next to the layer to open the change data source window.



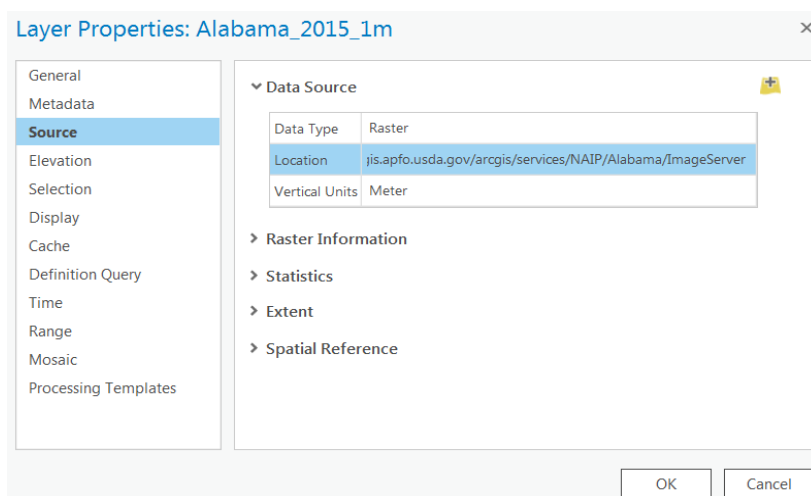
6. Click on the **Servers** folder and **double click** the **arcgis on gis.apfo.usda.gov (user).ags**.



7. Open the **NAIP** folder and select **NAIP2017\_CONUS** and click **OK**.

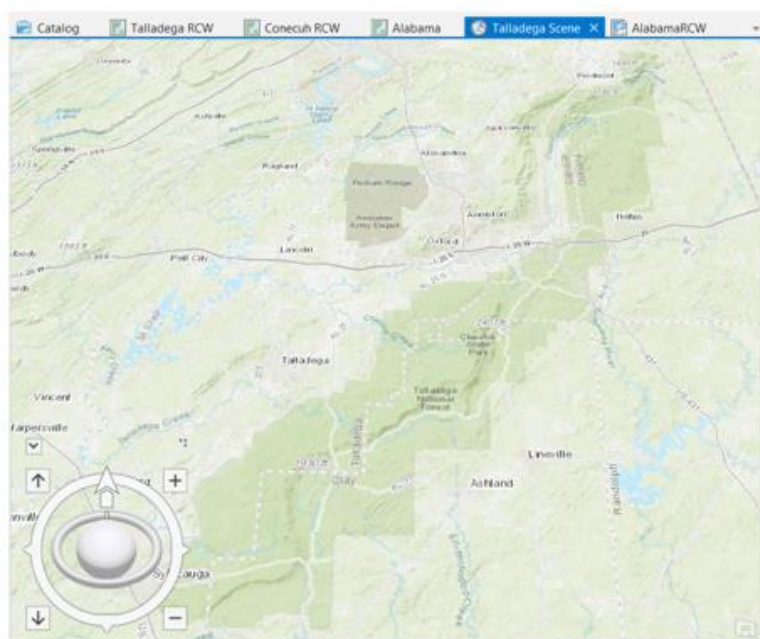


8. Click on the **arrow** next to layer **Alabama\_2017\_1m**. It exposes the bands in the raster layer.
9. **Right click** **Alabama\_2015\_1m** and select **Properties** from the Context Menu.
10. **Highlight** the **Source** tab to view the source of the raster layer from the **Image Server**.

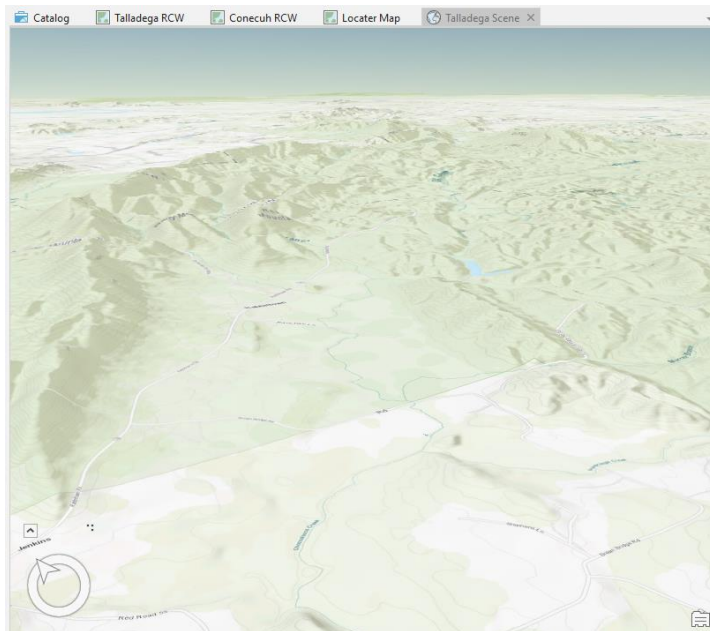


11. Click **Cancel** and Click on the **Talladega Scene** map view.

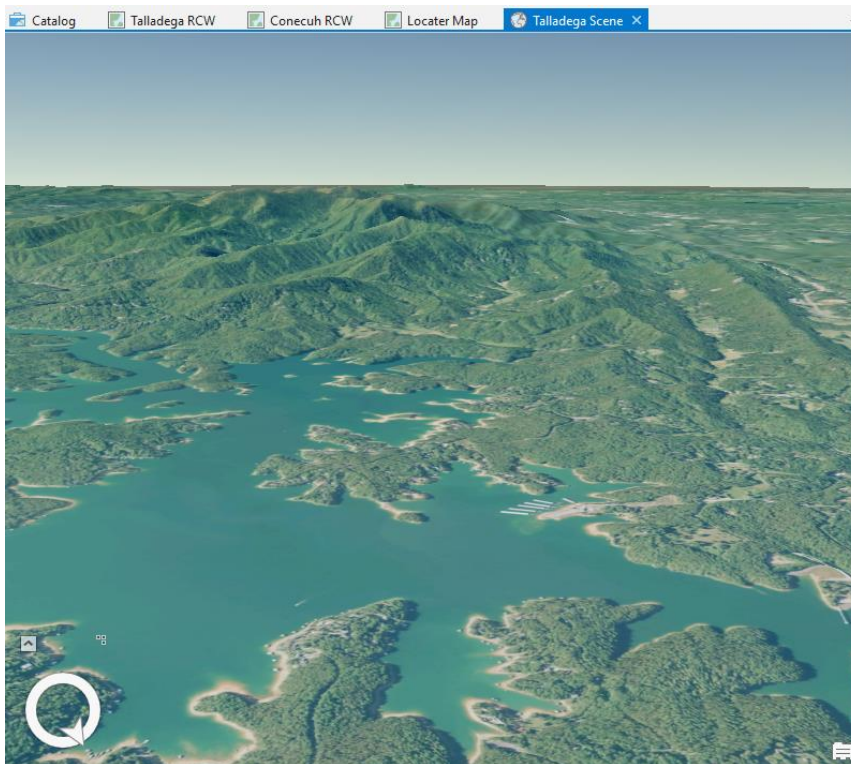
*Note: a scene is used to display three-dimensional data.*



12. Open the **bookmark drop down** in the **Map Ribbon** and select **Digger Mountain**. The scene navigates to a 3D view of Digger Mountain.



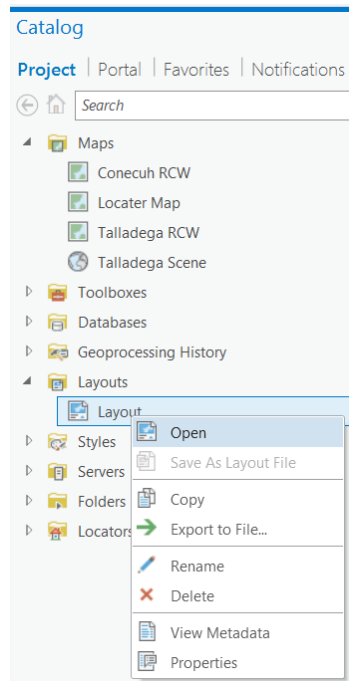
13. Open the **bookmark dropdown** and click **Blue Ridge Lake** and turn on the **USA NAIP Imagery: Natural Color** layer (if the source link is broken, repeat the steps above for fixing the broken image server link).



14. From the Catalog pane, click on the **arrow** next to the **Layouts** folder to expand it. **Right click** the layout titled **Layout** and a context menu opens up. **Select Open**.

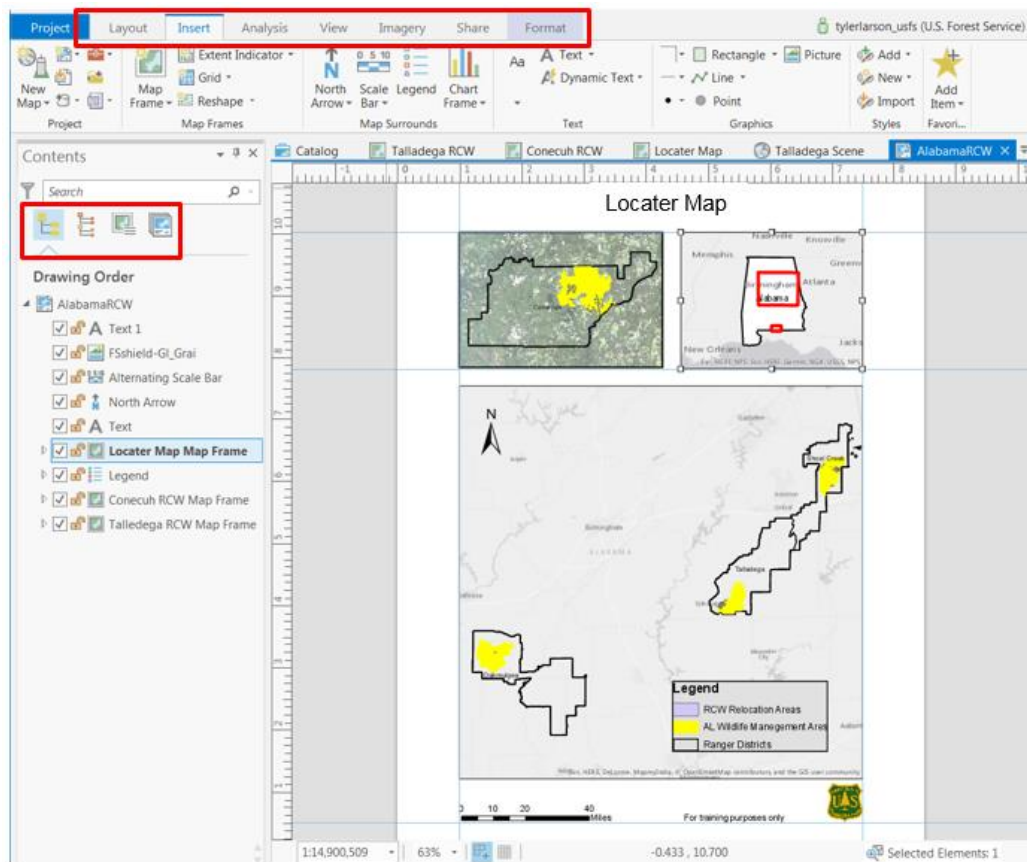


*You can open map views from the Catalog pane in the same way as layout views. Some other types of views such as charts, are managed from the Contents pane.*

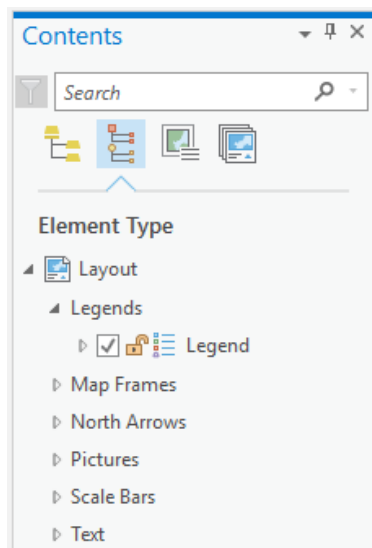


*The Layout view opens. The ribbon changes to show tabs and tools for working with layouts. The Map tab has been replaced by a Layout tab. The Edit tab is gone. The Contents pane lists the elements in the layout—its legend, map frames, text, and so on. They are listed in their top-to-bottom drawing order. You can use the icons at the top of the Contents pane to organize these layout elements in different ways.*



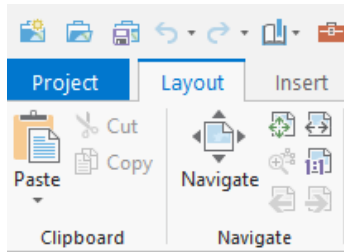


15. In the **Contents** pane, click the **List by Element Type** tab. The layout elements are now grouped by type instead of drawing order, making it easier to find the element you want to work with.

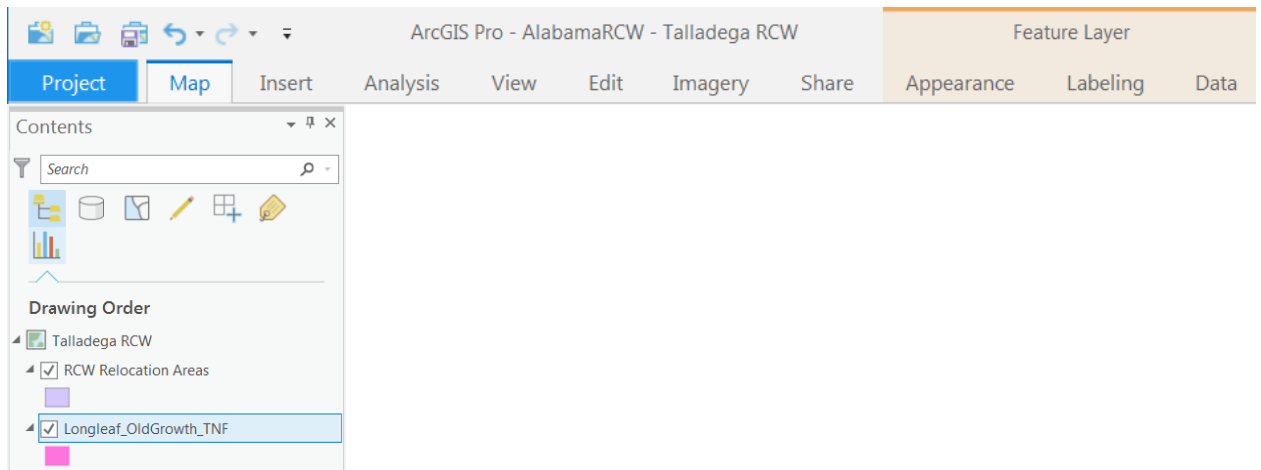


## F. Contextual tabs

You likely noticed that tabs on the ribbon change depending on your active view and selected items. Within a pane or view, different contextual tabs become available depending on item are working with. For example, you are currently viewing a Layout, notice the tab that was once called map has changed to Layout.

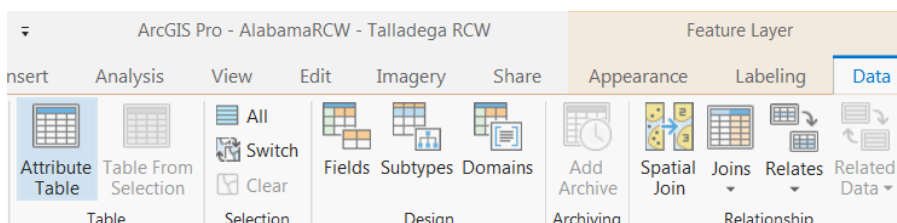


1. Click on the **Talladega RCW** view to make it active, **check the box** next to **Longleaf\_OldGrowth\_TNF** layer and **highlight the layer** by clicking on it.



2. On the ribbon, under the **Feature Layer Contextual Tab Set**, click the **Data** tab. The Data tab has tools for working with the attributes of the selected feature layer. From the **Data** tab, in the **Table** group, click **Attribute Table**.

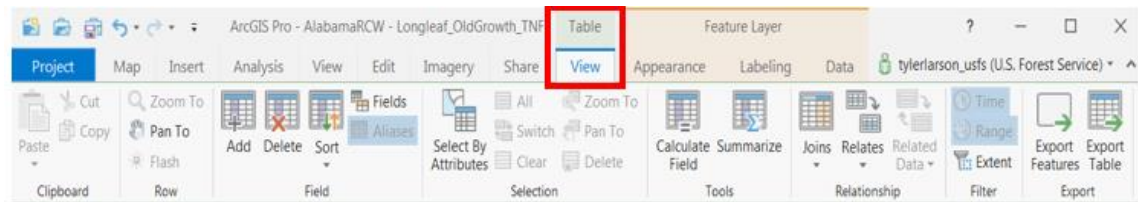
*Note: you can also open the attribute table by right clicking a layer in the Contents pane to open the context menu and selecting attribute table.*



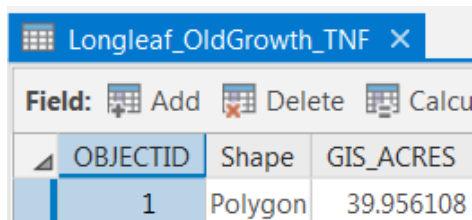
*A table view opens with the **Longleaf\_OldGrowth\_TNF** attributes displayed. On the ribbon, a **Feature Layer** contextual tag is still present. Additionally, the **Table** contextual tab appears and has a **View** tab with tools for working with tables.*

3. On the ribbon under the **table** tab click **View**.

*The tab has tools for adding and deleting fields, changing field properties, calculating table values, and more.*

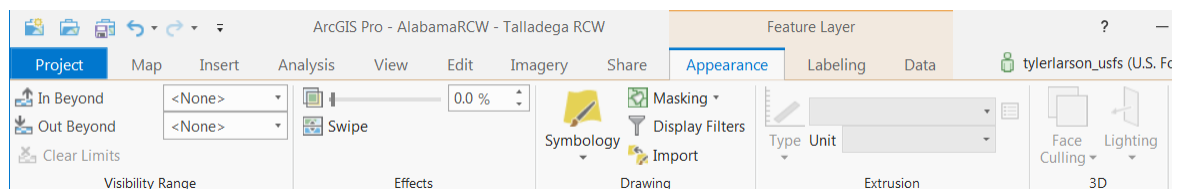


4. Close the table by clicking the **X** next to the **Longleaf\_OldGrowth\_TNF** tab above the table.

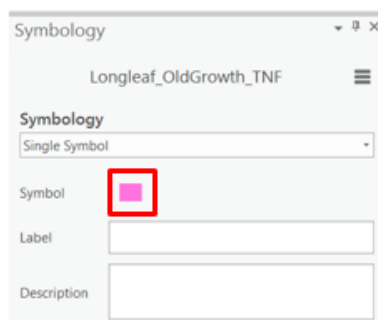


5. On the ribbon, under **Feature Layer**, click **Appearance**.

*On the Appearance tab, you can set a visibility range for a layer, adjust its transparency, and choose a symbology method. When you choose a symbology method, a new pane will open. You can also open a symbology pane by right clicking on the feature layer in the Contents pane and selecting symbology from the context menu. Additionally, you can open a symbology tab by clicking on the symbol patch below the feature layer.*

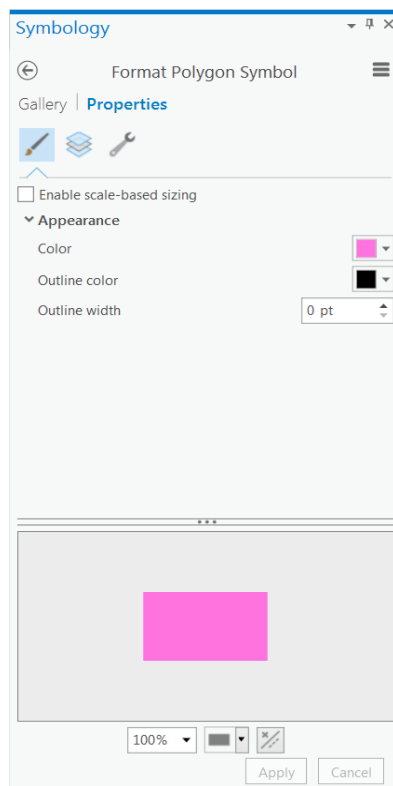


6. On the **Appearance** tab, in the **Drawing** group, click the **Symbology** drop-down menu and click **Single Symbol**.

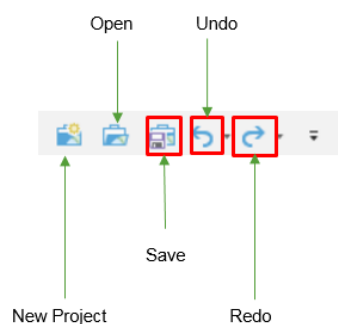


7. Click on the **symbol patch** and activate the **Properties** tab within the pane.

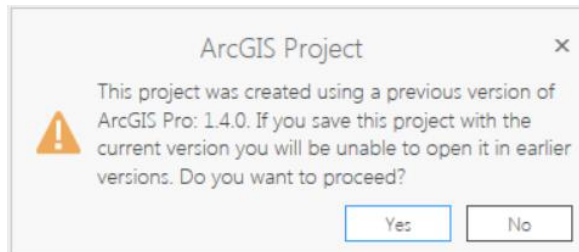
*The pane now presents options for formatting polygon symbols. At the top of the pane is a Gallery tab, which is selected (blue), and a Properties tab. On the Gallery tab, you can choose a predefined symbol. On the Properties tab, you can modify symbol properties, such as color and outline width.*



8. Change the color to **Green Leaf**, click **Apply**.
9. Using the **Quick Access Toolbar** click the **Undo** button. The color changes back to the original color. **Click the redo** button. The color changes back to Green leaf.
10. Using the Quick Access Toolbar **click save**. You may also save by clicking on the project tab and selecting save or save as.



*A prompt appears the first time you save a project if you are saving data or a project created in an older ArcGIS Pro version than the one you are using. However, the project will no longer open in the older versions of ArcGIS Pro.*



11. **Close ArcGIS Pro** by clicking the **X** at the top right of the application or clicking the **project tab** and selecting **Exit**.

## Part 2: Create a Project/Project Organization

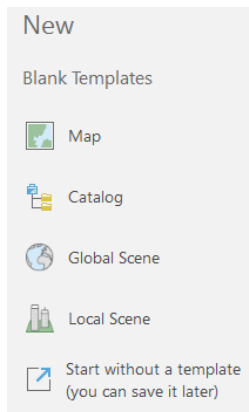
### A. Create a Project

ArcGIS Pro helps you organize and manage the resources related to a work project. To do this, it uses a project file (.aprx) as its basic file type. An ArcGIS Pro project contains related maps, layouts, and connections to servers, databases, toolboxes, folders, and styles. A project can also incorporate content from your organization's portal, the Living Atlas of the World, or ArcGIS Online.

A new ArcGIS Pro project can be started from a blank project template or from a template that contains predefined content, such as a map, catalog, scene or blank. In this tutorial, you will start from a catalog template. You will insert a map into the project and convert the map to a 3D scene.

1. **Start ArcGIS Pro** and **select the Catalog project template**.

*If you still have Pro open you can click open a new project from the quick access toolbar and select a folder for the new project to be stored in. It can be stored in the default projects folder or in a folder of your specification.*



2. In the **Create a New project dialog box**, name the project **CreateNewProjectRCW**.

*By default, the project will be saved to the path shown in the Location box. If you want to save the project to a different location, click the Browse button and browse to the folder you want. The Create a new folder for this project check box is selected by default. It is usually convenient to keep your project files organized in a folder.*

3. Click **OK**.

*The new project is created with the Catalog view active. Like the Catalog pane, the catalog view organizes the items in your project for browsing. The catalog view can also be used to preview spatial data and to view and edit metadata. For more information, see [Catalog pane, catalog view, and browse dialog box](#). We will not use the catalog view in this section.*

*Note: depending on the project template you choose, a new project may open with different views.*

4. **Close** the catalog view.

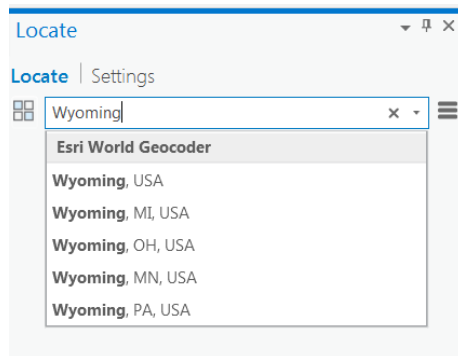
## B. Insert Map

1. On the ribbon, on the **Insert** tab, in the **Project** group, click **New Map**.

*Note: ArcGIS Pro, ArcGIS Online and Portal have a default basemap and extent set by the administrator.*

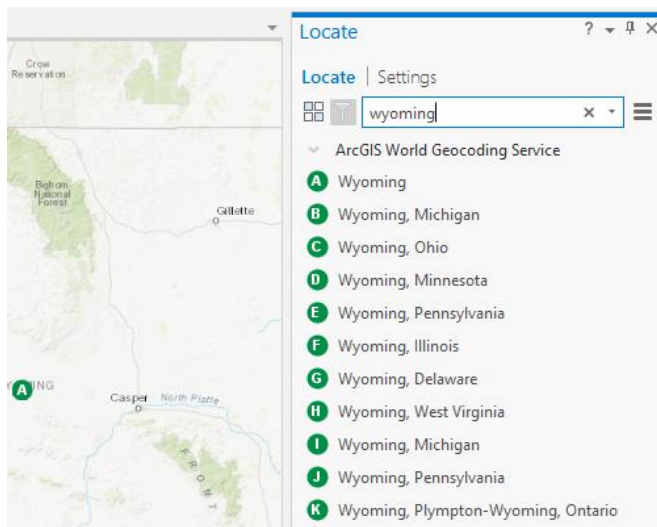
2. On the ribbon, in the **Map** tab, in the **Inquiry** group, click **Locate** . The Locate pane opens.

3. In the **Locate** pane, in the **search** box, type **Wyoming**. As you type you will see the Esri World Geocoder bring up results you can select from. After typing Wyoming **hit enter**.

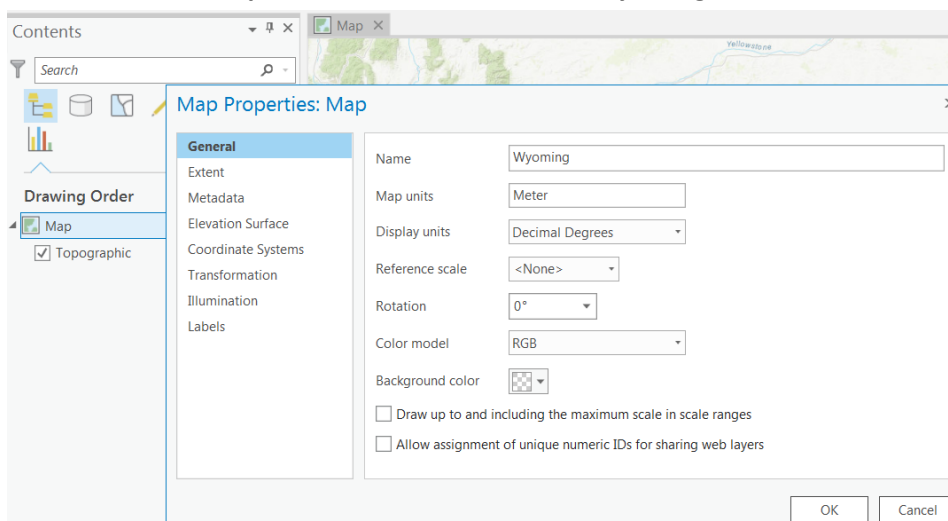


*A list of options will be displayed you can choose from. The list is also displayed on the map view with temporary markers to display the locations of your results. You may select a result in the Locate result window and the selection is displayed on the map.*

*Note: If the Esri World Geocoder isn't available to you, you may have a different default locate provider. To see your available locate providers, click the Settings tab at the top of the Locate pane.*



4. **Close** the **Locate** pane. The temporary marker is removed from the map.
5. **Open** the **Contents** pane if it's not already open. **Right click Map** and **click Properties** from the context menu.
6. In the **Name** box, **replace** the default name with **Wyoming**.



7. Click **OK**.

## C. Basemaps

1. On the ribbon, select the **Map** tab. In the **Layer** group, click **Basemap** and click **Imagery with Labels**.

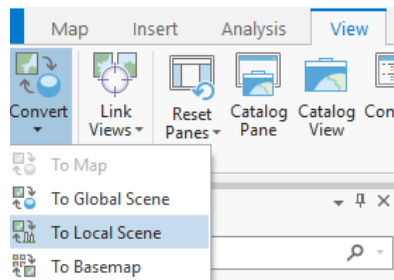
*The Topographic basemap is replaced by the Imagery with Labels basemap. In the Contents pane, there are now two layers. World Boundaries and Places is a layer of place-names and boundaries. World Imagery is the map layer. Layers can be turned on and off using the checkboxes. They may also be reordered by dragging and dropping them above and below each other.*

2. On the **Quick Access Toolbar**, click the **Save** button to save the project.

## D. Create a 3D Scene

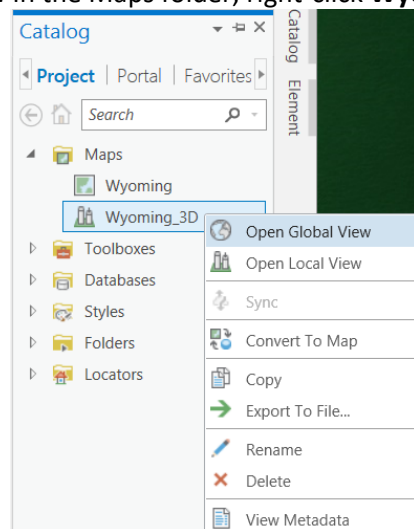
You can work with 2D and 3D views of your data in the same project. In ArcGIS Pro, a 3D view is called a scene. You'll convert your existing map of Wyoming to a scene. You can also insert a new scene from the New Map drop-down menu on the Insert tab.

1. On the ribbon, click the **View** tab. In the **View** group, click **Convert** dropdown and **select convert to local scene**.

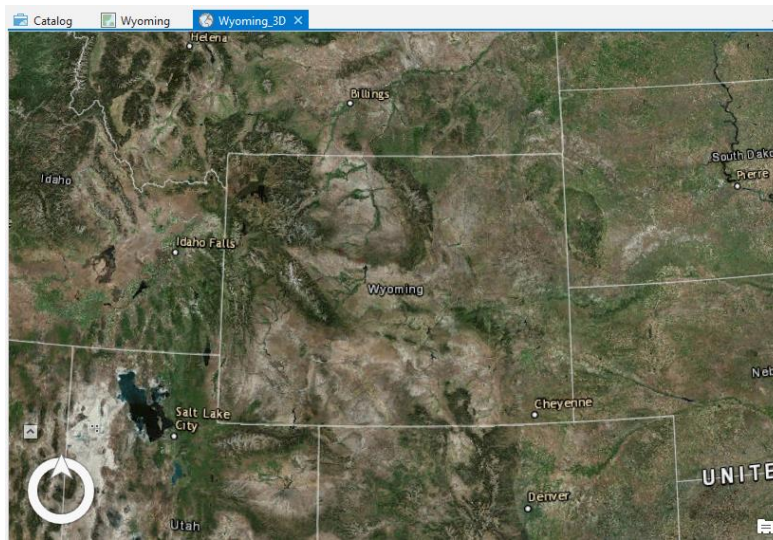


*A 3D scene is created with the default name Wyoming\_3D. The scene is now the active view and its contents are displayed in the Contents pane. The 2D Wyoming map view is still open in the project.*

2. If needed, **navigate** to the state of **Wyoming** using the **Locate** or **Explore** tool.
3. At the top of the **Catalog** pane, confirm that the **Project** tab is selected. **Click** the small arrow next to the **Maps** folder to **expand** it. If Catalog pane is not present, from the ribbon, click the **View** tab and from the **Windows** group, click the **Catalog Pane** button to add it.
4. In the Maps folder, right-click **Wyoming\_3D** and click **Open Global View**.







*A scene can be opened either as a global view or a local view. Generally speaking, a global view is appropriate for a large study area and a local view is appropriate for a small study area. For more information, see the help topic [Scenes](#) and the quick-start tutorial [Convert a map to a scene](#).*

5. **Close** the **Global View Wyoming\_3D** map by clicking X on the tab or right-clicking and close.
6. On the **Quick Access Toolbar**, click the **Save** button to save the project.

## Part 3: Navigate maps and scenes

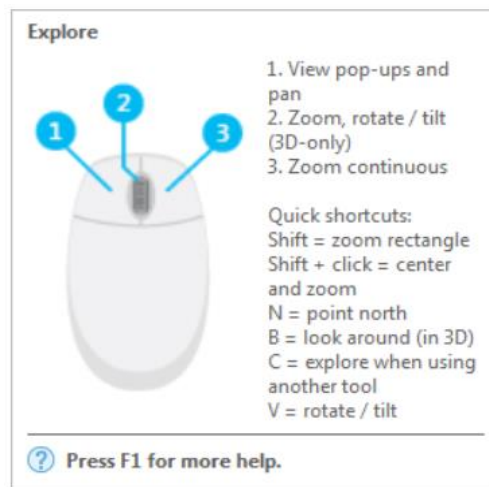
In this section you'll navigate 2d and 3D views of the Bridger-Teton national Forest. Navigation in 2D maps mainly involves panning and zooming. Navigation in 3D scenes adds rotation and tilting.

The Explore tool is the default mouse navigation and feature identification tool for both maps and scenes. It incorporates most 2D and 3D navigation functionality and can be coupled with keyboard shortcuts. In ArcGIS Pro a navigator can also be used to provide on-screen control for navigation and visual feedback as you modify the camera by panning, zooming, rotating, or tilting the view. The navigator has two modes, Heading and Full Control, to provide the level of control you need. The navigator is present by default in 3D scenes but needs to be enabled in 2D if you want to use it.

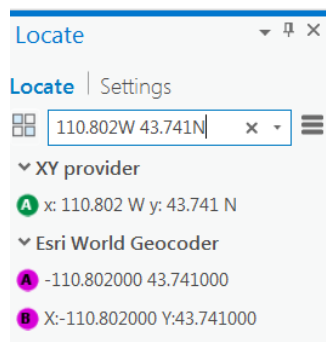
### A. Navigate & Locate 2D

1. If necessary, **open** your **Wyoming Project**.
2. **Activate** your **Wyoming map view (2D)**.
3. If necessary, center the state of Wyoming in your map view using the **Explore** tool or **Locate** tool.
4. From the **Contents** pane, **right click** the **Wyoming** map and select **properties** from the **context menu**.
5. From the **Extent** tab set the custom **extent** to **current visible extent** and **click OK**.
6. On the ribbon, on the **Map** tab, in the **Navigate** group, hover over the **Explore tool** .

*A pop-up image shows the mouse button navigation functions and a few common keyboard shortcuts.*

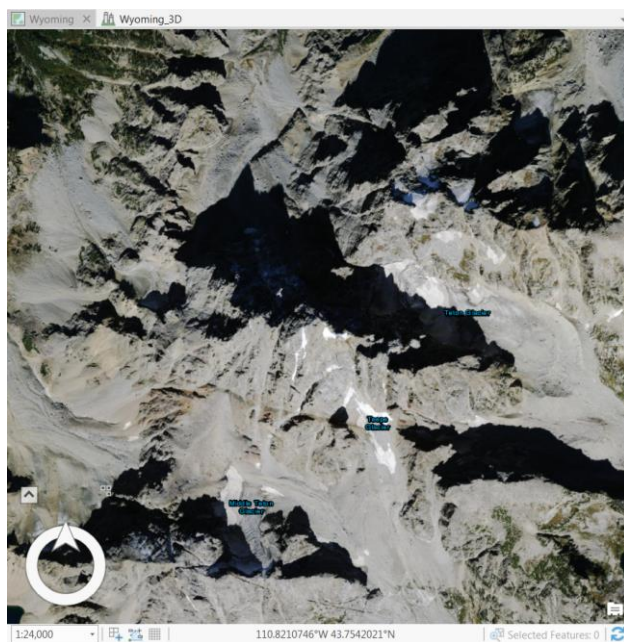



7. Move your mouse around the map and notice that the X & Y or Northing & Easting is displayed at the bottom of the window. Using the **Locate** tool navigate by **copying and pasting 110.802W 43.741N** and hit **enter**.



8. In the lower left corner of the map view, **click the scale drop-down** menu and click **1:24,000**.

*You have navigated to Grand Teton Mountain in Teton National Park.*



9. On the ribbon, on the **Map** tab, in the **Navigate** group, click the **Bookmarks drop-down** menu and click **New Bookmark** . On the Create Bookmark dialog box, type **Grand Teton**. Click **OK**.

## B. 3D

Now you'll look at the mountain in a 3D scene. You'll navigate with the Explore tool and the on-screen navigator.

1. Click the **Bookmarks** drop down and select **Grand Teton**.

*You have again navigated to Grand Teton Mountain. The view shows the area around the mountain in 3D. Your current height above ground level is displayed in the lower left corner of the view, below the on-screen navigator, in the same place as the map scale in a 2D map.*



2. **Center** your **mouse** near the **peak** and use the mouse **scroll to zoom** out to about 3,000 m. If your scale displays ft navigate to about 10,000. This setting can be changed from the map properties window under the General tab > Elevation Units.
3. On the map tab, in the **Navigate** group, click the **Bookmarks** drop-down and create a new bookmark. Name it **Grand Teton 3D**.

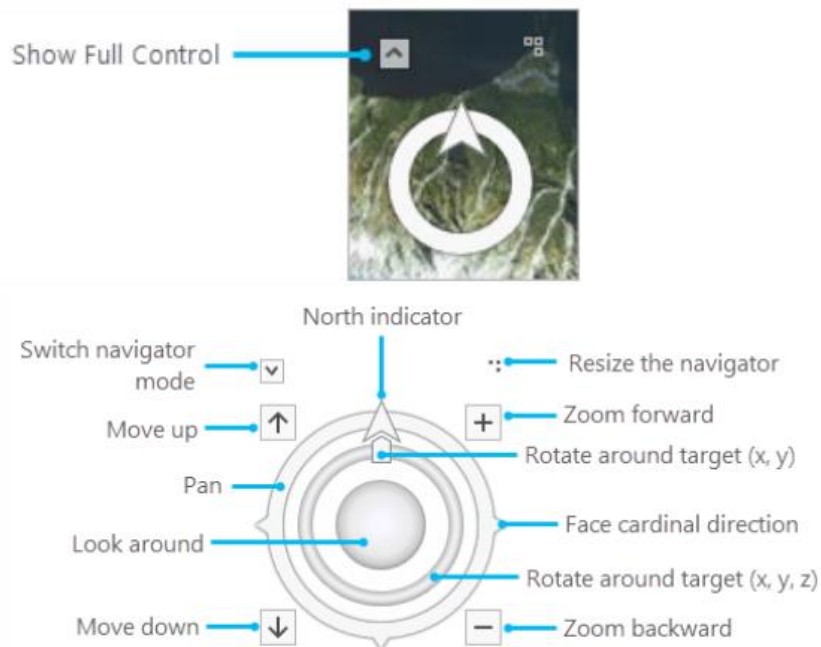
*Use the Mouse tips from the screen shot on the previous page for help with the next steps if needed.*

4. **Tilt** the scene by **clicking** the **scroll wheel** on the mouse while **moving** the mouse **forward** and **backward**. Don't turn the scroll wheel or you will zoom instead of tilting.
5. **Rotate** the scene by **clicking** the **scroll wheel** on the mouse then **moving** the mouse. As you rotate, the north indicator on the navigator shows you which direction you are facing.
6. **Press N** on the keyboard to **rotate** the view to face **north**.
7. **Press P** on the keyboard to tilt the view to **perpendicular**.

*See [Keyboard shortcuts for navigation](#) for more shortcuts.*

8. **Return** to the **Grand Teton bookmark**.
9. The same navigation movements (and more) that you make with the Explore tool can be made with the navigator tool. On the **navigator**, click the **Show Full Control button**. The navigator expands to show its full functionality.

*If the Navigator tool is not present in the lower left corner of your map view, activate it from the View tab and click on the Navigator tool to display it. Alternatively, **right-click** from within the **map** or **scene** view and click **Navigator**.*



10. Pan the scene by **clicking the outer ring** of the navigator and dragging in any direction. As you drag, a faint arrow indicates the direction.
11. **Tilt** the view by **clicking the inner ring** of the navigator and **dragging forward and backward**.
12. Look around from a fixed position by **clicking the inner sphere** of the navigator and **dragging** in any direction. The camera remains stationary, as if you are looking around from the top of the mountain.

*By default, you are not able to tilt the view below the ground surface. If you want to navigate below the surface, in the Contents pane, right-click the Wyoming 3D scene name and click Properties . On the Map Properties dialog box, click the Elevation Surface tab and check the Allow navigation below ground check box.*

13. **Hover** over one of the **arrows** on the **outer ring**—they represent **cardinal directions**—and **click an arrow**. The view rotates to face in the corresponding direction. Note that the big arrow on the outer ring, the North arrow, always points to the north.
14. **Rotate** your view **around** your **X, Y** location by **clicking, holding and dragging** the icon located below the north indicator (see image above). This navigation tool is called rotate around target (x,y).

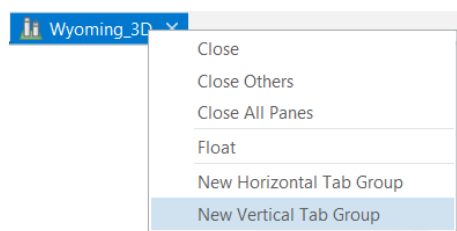
*Note: The navigator can be turned on or off in any scene or map view. To change the default navigator display, click the Project tab and click Options. Under Application, click Navigation. Expand On Screen Navigator and choose the settings you want.*

## C. Link Views

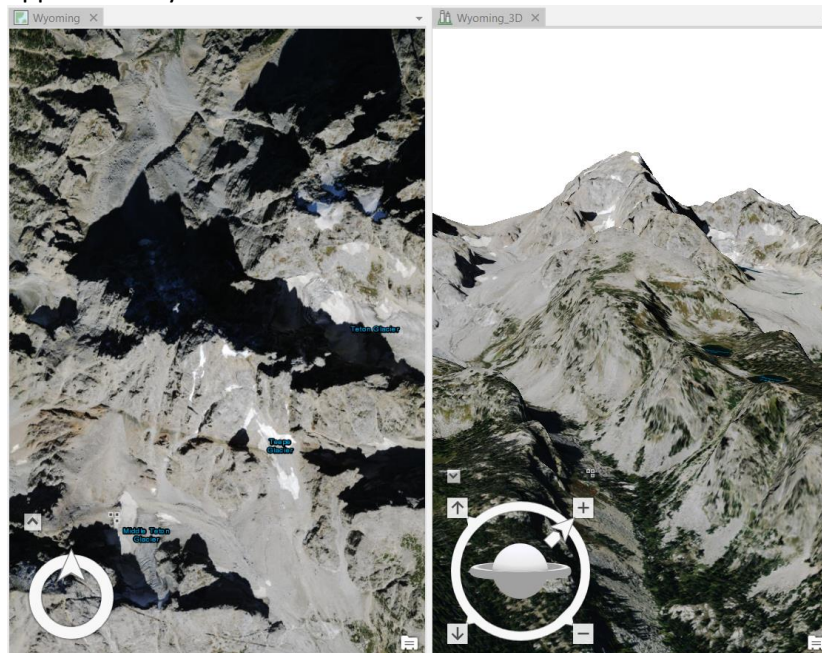
You can display your map and scene side by side. You can also link them to synchronize navigation.

1. Right-click the active **Wyoming\_3D** view tab and **click New Vertical Tab Group**

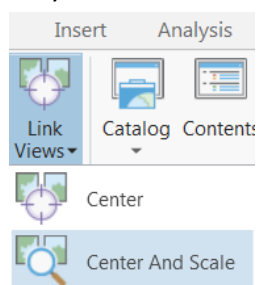


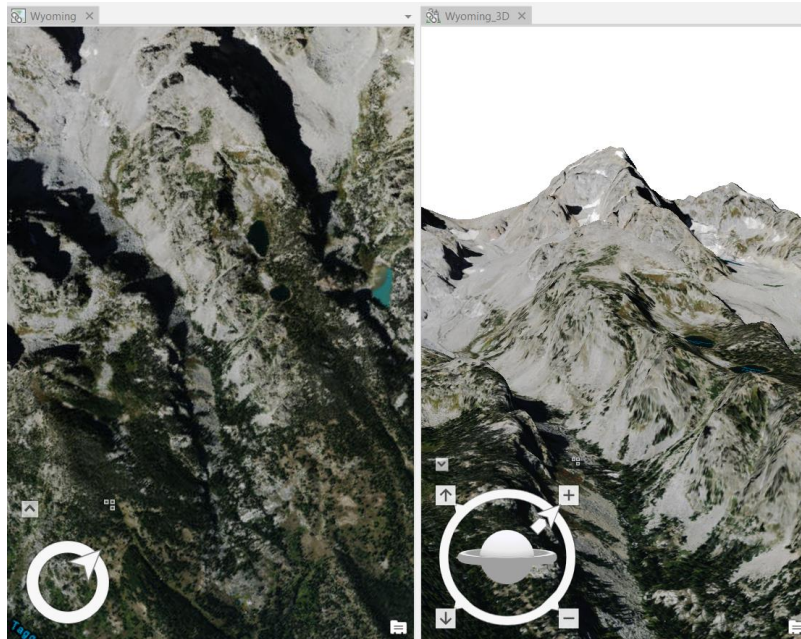


2. If necessary, **drag the vertical bar** separating the side-by-side views to make them approximately the same size.

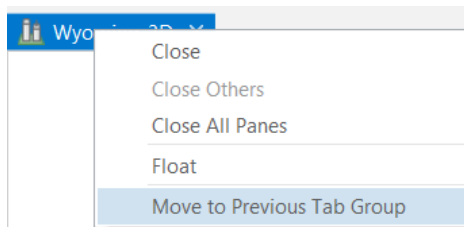



3. On the ribbon, click the **View** tab. In the **Link** group, click the **Link Views** drop-down menu, and click **Center and Scale**. The map view zooms to an extent and a scale that match the active scene view. The view tabs for the map and scene are marked with icons to show that they are linked.





4. **Navigate** the scene **using** the **explore tool** and the **navigator**. You can also navigate the map view. The map and scene will navigate together.
5. To **unlink** the views, on the **View** tab, in the **Link group**, click the selected **Center and Scale** button again.
6. **Navigate** the maps and the maps move **independently** again.
7. To return to the **single map view** **Right-click** the view tab of the **Wyoming\_3D scene view** and click **Move to Previous Tab Group**.



8. On the **Quick Access Toolbar**, click the **Save** button  to save the project.
9. **Close** the project.

## Part 4: Add Data to a project

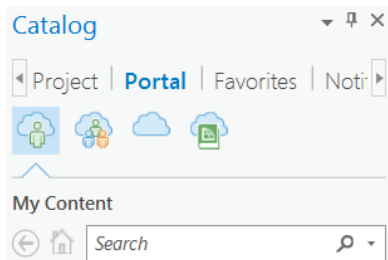
With ArcGIS Pro, you can create maps and scenes by adding data that is stored on your own computer, a local network, or an online repository, such as [ArcGIS Online](#) or the [Living Atlas of the World](#). Your GIS projects may need different types of data from different sources, and it's important to know how to access them.

In this tutorial, you will add data from Living Atlas, from your project geodatabase, from a folder connection that you add to your project and from a GIS service.

### A. Add data from living atlas

*You can often find map layers to meet your basemap needs in the Living Atlas of the World, a curated collection of global geographic information. Maps and layers from the Living Atlas can be added directly to ArcGIS Pro.*

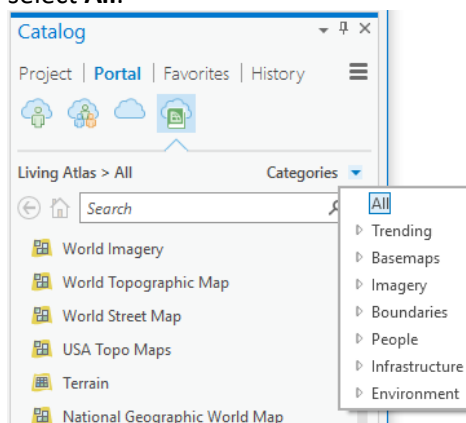
1. If Wyoming Project is still open, **insert a new map called Add Data.** otherwise **Open** a new map project titled **Add\_Data\_to\_Project.aspx**
2. At the top of the **Catalog pane**, click the **Portal** tab. If necessary, you can open the Catalog pane and the Contents pane from the View tab on the ribbon.



Under the **Portal** tab are four collections from which you can add data:

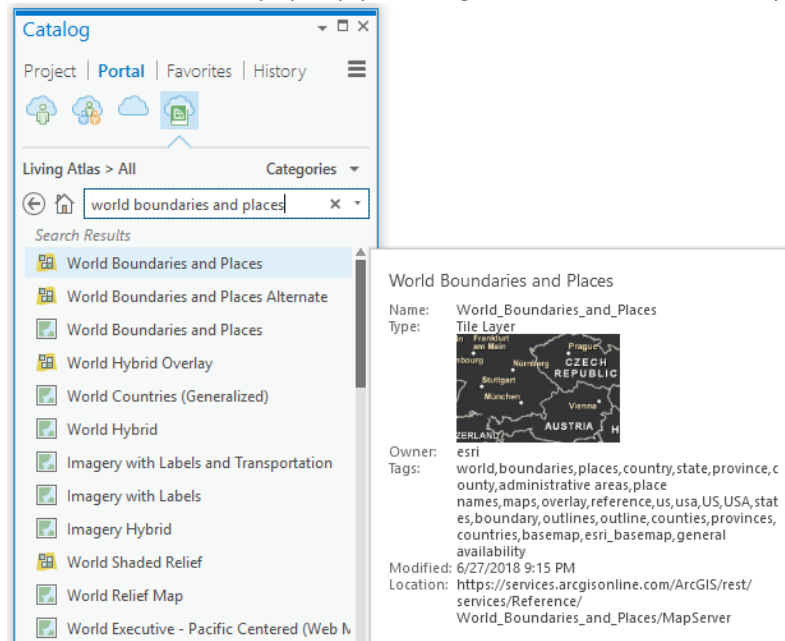
- **My Content** —Maps, layers, and other items you have added to your ArcGIS Online or Portal for ArcGIS account
- **Groups** —Items shared with groups of which you are a member
- **All Portal** —Items shared publicly on ArcGIS Online as well as items shared within your own organization
- **Living Atlas** —Curated items shared through the Living Atlas of the World

3. Under the **Portal** tab, click the **Living Atlas** tab .
4. **All** layers should be displayed by default. To check click the **Categories** drop-down menu and select **All**.



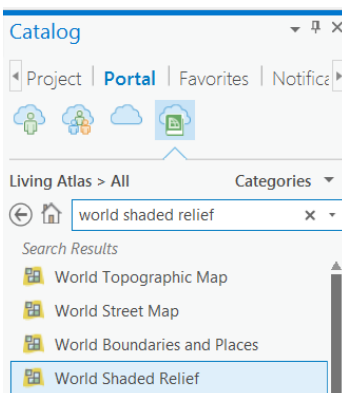


5. **Type** in the search bar **World Boundaries and Places**. Hover over the layer and an information window pops up providing information about the layer.

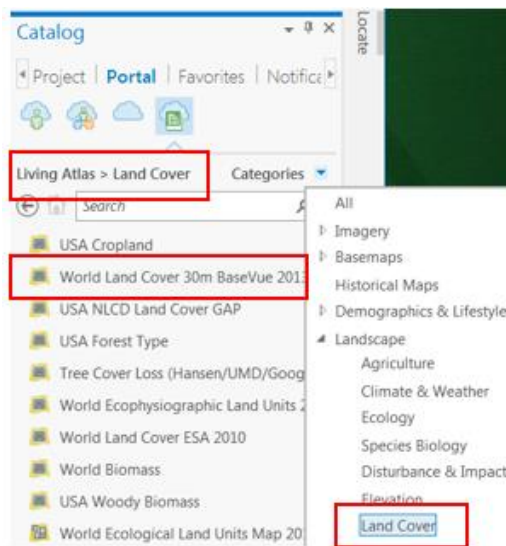


6. Right click **World Boundaries and Places** and add it to the current map.

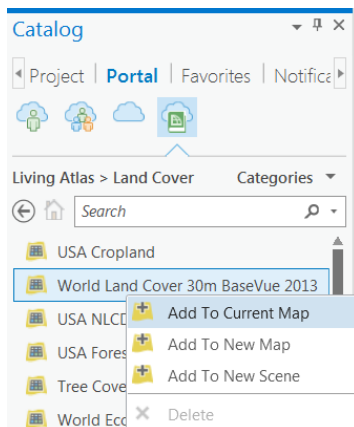
7. In the **search** bar search for **world shaded relief**.



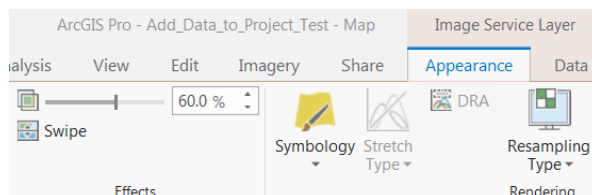
8. Select **World\_Shaded\_Relief** tile map and **drag** it over to the bottom of **Contents** pane and **drop** it.
9. Click the **Categories** drop-down menu, expand **Environment** and select **Land Cover**. This will filter to only layers tagged as Land Cover and Environment.



10. **Right click** (you may have to search for it) on **World Land Cover 30m BaseVue 2013** and add it to the current map above **World\_Shaded\_Relief**.



11. Right click and **remove** the **Topography** layer from the table of contents.
12. Click on **World Boundaries and Places** and drag it to the top of the **Contents** pane.
13. Highlight **World Land Cover 30m BaseVue 2013**, click **Appearance** within the **contextual tab** and using the **sliding scale bar** or the **numeric box**, found in the **effects group**, to adjust the **transparency** to around **60%**.

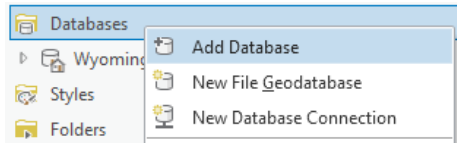


*Note: adding transparency to our land cover set gives texture to the map by having the hillshade layer show through slightly. Zoom into an area like the Great Salt Lake/Rocky Mountain region and turn the **World\_Shaded\_Relief** layer on and off to see how it adds texture to the map.*

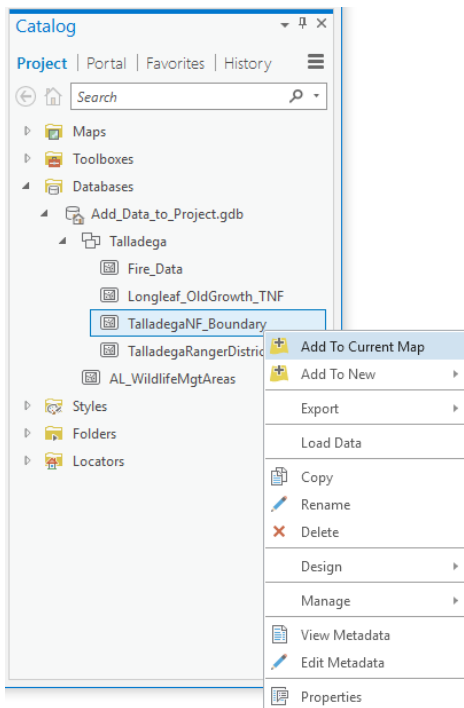
## B. Add data from a geodatabase

Every ArcGIS Pro project has its own geodatabase but you can connect to other geodatabases to access their data.

1. In the **Catalog** pane, click the **Project** tab.
2. Right click on the Databases folder and click Add Database.

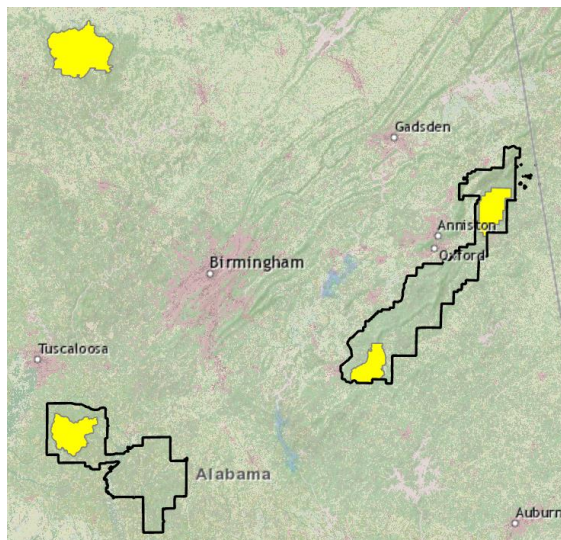


3. **Navigate** to the location of your **exercise 1** folder and **highlight** ...\\Add\_Data\_to\_Project.gdb and click **OK**.
4. Expand **Add\_Data\_to\_Project.gdb** and expand the **Talladega Feature Dataset**.



5. Add the **TalladegaNF\_Boundary** layer below **World\_Boundaries\_and\_Places\_Alternate**.
6. Select **AL\_WildlifeMgtAreas** from **Catalog** and drag it to the **Contents** pane above **TalladegaNF\_Boundary**.
7. Right click the **AL\_WildlifeMgtAreas** and click zoom to layer.

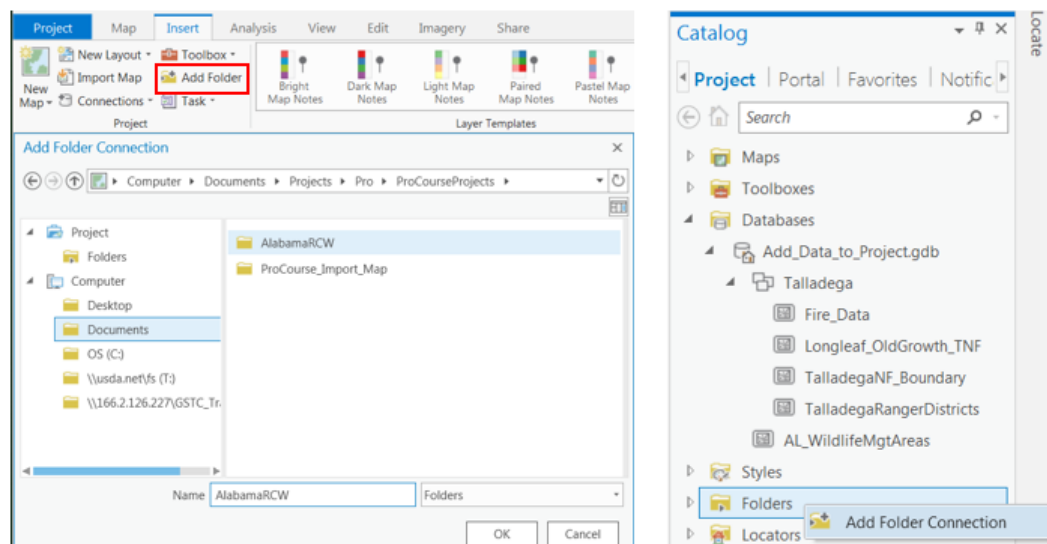
*The symbology will be a fill with random colors. On your own, try to change the symbology of the Talladega boundary and Wildlife layers to match the screen shot below.*



## C. Add data from a folder connection

Another way to add data to your project is through a folder connection. Folder connections allow you to access spatial data stored on your computer or a network drive.

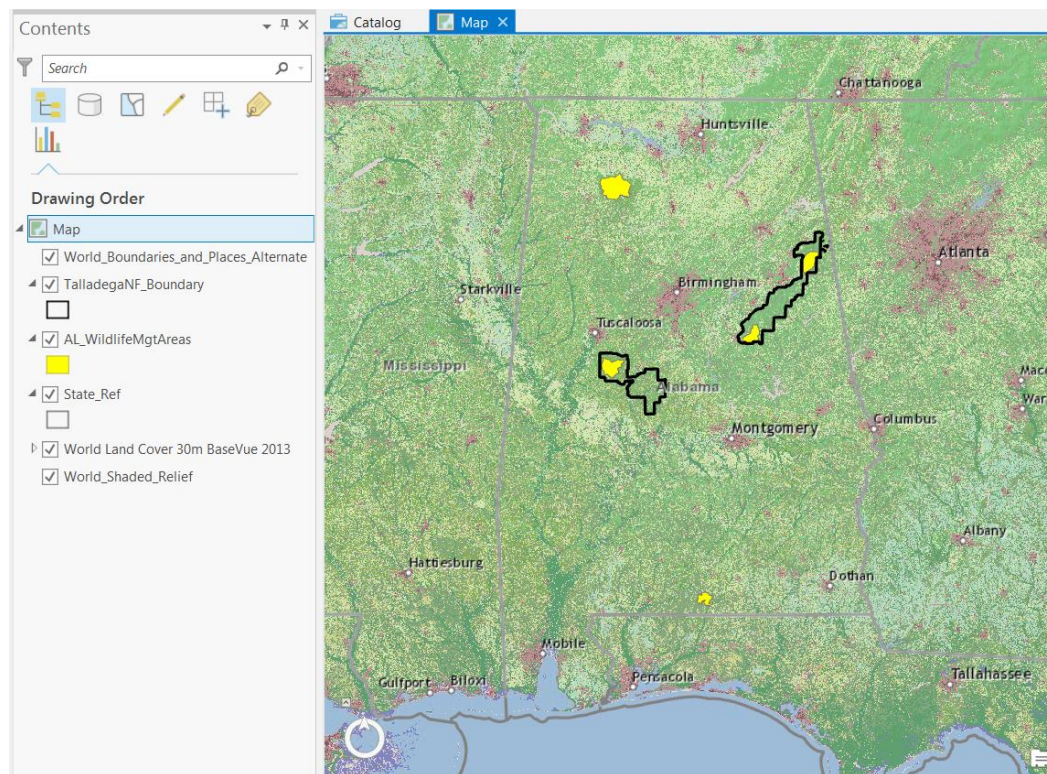
1. On the ribbon, **click the Insert tab**. In the Project group, **click Add Folder** . You may also right click on Folders in the Catalog pane and select Add Folder Connection.



2. From the Add Folder Connection dialog box, browse to the **AlabamaRCW** folder in the **Exercise 1** folder and click OK.

*Note: folder connections do not carry over to other projects. New connections must be made for each project or use a project template that contains your desired connections.*

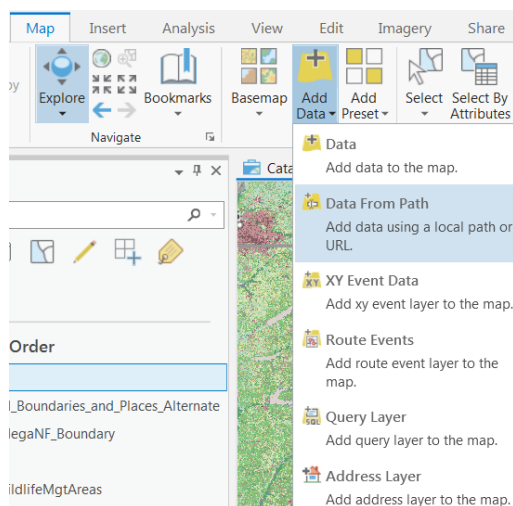
3. In the Catalog pane, **browse to Folders > AlabamaRCW** and **expand** the folder to **AlabamaRCW.gdb**. Data can now be added from this folder connection.



## D. Add data from a service

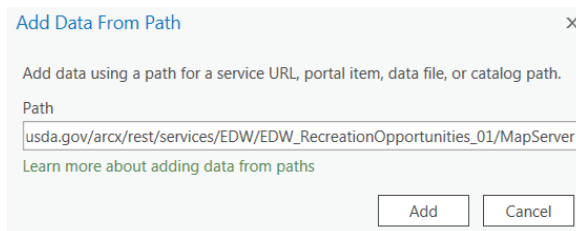
A variety of GIS capabilities are available as web services online. Connecting ArcGIS Pro to a GIS server gives you access to maps, editable features, geoprocessing analysis, and other useful services.

1. To add a layer to a map from a service URL go to the **Layer group** select the **Add Data** drop down and then **select Data from a path**.



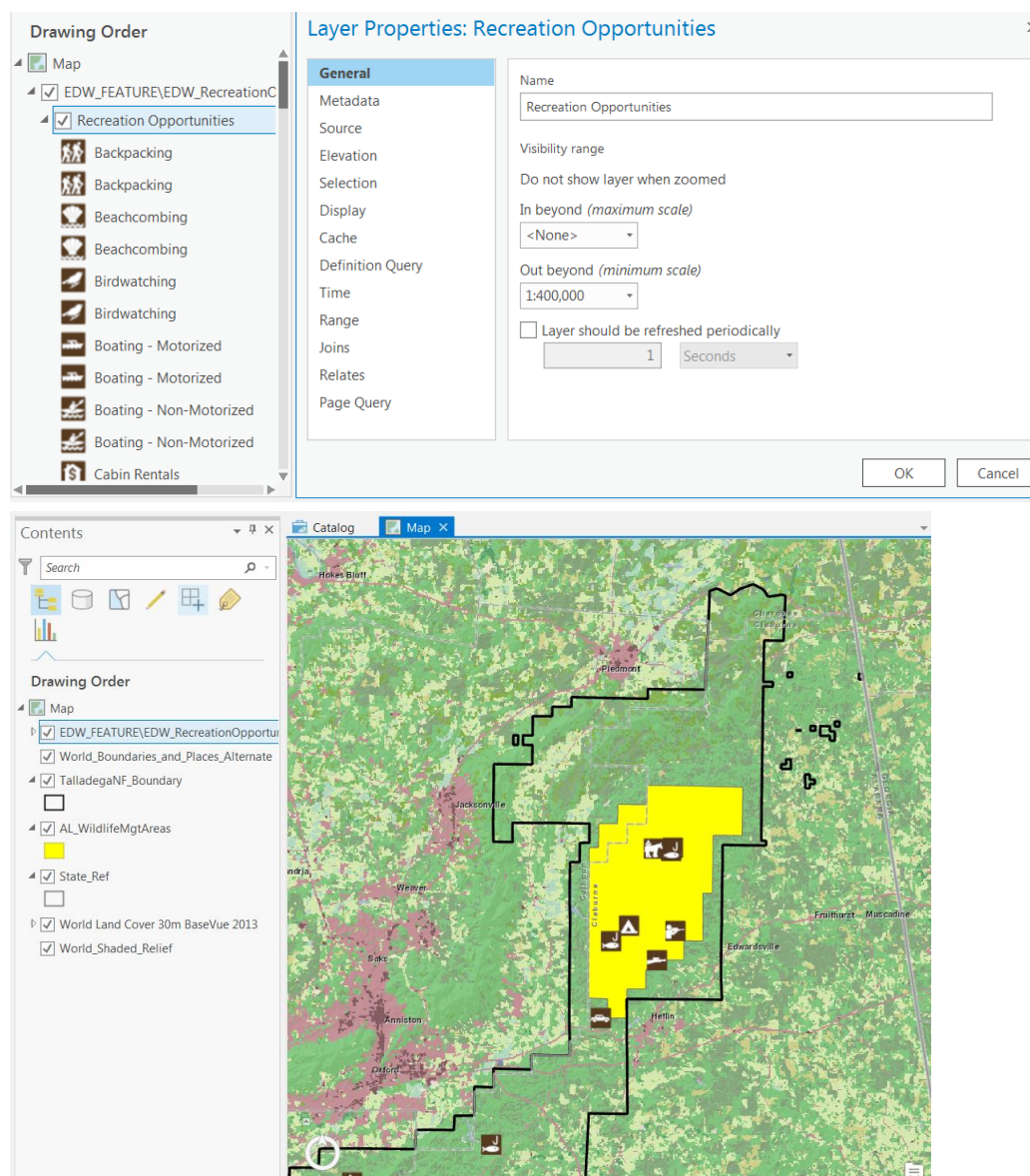
2. **Copy** and **paste** the following service URL into the Path text box.  
[https://apps.fs.usda.gov/arcx/rest/services/EDW/EDW\\_RecreationOpportunities\\_01/MapServer](https://apps.fs.usda.gov/arcx/rest/services/EDW/EDW_RecreationOpportunities_01/MapServer)





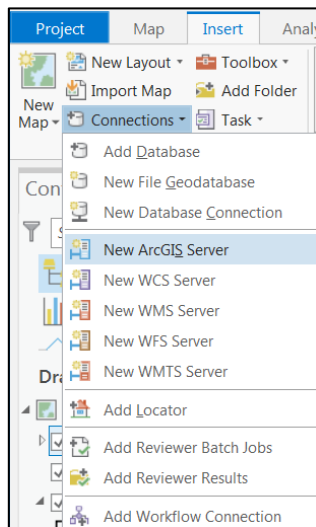
3. The Recreation Opportunities layer is added to your Contents pane. **Zoom** to the forest until the recreation opportunities layer becomes visible.

*The Recreation Opportunities are still not visible. This is because the visibility range for the layer is set to 1:400,000. This setting can be changed from the layers properties window under the General tab.*

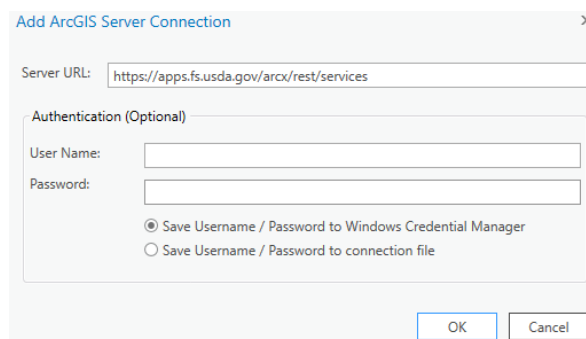


## E. Connecting to ArcGIS Server

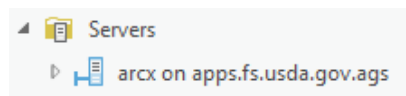
1. To connect directly to a GIS server on the **Insert** tab, in the **Project** group, click the **Connections** drop-down list and click **New ArcGIS Server**.



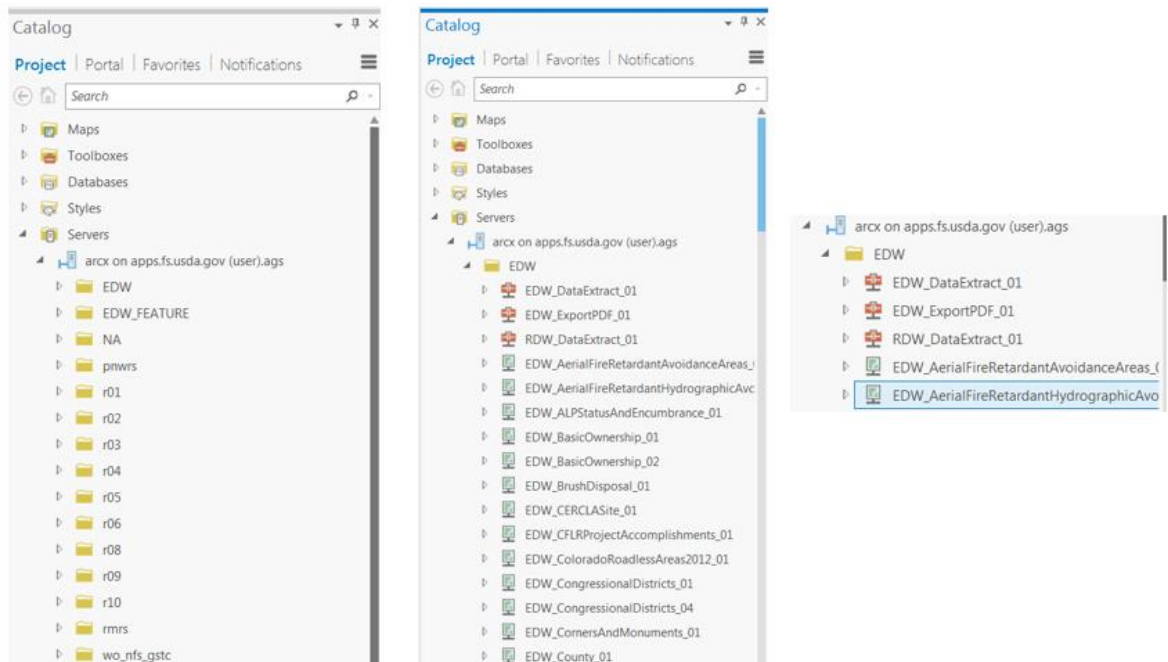
2. The Add ArcGIS Server user connection dialog box appears. **Copy** and **paste** the **ArcX** Server URL <https://apps.fs.usda.gov/arcx/rest/services>, and leave Save Username/Password radio button checked.
3. Click **OK**.



4. From the **Catalog** pane expand the newly created **Servers** folder. Connection to the **ArcX** server is displayed.



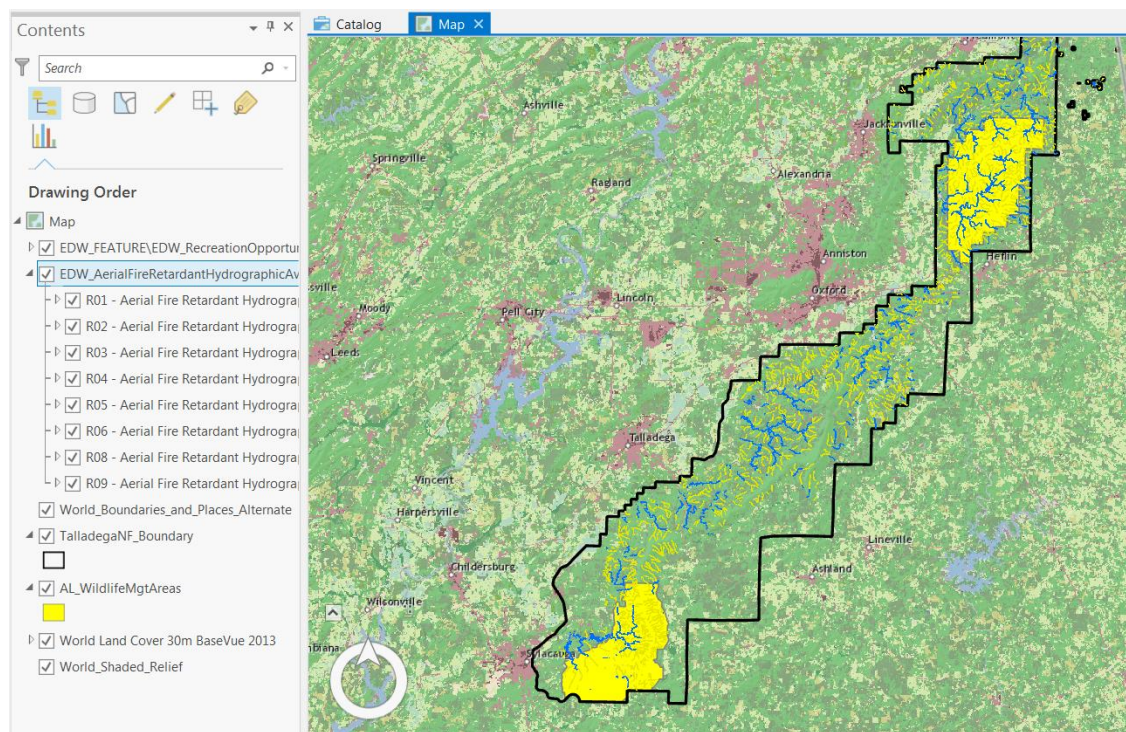
5. **Expand** the **ArcX** server connection to display its contents, expand the **EDW** folder and add the **EDW\_AerialFireRetardantHydrographicAvoidanceAreas\_01** to the **Contents** pane by dragging and dropping or right clicking and selecting **add to current map** (depending on your connection speed this could take some time).



6. **Zoom** to the forest level extent. You should see the EDW layer displayed.

7. **Save** and **close** your project.

*Adjust symbology as needed. Editing symbology for the EDW\_AerialFireRetardantHydrographicAvoidanceAreas\_01 service is disabled.*






## Part 5: (Optional) Import ArcMap document (.mxd)

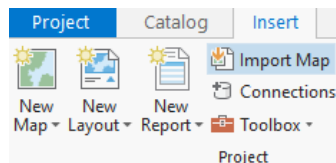
In this section you will create a new ArcGIS Pro project, import a map document from ArcMap and evaluate the results. You will also repair the broken link from a layer.

If you do have ArcMap software, you can open the tutorial map document in ArcMap and compare it directly to the imported map in ArcGIS Pro. To open the map document, you need ArcMap 10.5.1 or 10.3.1.

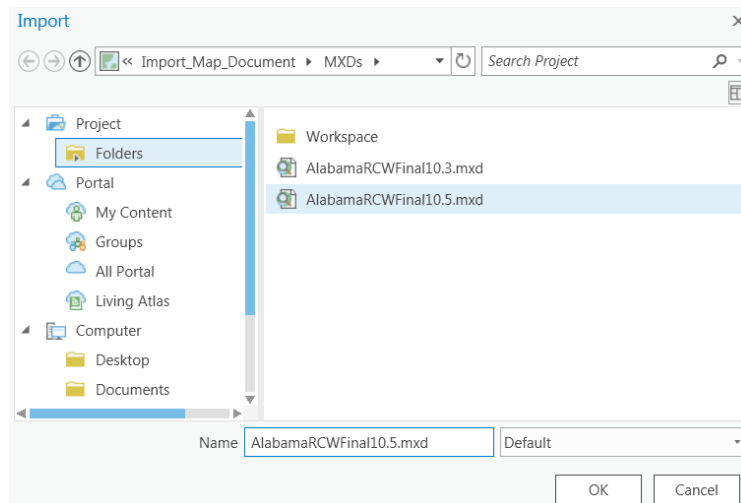
### A. Import map document

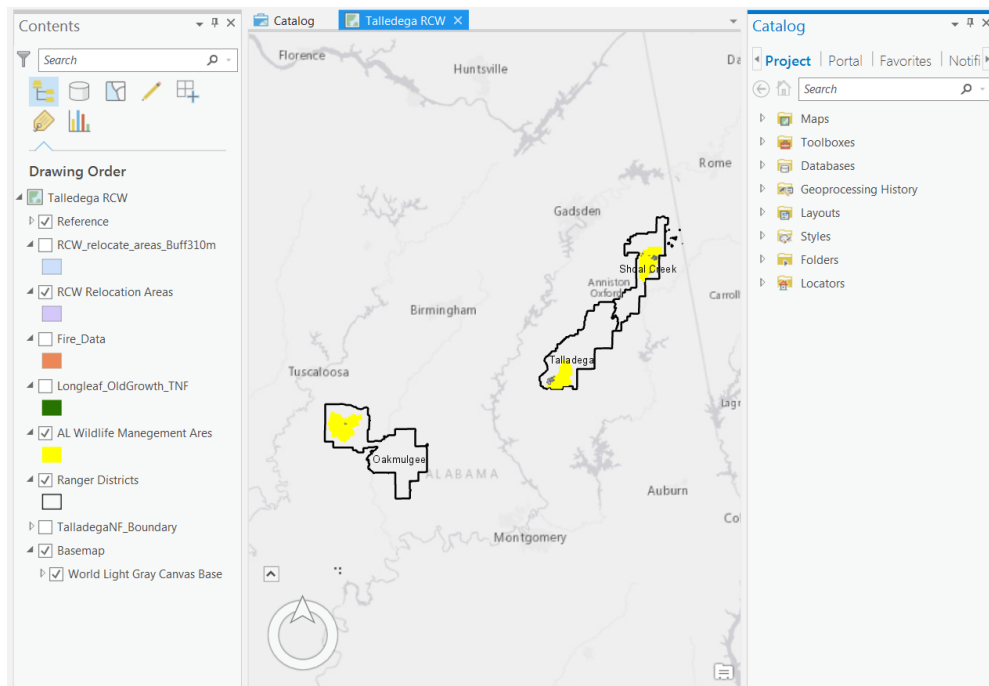
The map document you will import shows wildlife management areas and relocation areas for the Red Cockaded Woodpecker in the Talladega National Forest ranger district boundaries and Conecuh National Forest. It will contain 3 data frames and one layout.

1. **Start ArcGIS Pro** and select the **Open another project** folder.
2. Navigate to and open ...**Import\_Map\_Document.aprx**.
3. On the ribbon, click the **Insert** tab if necessary. In the **Project** group, click **Import Map** .



4. On the **Import dialog box**, **browse** to the location of your tutorial data and double-click the **Import\_Map\_Document** folder to open it.
5. Double-click on the **MXDs folder** to open it and click on **AlabamaRCW10.5.mxd** and click **OK**.

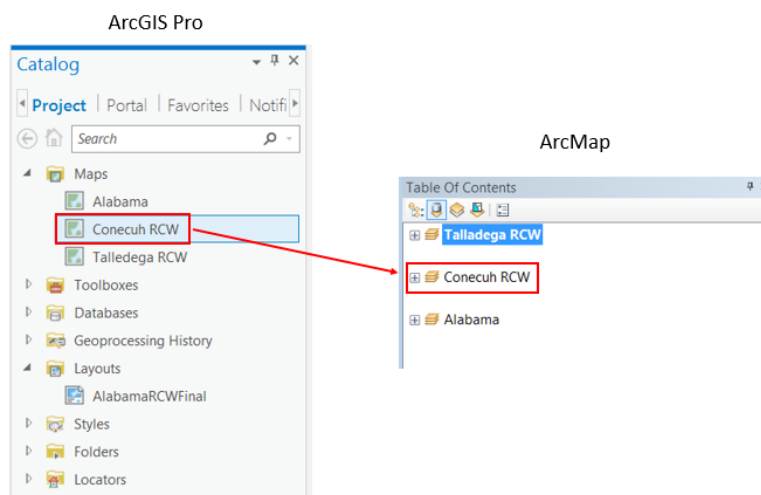




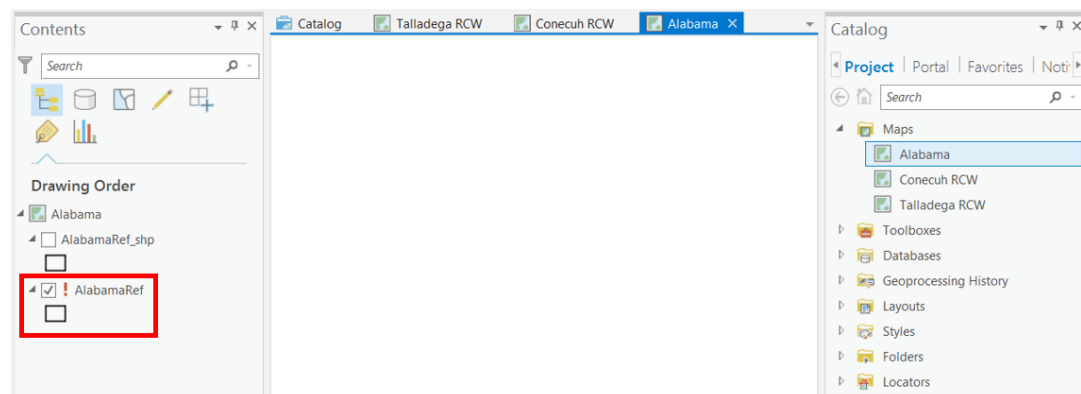
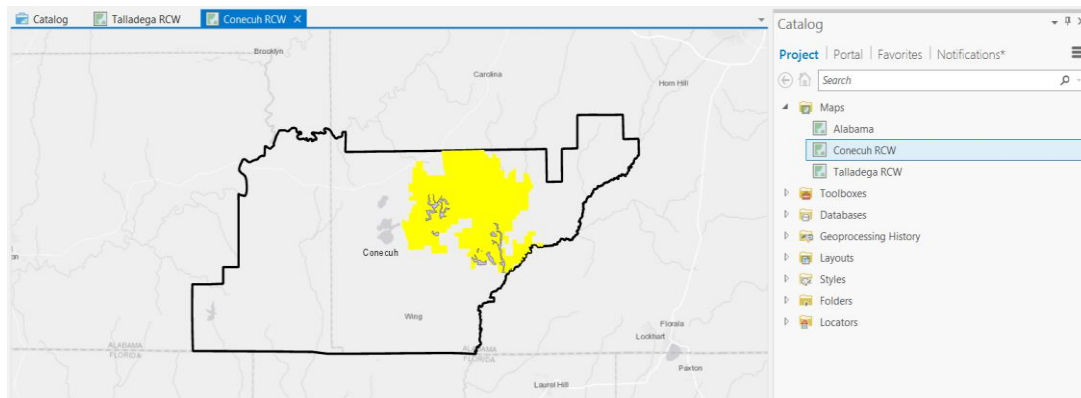
A map view named *Talladega RCW* opens. This map corresponds to one of the data frames in the ArcMap map document. You'll use the Catalog pane or view to see other items that were imported with the map document. If the Catalog pane isn't open, click the View tab on the ribbon. In the Windows group, select the Catalog Pane

Both the Catalog pane and catalog view provide access to items in your project. See [Catalog pane, catalog view, and browse dialog box](#) for more information.

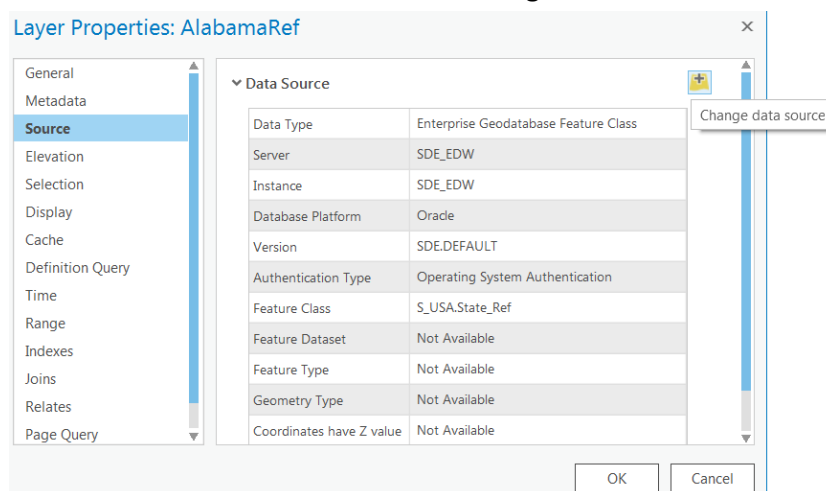
6. In the **Catalog** pane, on the **Project** tab, expand **Maps**. The project contains 3 maps. Each map corresponds to a data frame from the original mxd. Each data frame in an ArcMap document becomes a separate map in ArcGIS Pro.



7. In the **Catalog** pane, under **Maps**, right-click **Conecuh RCW** and click **Open**.
8. Repeat the previous step to open the **Alabama** map.

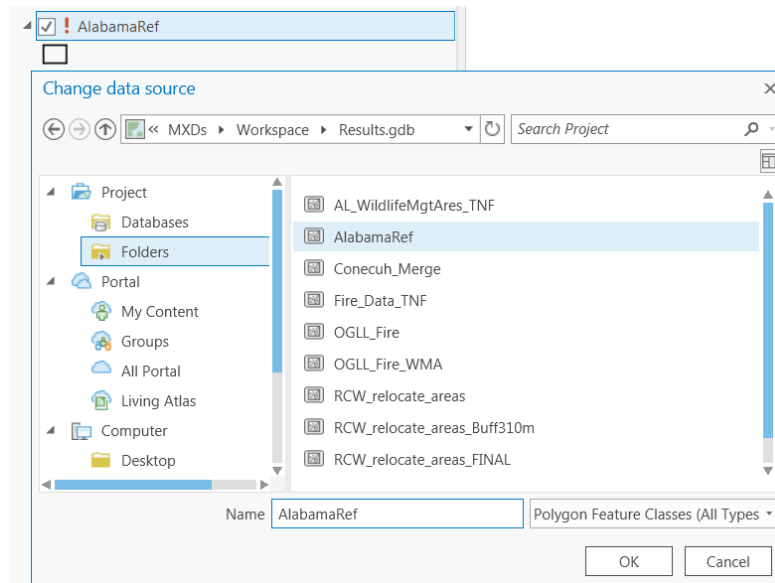


9. To fix the broken link in the AlabamaRef layer in the Alabama map, click the red exclamation point of the **AlabamaRef** layer to open the layer **properties**.
10. Click on the **Source** tab and click the **change data source** button



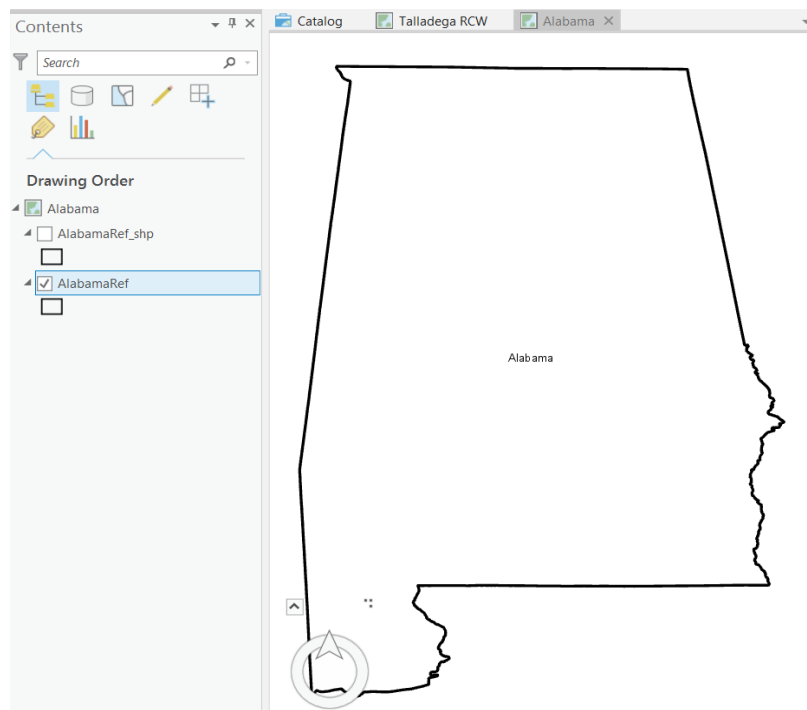
11. Navigate to the location of your data

...ProCourseProjects\Exercise1\Import\_Map\_Document\MXD\Workspace\Results.gdb and select **AlabamaRef** and click **OK**.

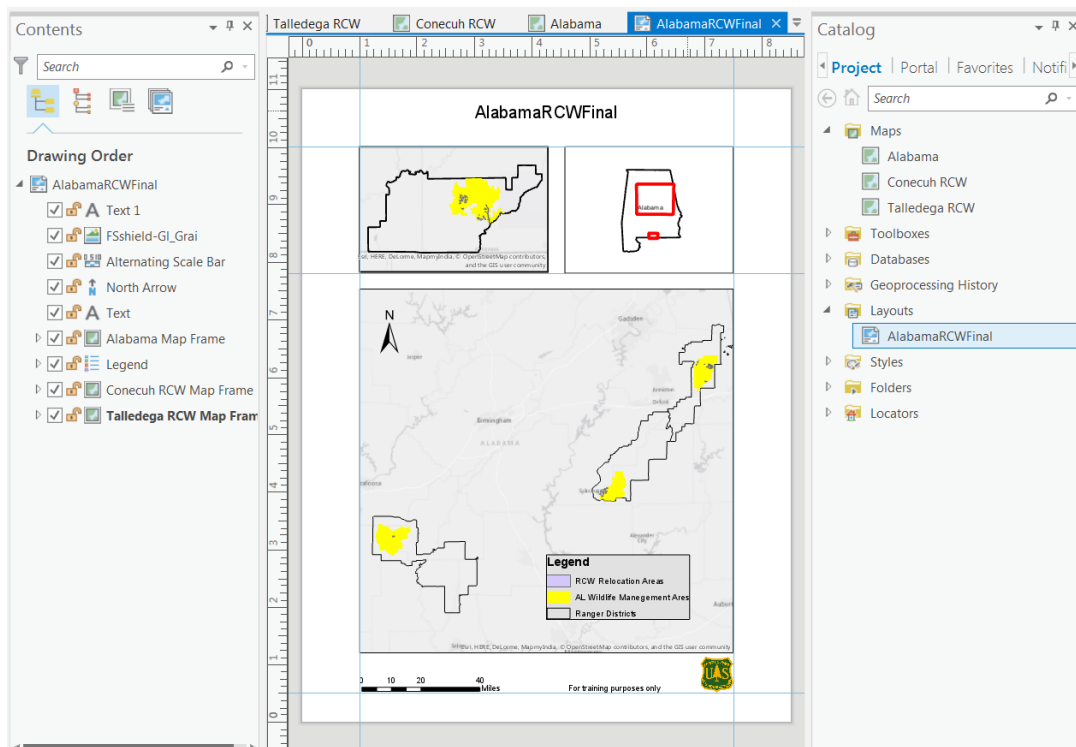


12. The red exclamation point should be removed and the state of Alabama displayed.

13. Right click **AlabamaRef** from the **Contents** pane and select **Zoom to Layer** from the **Context** menu.



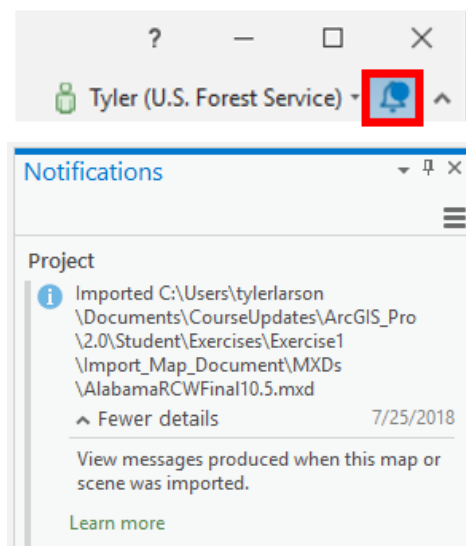
14. In the Catalog pane, **expand Layouts** and **right-click AlabamaRCWFinal10.5** and click **Open**.



15. The name of the layout matches the name of the MXD. In the **Catalog** pane, under **Layouts**, right-click **AlabamaRCWFinal** and click **Rename** and rename it **Alabama Layout**. Hit Enter.

## B. Notifications

1. To the top right of the application window next to username, click the **Notification** button.



2. **Hover** your mouse over the notification and the date will turn into a link that says **View Results**, click view results (you may also click **Learn More** for procedural details). A browser tab opens with import results for the map document. There are warnings and errors.



### Import results for AlabamaRCWFinal.mxd

The following messages were produced when this map or scene was imported: C:\Users\tylerlarsen\Documents\Projects\Pro\AlabamaGeoprocessingCopy\Data\AlabamaRCWFinal.mxd

Message Name	Type	Severity	Code	Description	Component Name	Component Type
	Warning	High	00037	Basemap Layers cannot be published directly to a service	Reference	Layer
	Warning	High	00037	Basemap Layers cannot be published directly to a service	Basemap	Layer
	Warning	High	00037	Basemap Layers cannot be published directly to a service	Reference	Layer
	Warning	High	00037	Basemap Layers cannot be published directly to a service	Basemap	Layer
	Error	High	00003	Layer's data source is inaccessible	AlabamaRef	Layer
	Warning	Medium	20038	Legends imported into ArcGIS Pro may appear differently due to improvements in the fitting strategy. Modifications to the default appearance may be required.	AlabamaRCWFinal Layout	
	Warning	Medium	20044	Due to the differences between mxds and projects, some dynamic text tags may have changed during the import process.	AlabamaRCWFinal Layout	
	Warning	Medium	20037	Scales for maps on the layout may not have imported correctly.	AlabamaRCWFinal Layout	

**Congratulations!** You have successfully completed this exercise.

