

# DCN Planetears

**Geospatial Data Curation:**  
an introduction  
**Module:** Environment Setup



# Module Objectives: Environment Setup

This module is a self paced pre-workshop session to allow all students time to download and interact with GIS tools prior to beginning the workshop activities.

By the end of this module learners should be able to:

1. Download QGIS and ArcGIS Pro (if institution has Esri License)
2. Load and display a vector dataset and raster dataset
3. Navigate the tools interface to perform tasks such as:
  - a. Check layer properties
  - b. Open attribute table
  - c. Change the projection of a layer

At the end of the session students are expected to submit a series of screenshot to demonstrate understanding of the environment.

# Download Example Dataset

Kramer, Gunnar R; Peterson, Sean M; Daly, Kyle O; Streby, Henry M; Andersen, David E. (2019). Data supporting the comparison of golden-winged warbler and American woodcock productivity in northern Minnesota, USA. Retrieved from the Data Repository for the University of Minnesota, <https://doi.org/10.13020/znag-tn48>.

## 0\_Environment\_Setup\_Datasets

- File will need to be unzipped before you can use it

Note: this example datasets are derived from real datasets, but have been modified to highlight common curation issues.

# QGIS



1. Go to the [Download QGIS](#) website
2. Locate your operating system in the list of download options
3. Please download the latest long term release.  
The long term release version of the program and the most stable at this time.

# QGIS Interface

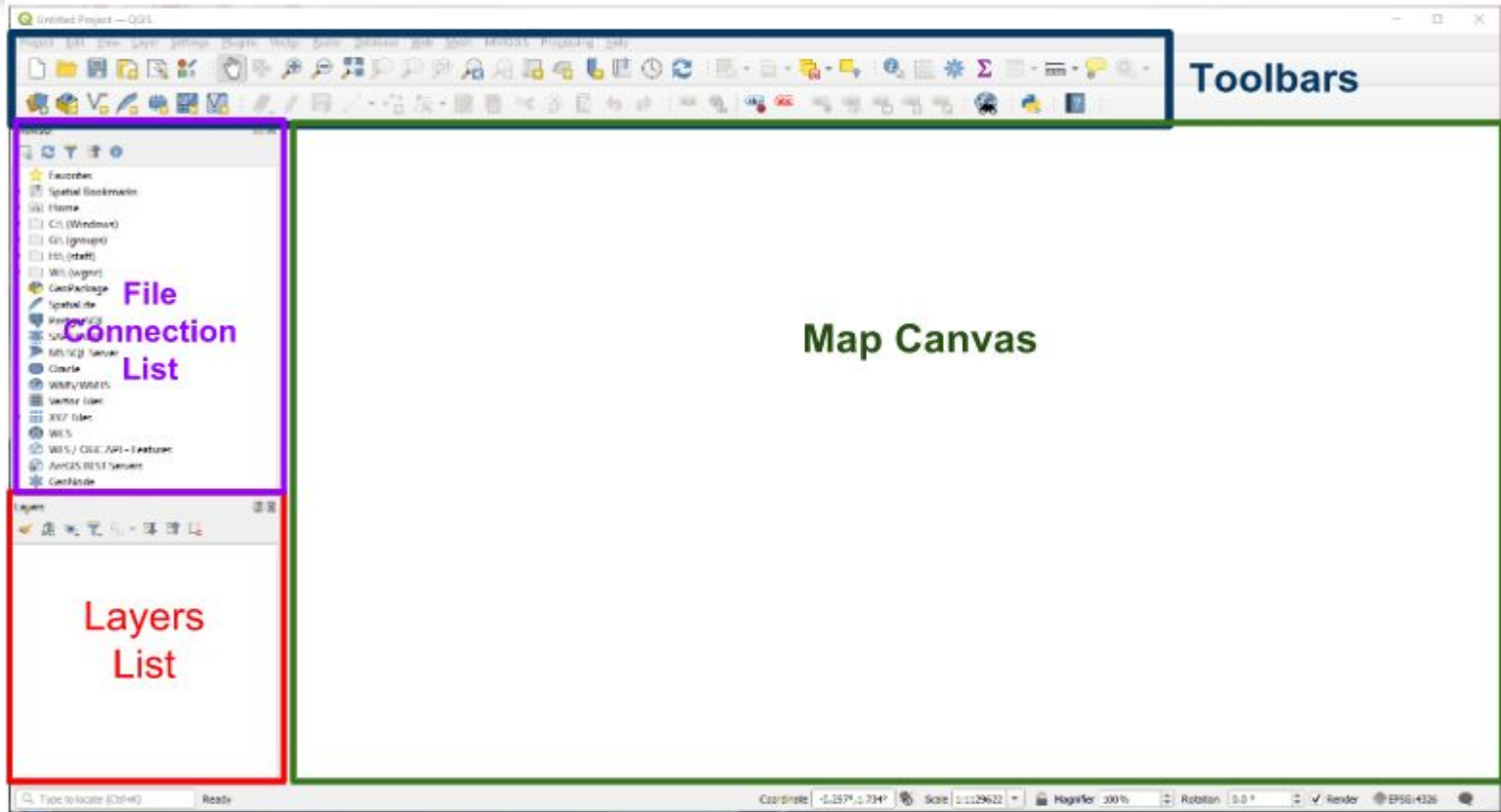


Image credit:  
Kelly Grove

# Important Toolbar Icons in QGIS



Open Data Source Manager



Open Attribute Table



Identify Features



Pan Map



Zoom to Full Extent



Zoom In



Zoom Out



Style Manager



Layer Labeling Options



Save



Open Project



New Project



Pan Map to Selection

# Adding Vector Data in QGIS

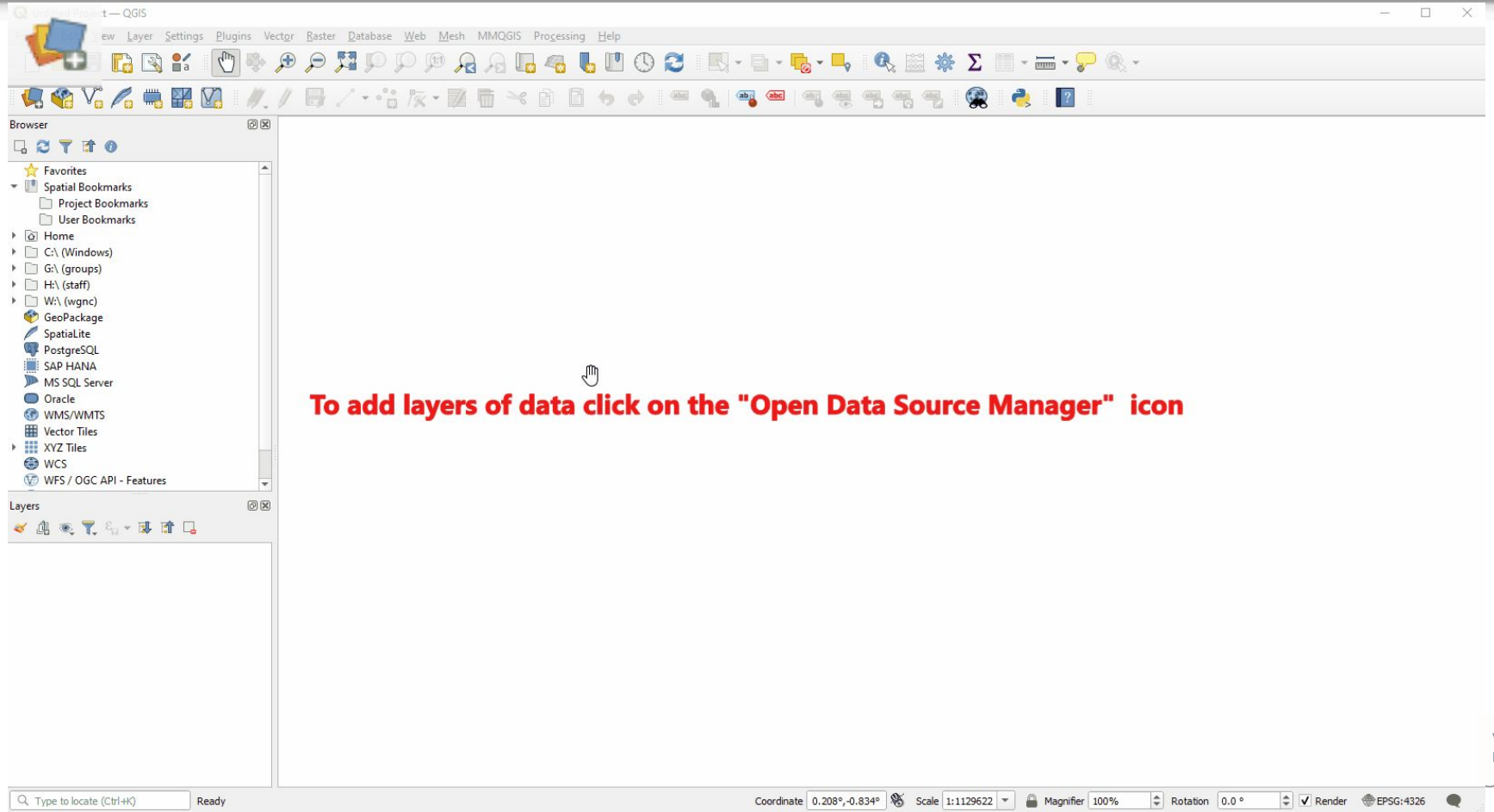
1. Click on the “Open Data Source Manager” icon
2. Select “Vector” from the side menu
3. Click on the three dots next to the Source box
4. Locate where the data layers are saved and select the SHP file extension
  - a. Select the file *0\_study\_area\_cover\_type.shp*
5. Click the “Add” button



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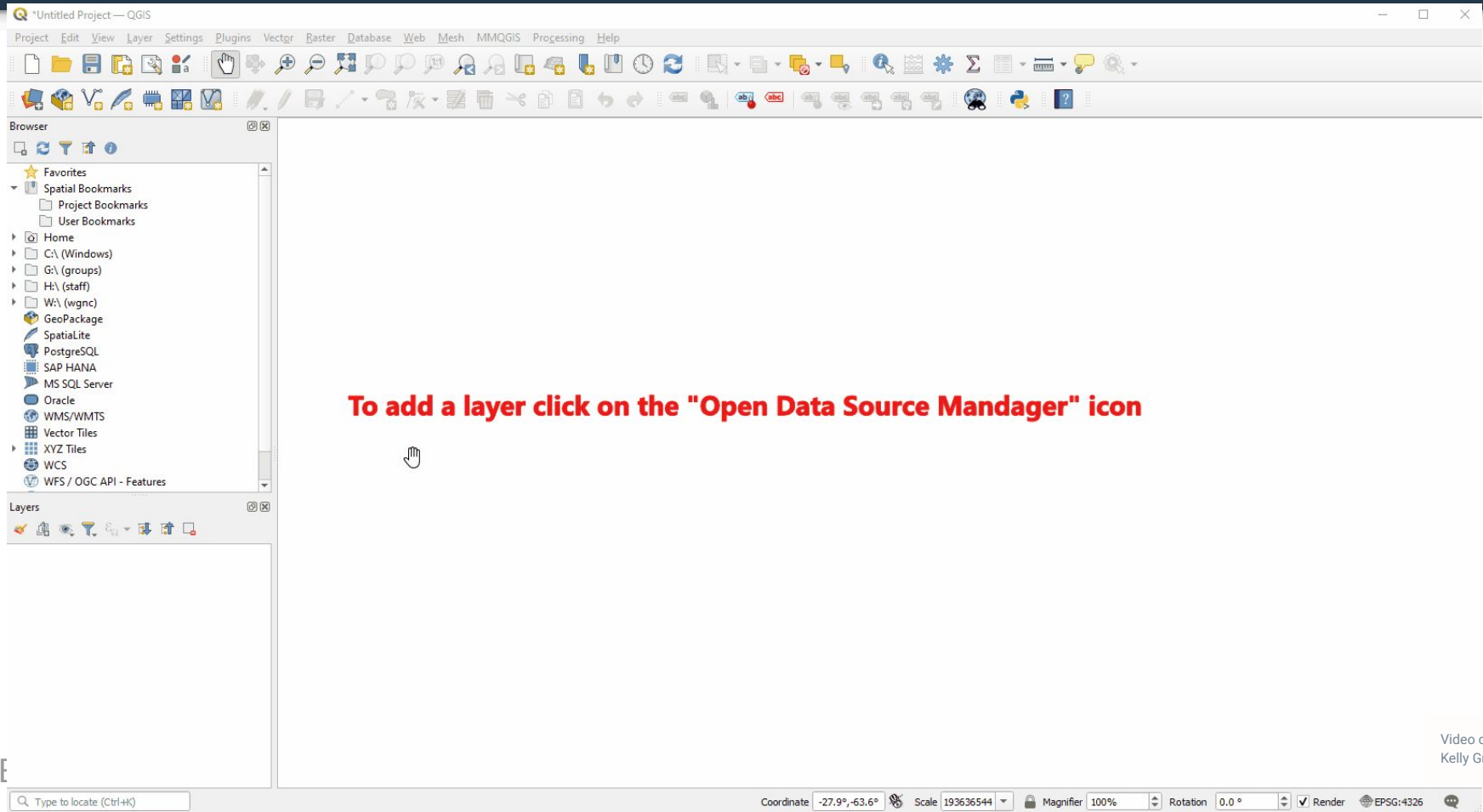
# Adding Vector Data in QGIS: Example Video



1. Click on the “Open Data Source Manager” icon
2. Select “Raster” type from the side menu
3. Click on the three dots next to the Source box
4. Locate where the data layers are saved and select the .tif file type
  - a. Select the files *0\_warblerProductivity.tif* and *0\_woodcockProductivity.tif*
5. Click the “Add” button



# Adding Raster Data in QGIS: Example Video

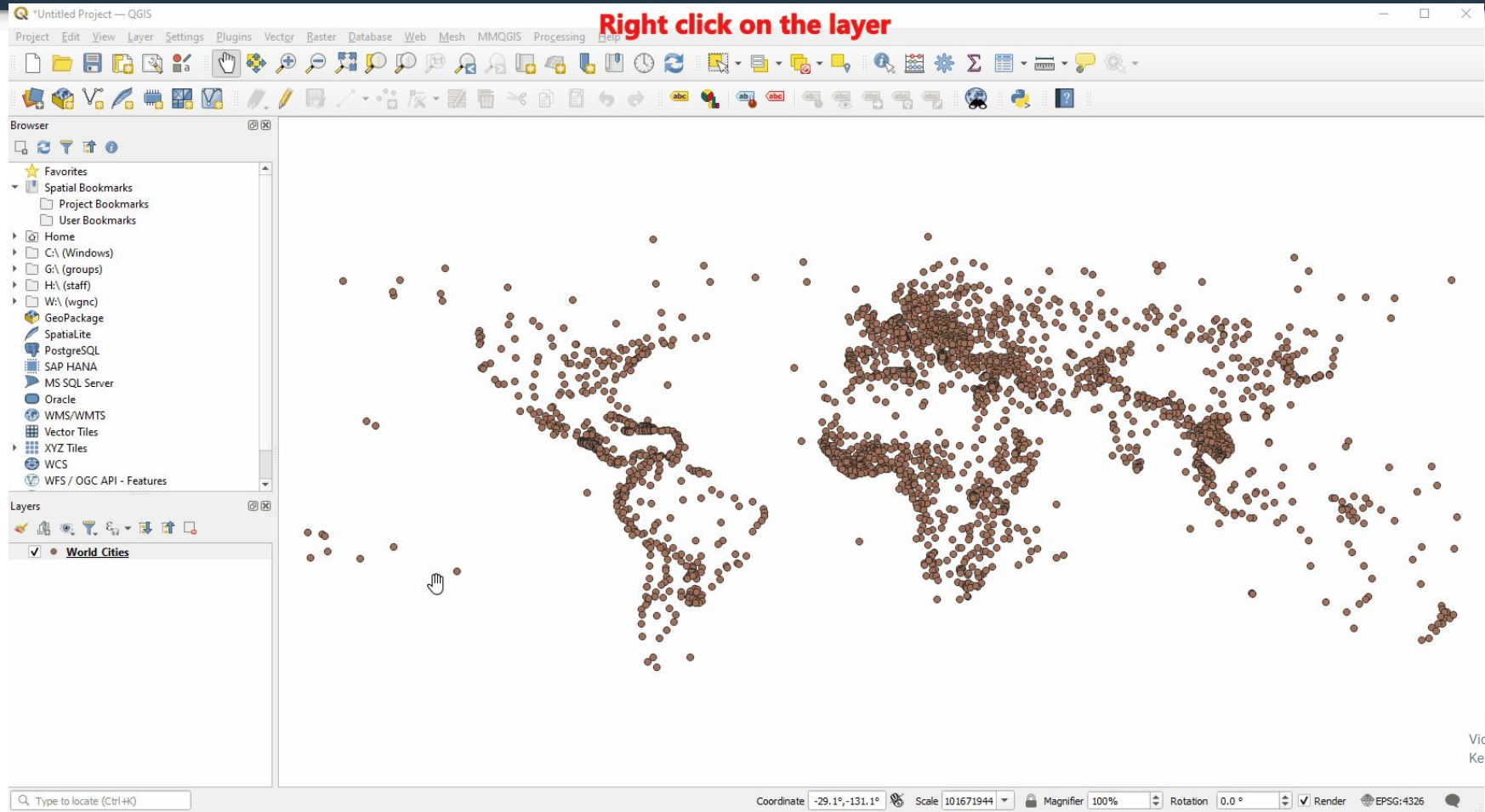


# Checking Layer Properties in QGIS

1. Right click on the layer you wish to check
  - a. Select the file 0\_study\_area\_cover\_type layer
2. Select “Properties” from the pop-up menu
3. Select “Information” from the side menu of the Layer Properties window

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# Checking Layer Properties in QGIS: Example Video

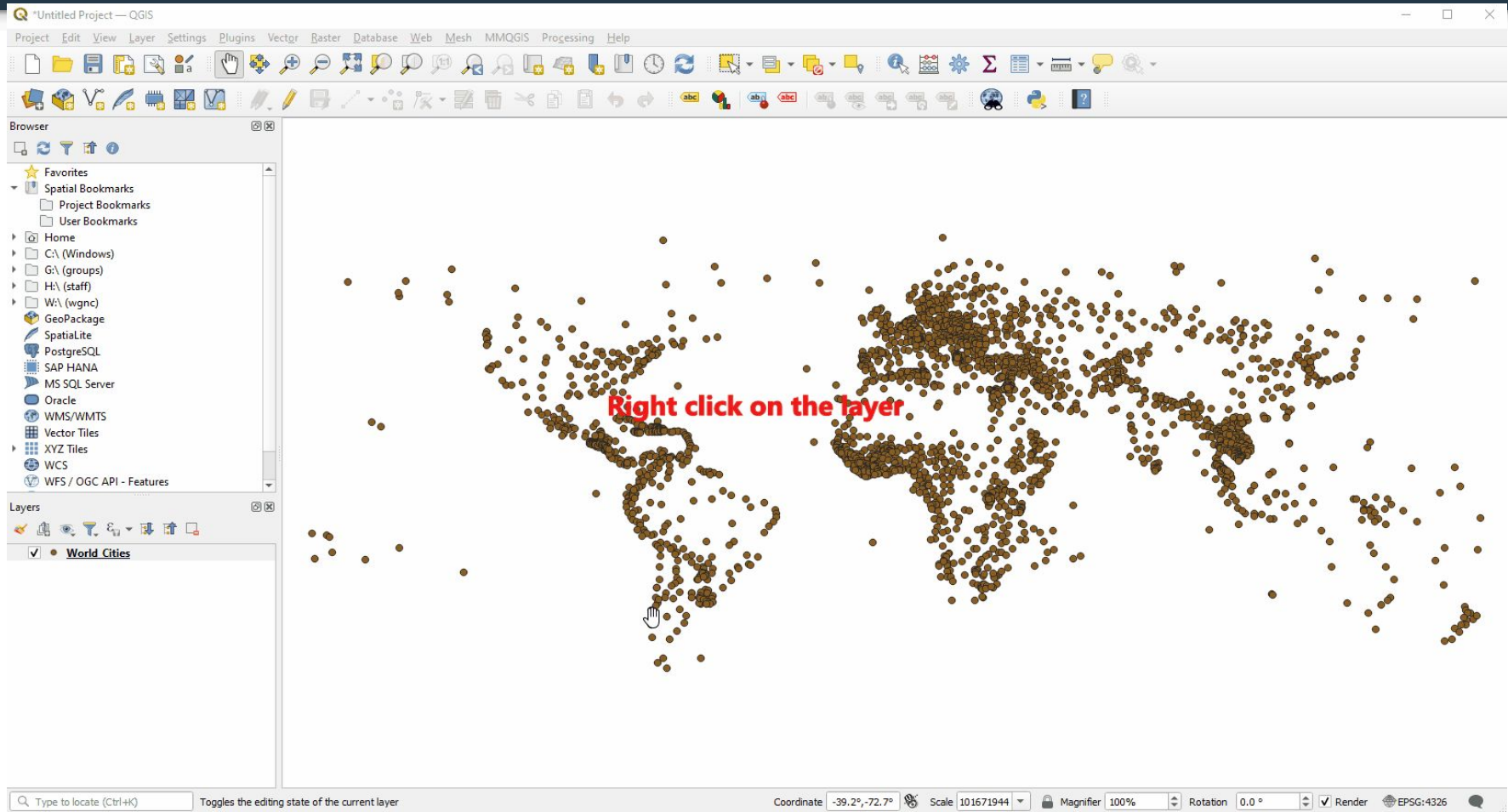


# Looking at Attribute Table in QGIS

1. Right click on the layer you wish to check
  - a. Select the file 0\_study\_area\_cover\_type layer
2. Select “Open Attribute Table” from the pop-up menu

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# Looking at Attribute Table in QGIS: Example Video



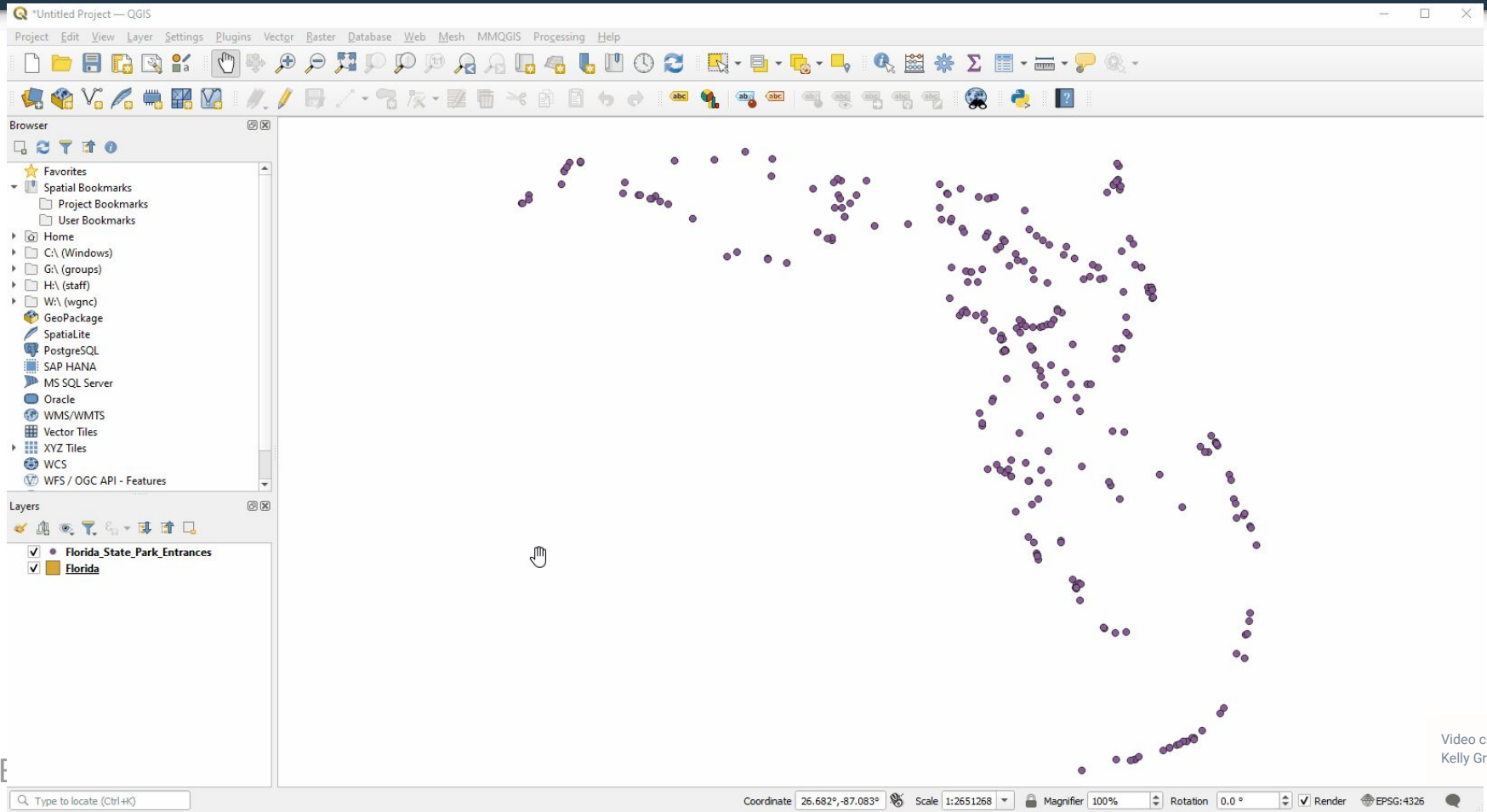
# On the Fly Projection Change in QGIS

1. Right click on the layer you want to change and go to “Layer CRS”
  - a. For this example we will change the projection of all three layers
2. Click on “Set Layer CRS”
3. Search for the projection you need or select from the recently used list
  - a. For this example search for EPSG:26915 - NAD/UTM zone 15N
4. Click OK
5. When the layer disappears right click on the layer and select “Zoom to Layer”

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# On the Fly Projection Change in QGIS: Example Video

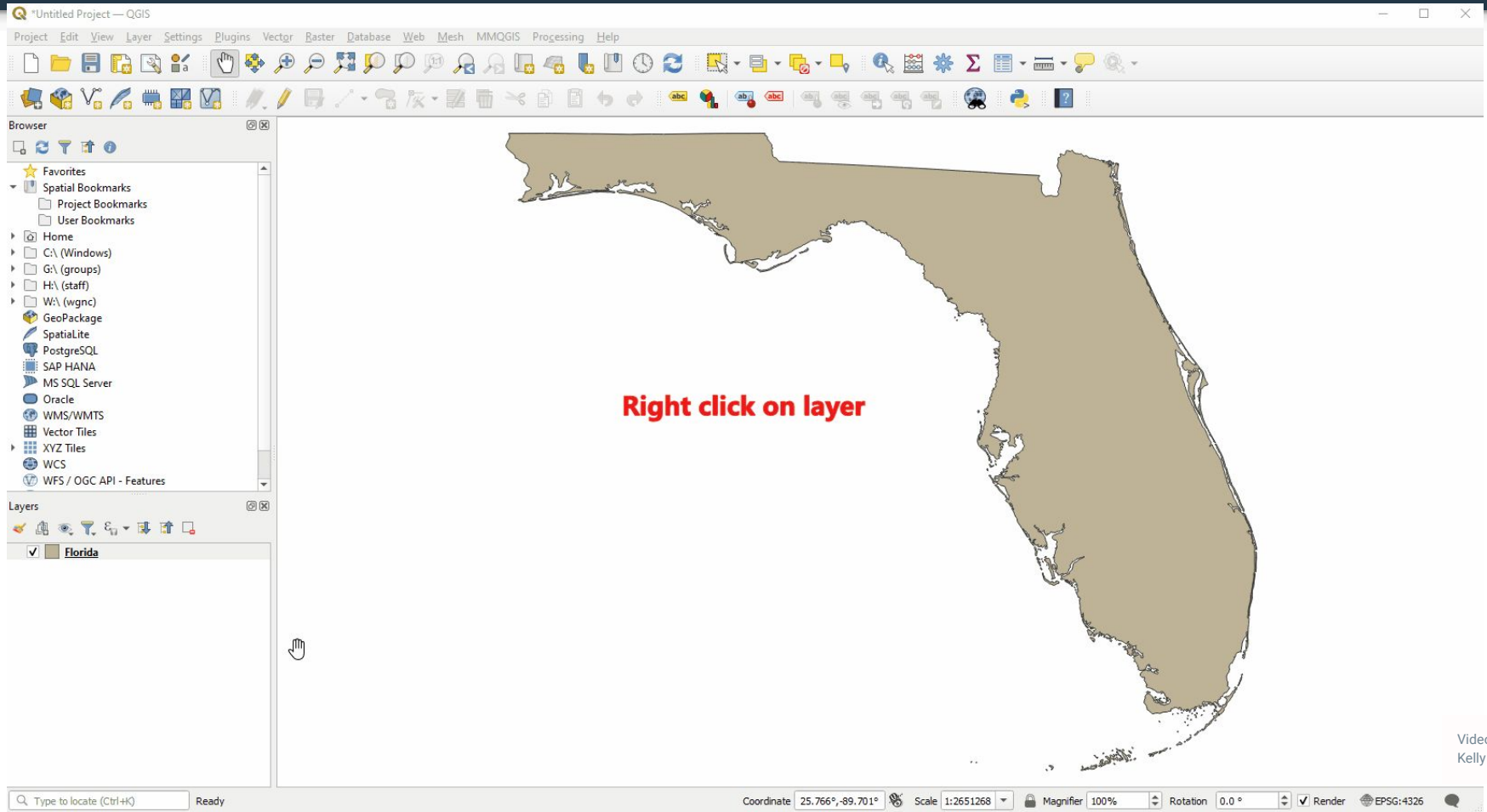


Video credit:  
Kelly Grove

# Save Layer in New Projection in QGIS

1. Right click on the layer
2. From the menu select “Export” and then “Save Feature As...”
3. Use drop down menu for “Format” to choose appropriate file format
4. Use the three dot button next to “File Name” to rename the file and place it in the appropriate folder
  - a. We suggest using same naming convention and adding the new projection name at the end of the file name (example:  
0\_study\_area\_cover\_type\_UTM15N)
5. Click on the globe icon to find the appropriate projection
  - a. Use the EPSG:26915 - NAD/UTM zone 15N projection for this example
6. Choose a transformation option that best fits your situation
  - a. For this example simply click okay when asked

# Save Layer in New Projection in QGIS: Example Video



# ArcGIS Pro



1. Check to see if your institution has a license for Esri ArcGIS Pro
  - a. If you do not have an account try using QGIS
2. Request an account from the department holding the license
3. Follow the [download instructions](#) for the program from Esri

# ArcGIS Pro Interface

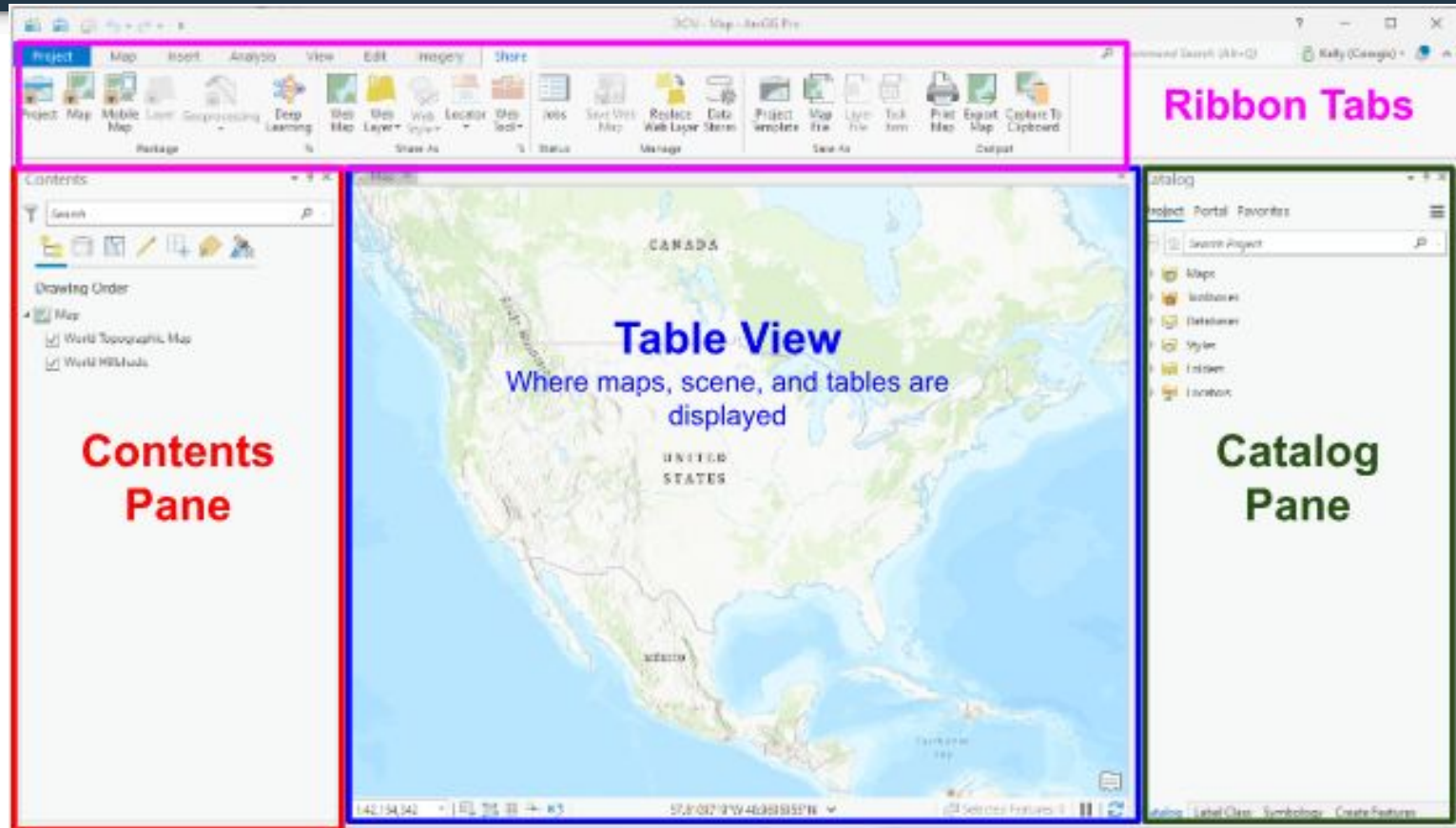


Image credit:  
Kelly Grove

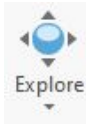
# Important Toolbar Icons in ArcGIS Pro



Add Data



New Map



Explore (pan around)



Zoom In



Zoom Out



Zoom to Full Extent



Open Attribute Table



Select Feature



Export Map

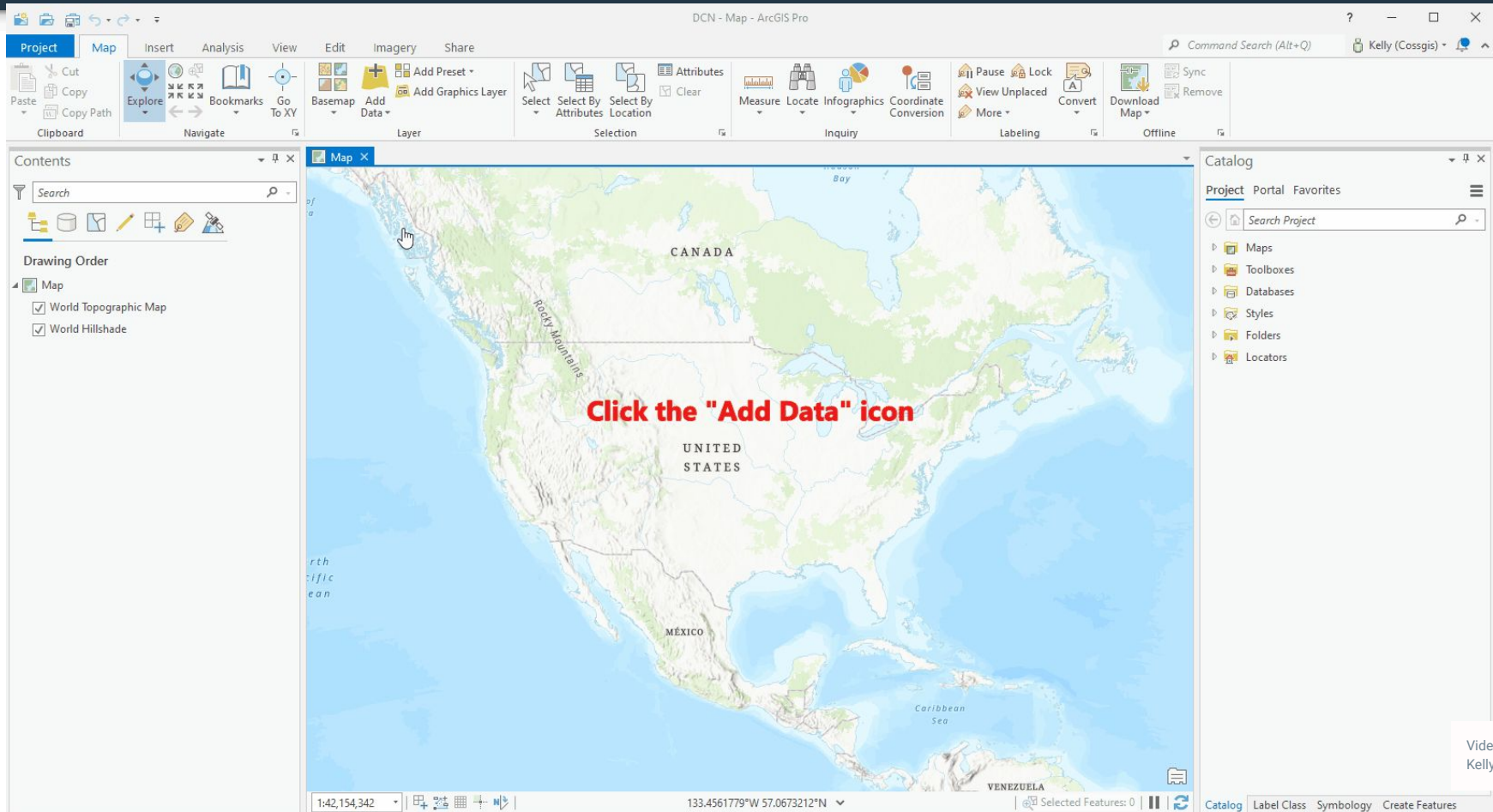
# Adding Vector Data in ArcGIS Pro

1. Click on the “Add Data” icon
2. Click on “Data - Add Data to Map”
3. Locate where the data layers are saved and select the correct file type
  - a. Add the vector file  
*0\_study\_area\_cover\_type.shp*

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# Adding Vector Data in ArcGIS Pro: Example Video



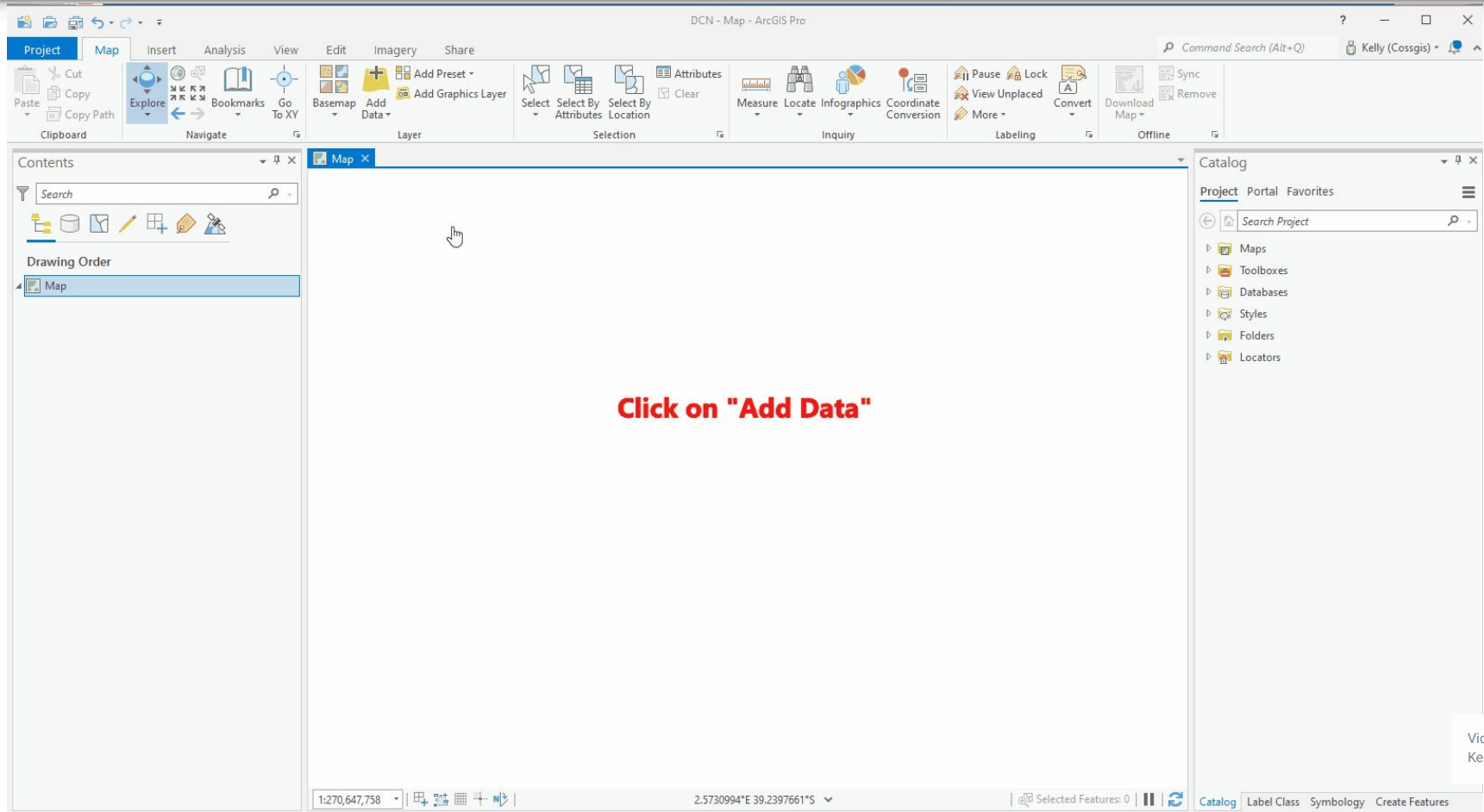
Video credit:  
Kelly Grove

# Adding Raster Data in ArcGIS Pro

1. Click on the “Add Data” icon
2. Click on “Data - Add Data to Map”
3. Locate where the data layers are saved and select the correct file type
  - a. Add the Raster files *0\_warblerProductivity.tif* and *0\_woodcockProductivity.tif*

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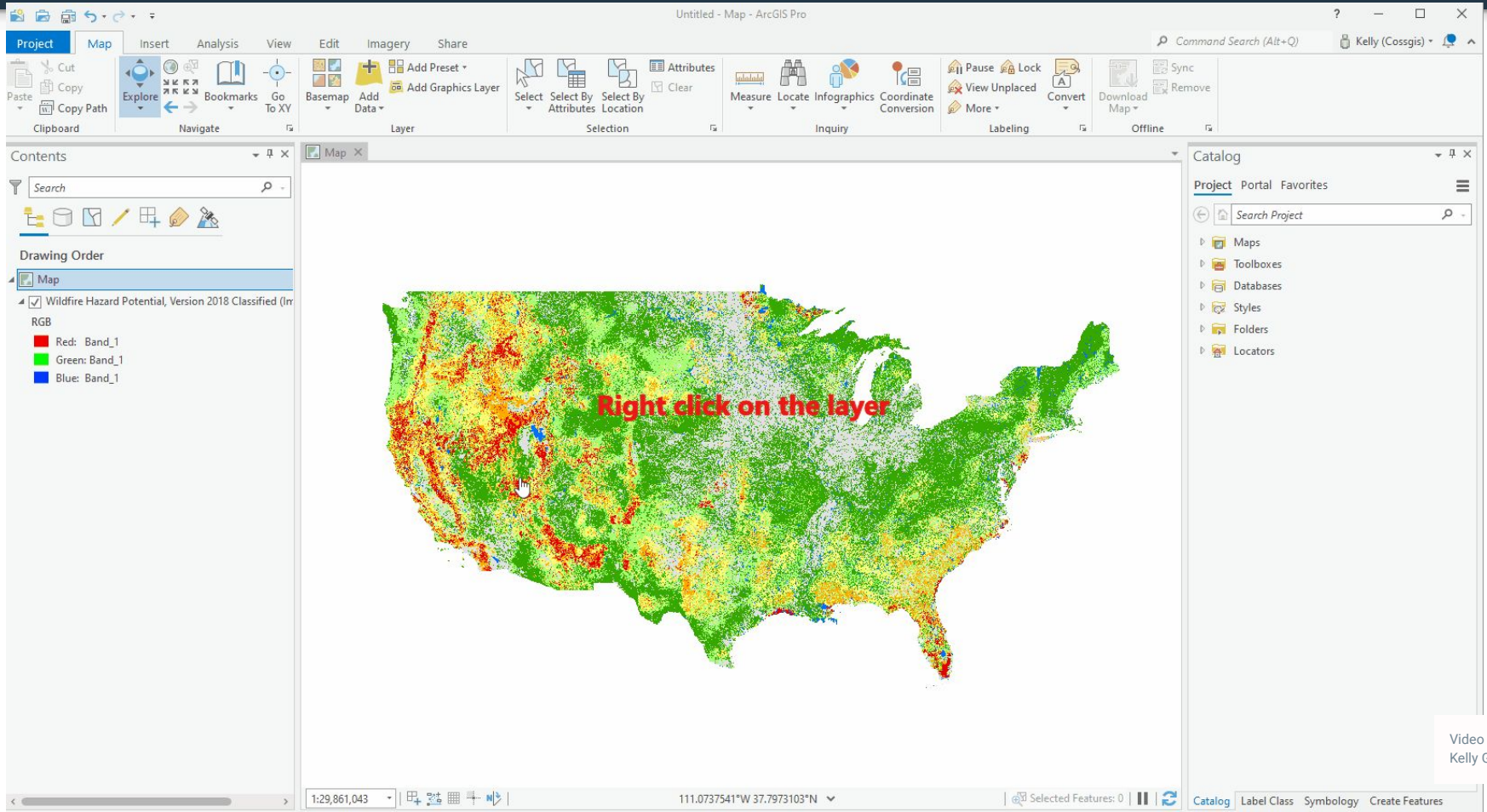
# Adding Raster Data in ArcGIS Pro: Example Video



Video credit:  
Kelly Grove

1. Right click on the layer
2. Select “Properties” from the pop-up menu

# Checking Layer Properties in ArcGIS Pro: Example Video



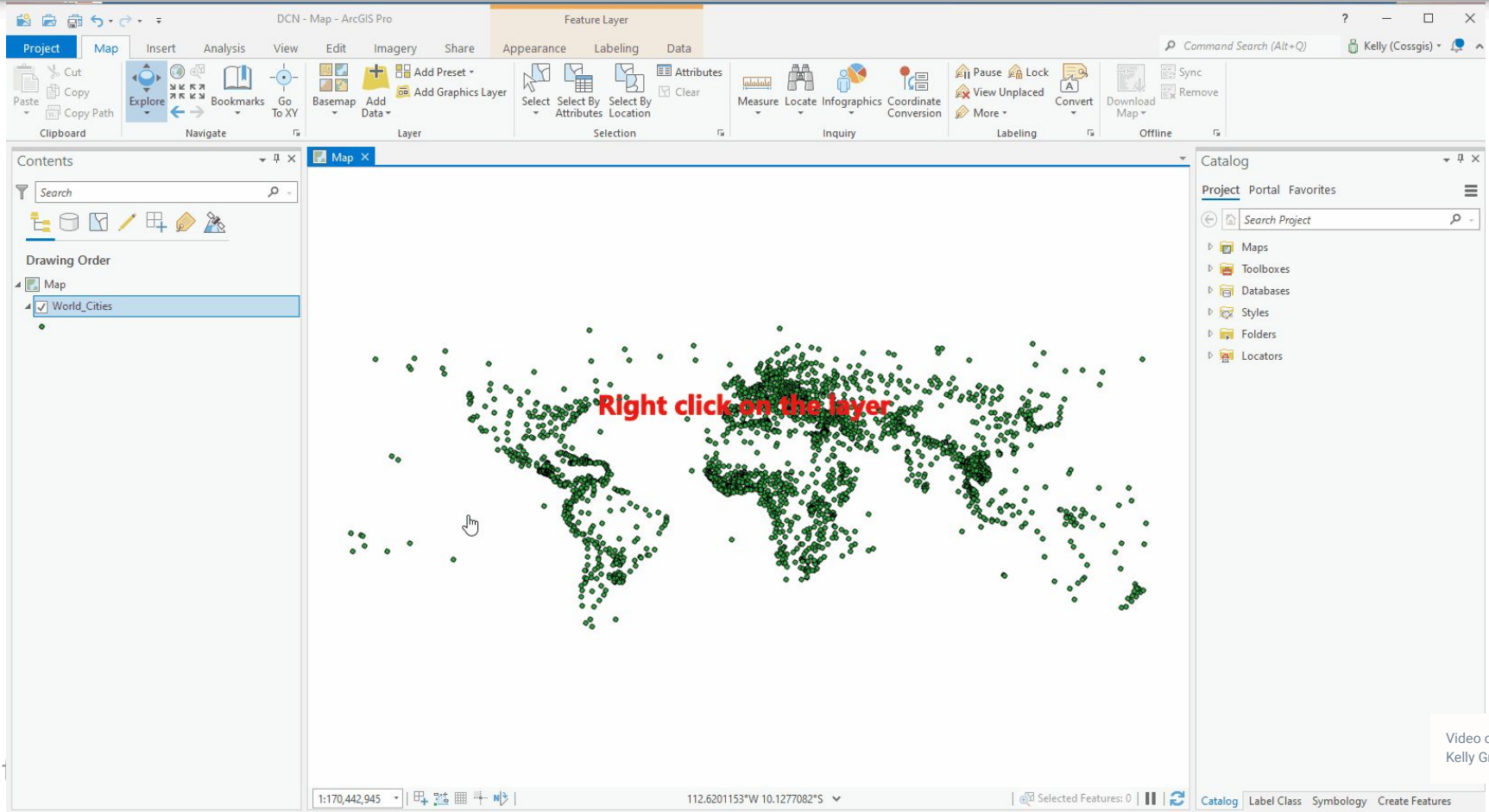
Video credit:  
Kelly Grove

# Looking at Attribute Table in ArcGIS Pro

1. Right click on the layer
  - a. Select the file  
0\_study\_area\_cover\_type layer
2. Select “Attribute Table” from the pop-up menu

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# Looking at Attribute Table in ArcGIS Pro: Example Video



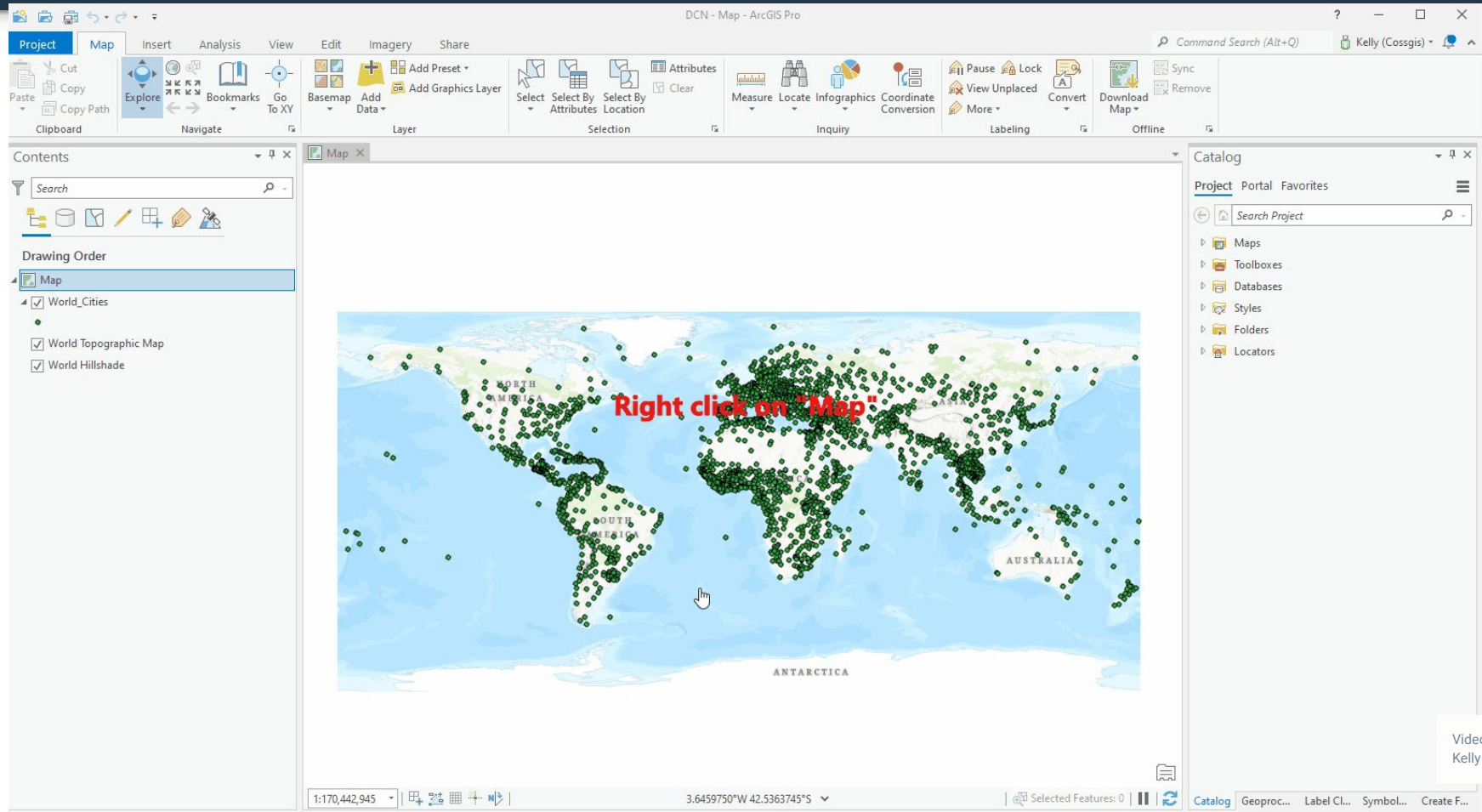
Video credit:  
Kelly Grove

# On the Fly Projection Change in ArcGIS Pro

1. Right click on the “Map” and select “Properties”
  - a. For this example we will change the projection of all three layers
2. Choose the “Coordinate Systems” Tab
3. Search for the coordinate system
  - a. For this example search for EPSG:26915 - NAD/UTM zone 15N
4. Click “OK”




# On the Fly Projection Change in ArcGIS Pro: Example Video




Video credit:  
Kelly Grove

# Save Layer in New Projection in ArcGIS Pro: 01

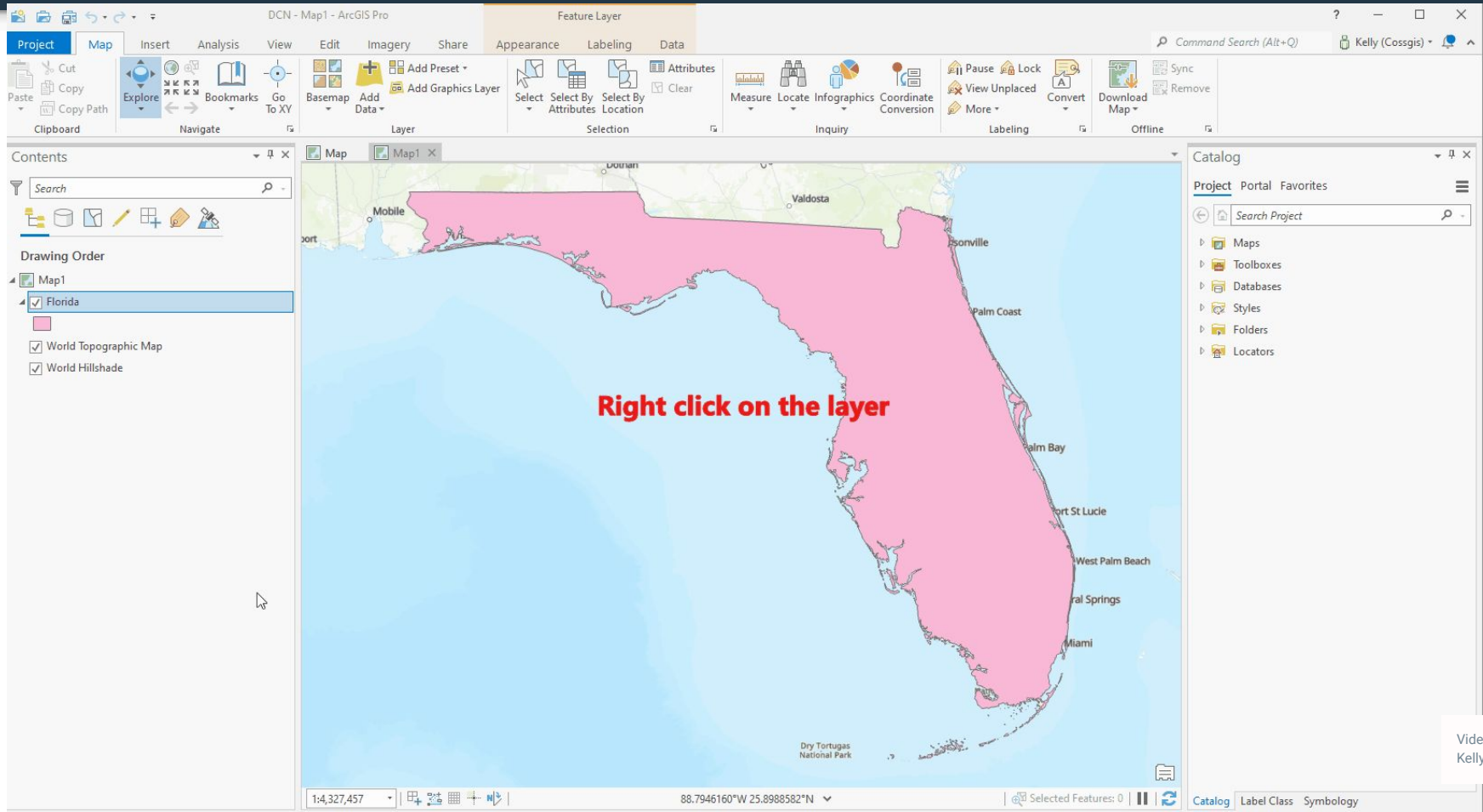
1. Under “Analysis” tab select “Tools”, in the catalog pane a Geoprocessing pane will open
2. Search for “project” in the search bar and select the correct tool
3. A form will appear, put the existing layer in the “Input Dataset or Feature Class box”
4. In the “Output Dataset or Feature Class” use the  button to navigate to the folder you wish to save the new layer too and give the file a unique and descriptive name
  - a. We suggest using same naming convention and adding the new projection name at the end of the file name (example: 0\_study\_area\_cover\_type\_UTM15N)

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# Save Layer in New Projection in ArcGIS Pro: 02

5. Click on the  button and search for the new coordinate system/projection
  - a. For this example search for EPSG:26915 - NAD/UTM zone 15N
6. Click Run
7. Check new layer is in the correct projection under “Properties”

# Save Layer in New Projection in ArcGIS Pro: Example Video



Video credit:  
Kelly Grove

# Module Objectives Review: Environment Setup

Send the instructor a screenshot of the following:

1. A picture of QGIS ( and ArcGIS Pro if applicable) downloaded to your computer
2. A picture of one of the vector datasets (.shp file) from the example dataset loaded and displayed in QGIS ( and ArcGIS Pro if applicable)
3. A picture of one of the raster datasets (.tif file) from the example dataset loaded and displayed in QGIS ( and ArcGIS Pro if applicable)