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Lesson 4: Using Google Earth Pro to Draw Field Boundaries for the Farm Map

INTRODUCTION

Google Earth Pro is free software that can be used to draw field boundaries for each farm. It is more user-friendly than the method for drawing boundaries in QGIS, but creates a file that can easily be uploaded into QGIS. To download the software, visit this link:

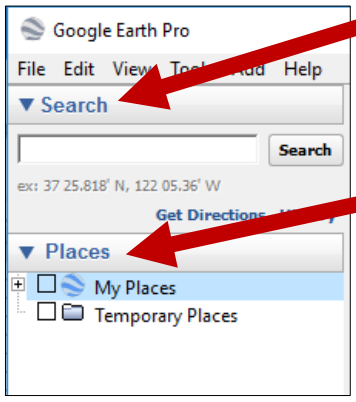
https://www.google.com/earth/download/gep/agree.html

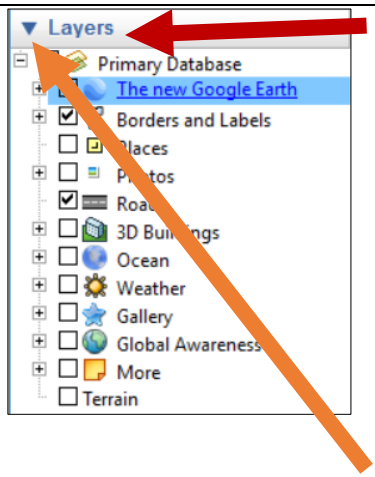
CONTENTS

In this document, you will find instructions for:

GETTING TO KNOW GOOGLE EARTH PRO

Instructions

Step	Action
1	Once Google Earth Pro is downloaded and installed, open the program.
2	Become familiar with Google Earth Pro:  • **Search box** ○ Type in an address or city/town to find the location of interest • **Places box** ○ The layers you create (like farm and field boundaries) will go under "My Places" ***Note**: If you open any .KML files in Google Earth, they will open in your "Temporary Places" section. You'll have to drag them up to your "My Places" section to keep them from disappearing when exiting.

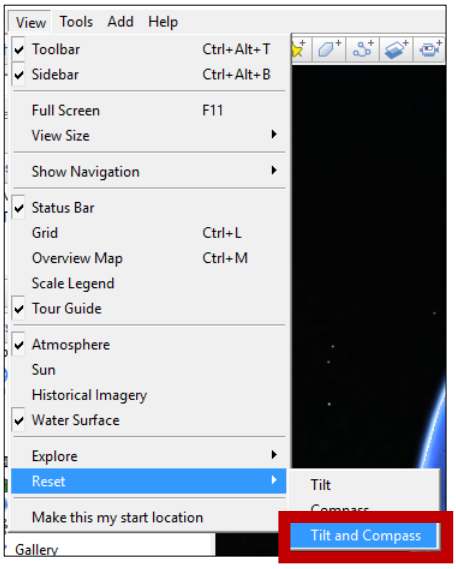


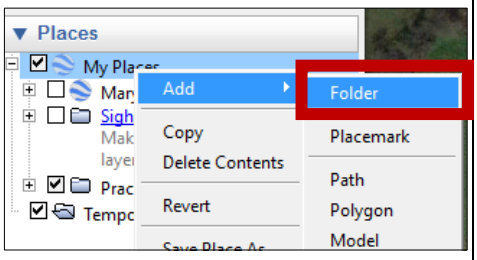
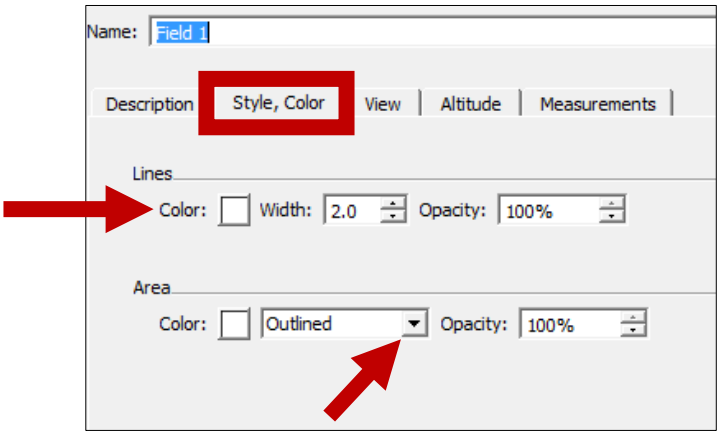
- **Layers box**
  - Make sure "Borders and Labels" and "Roads" have a checkmark next to them.
  - All other layers can be turned off (click on the box to remove the checkmark).
    - This will help Google Earth load faster the next time you open the program

***Note**: Any of these boxes can be minimized using the blue triangle next to the name. For example, click on the blue triangle next to "Layers" to minimize it.

LOCATING AND MAPPING THE PROPERTY OF INTEREST

Instructions

Step	Action
1	When Google Earth is open, a globe or map is displayed on the right side of the screen and three boxes; Search, Places and Layers are displayed on the left. a) In the Search box, enter the address of the property for which you will create a map. Then press return or click on "Search". An aerial view of the property will display on the right side of the screen.  b) In the toolbar, click on "View" -> "Reset" -> "Tilt and Compass". This will reset and align the aerial view. You may need to repeat this step often as you zoom in and out of the map.

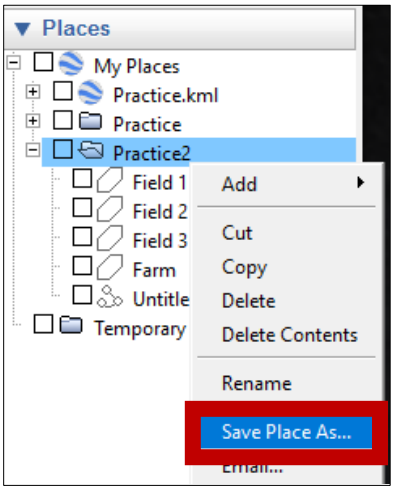
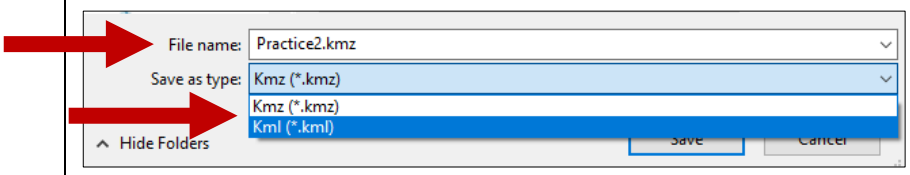
2	In the "Places" box, right click on **My Places**, then click "Add" then "Folder" to create a folder to store this map. Give the folder the operator's name, then click "OK". 
3	If the client farms multiple tracts/farms you may choose to add additional folders for each farm/tract within the client folder. • Right click the client's folder, and then choose "Add" and "Folder". Give the folder the tract/farm name.
4	Right click on the tract/farm folder you just created. Choose "Add" and choose "Polygon". a) Give the polygon a field name/number (you may choose to include the farm name to keep things organized). ○ Within this "Google Earth - New polygon" box, click on the "Style, Color" tab. Under **Lines**, select the line color you wish to use (white copies best) and width of the line. Select the color by clicking on the white box to the right of the word **Color**. This will bring up the color palette. ○ Under **Area** choose "outlined" from the drop-down menu.  b) **Do Not** click "OK" or close the New Polygon box yet. c) Move your cursor over to the map. It will change to a square. Click around the perimeter of the field you want to outline. d) When finished with that field, click "OK" in the New Polygon box to close it.

5	Repeat step 4 for each of the fields on the farm until all fields are outlined.
6	As always, reset the tilt and compass of your map when you are finished making changes. • In the toolbar, click on “View” -> “Reset” -> “Tilt and Compass”.

EXPORTING THE BOUNDARIES FOR USE IN QGIS

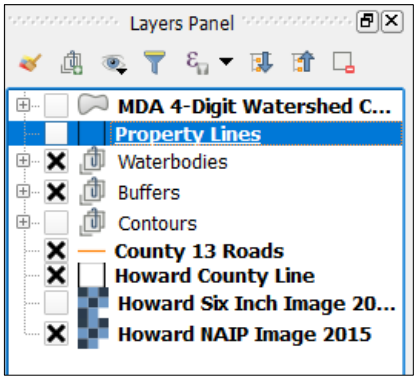
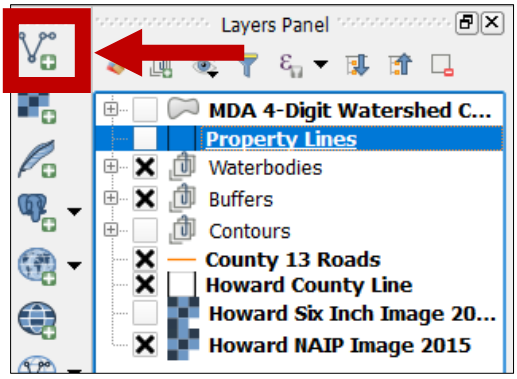
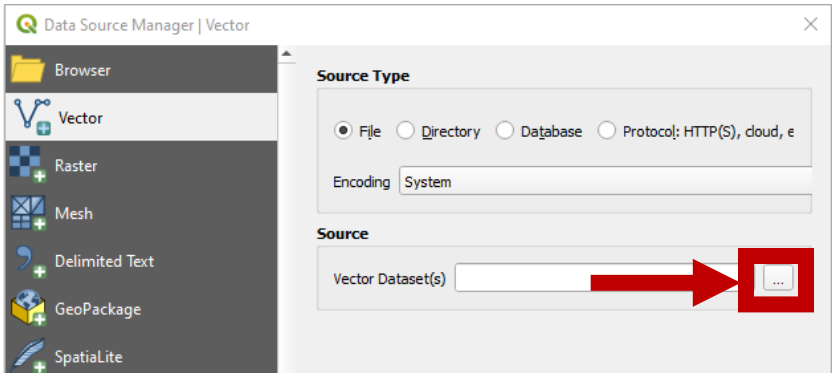
Instructions

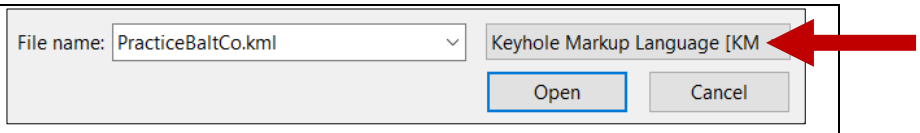
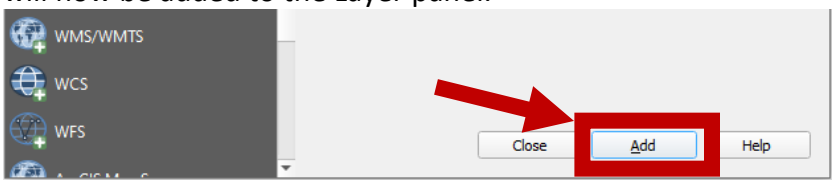
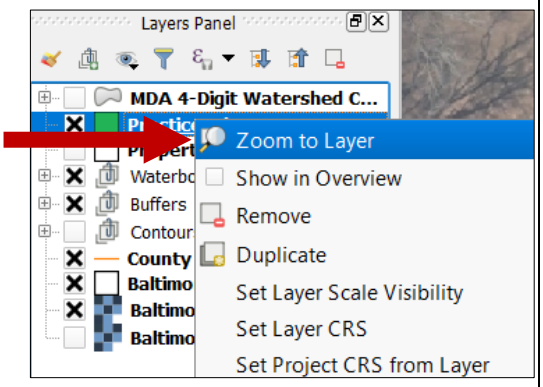
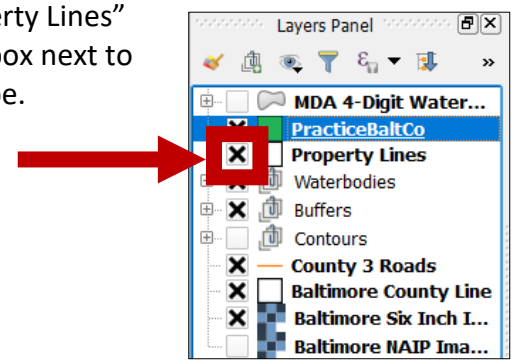
To export the field boundaries drawn in the previous section, you will need to save them as a keyhole markup language file (kml). While individual fields can be saved and added to QGIS, saving the whole farm is more practical for the purpose of nutrient management.

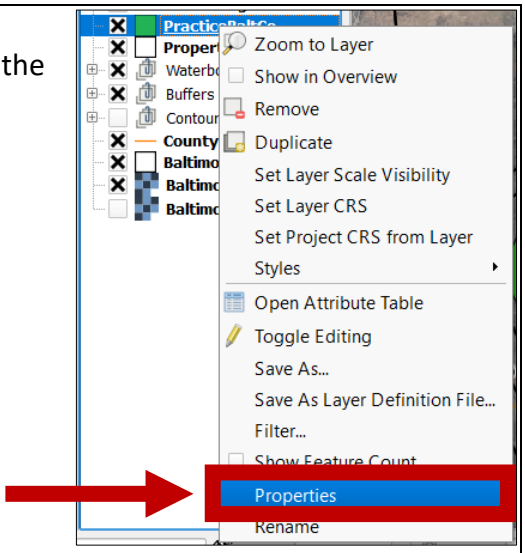
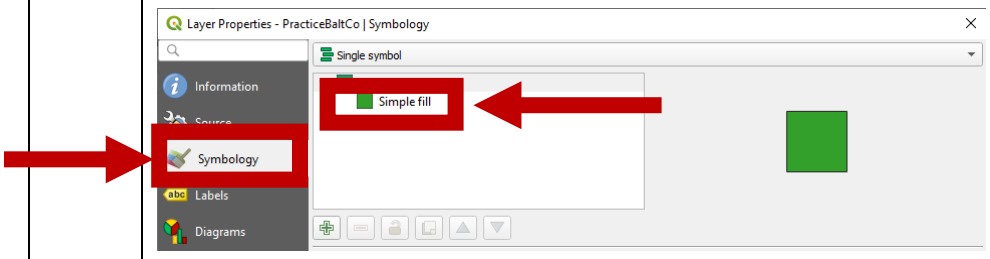
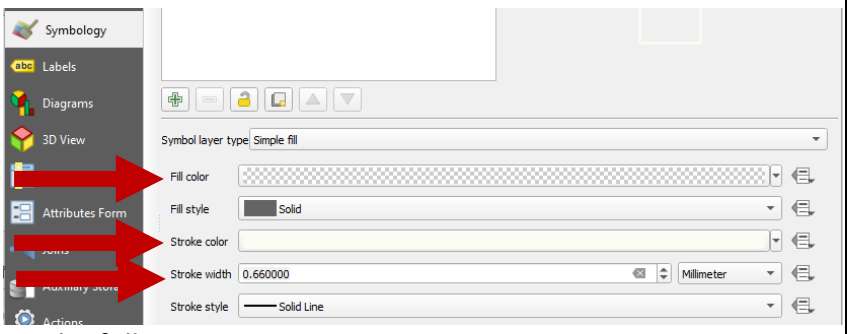
Step	Action
1	Right click on the farm folder under which all field and property boundary polygons are saved. Next click on “Save Place As”. 
2	In the “Save file…” window: • Navigate to the operator’s nutrient management plan folder. You may want to create a “Map” subfolder. • Enter a file name. • Change the “Save as type” from kmz to kml. • Click Save. 

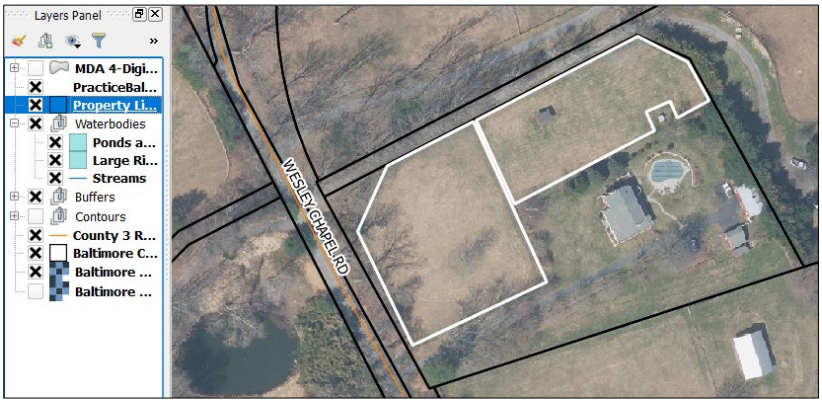
LOADING THE KML FILES INTO QGIS

Instructions

Step	Action
1	Navigate to and open the county Base Map project file.
2	To load the field boundaries, highlight the Property Lines layer on the **Layer panel** by clicking on it. This will ensure that when the KML file is loaded, it will not be hidden by other layers. 
3	Click on the "Add Vector" Icon. 
4	In the "Data Source Manager" window, click on "…" to navigate to the KML file. 
5	Navigate to the folder where the KML file was saved. Make sure "keyhole markup file" is selected using the drop down menu next to the **File name** if you are having trouble finding your file. Select the file and click open.

	
6	In the “Data Soource Manager” window, click on “Add”. The file will now be added to the Layer panel. 
7	Right click on the newly added layer, and then click on “Zoom to Layer”. 
8	Next, turn on the “Property Lines” layer by clicking on the box next to the layer name and shape. 
9	View the **Map Canvas.** The black lines represent the property lines. The field boundaries that you imported into QGIS will be filled with a solid color. 

10	To change the field properties, right click on the layer and then on “Properties”. 
11	In the “Layer Properties” window, click on the “Symbology” tab on the left side of the screen. Then click on “Simple fill” near the top of the screen. 
12	Now move to the lower portion of the “Symbology” window…  Do the following: • Use the drop down button next to **Fill Color**. Click on “Transparent Fill”. • If you’d like to change the **Stroke color** (color of field outline), choose a color that is easily visible using the drop down menu. • Change the **Stroke width** to 0.66. • When finished, click on “OK” at the bottom of the window.

13	The Map Canvas now shows field and property boundaries. 
14	Make sure you have saved this project as a separate file. Do NOT save the changes you have made to the original Base Map.

FINISHING MAP IN MS WORD

Instructions

Once you have the farm/field boundaries in QGIS, use the Windows 'Snipping Tool' to take a snapshot of the map and bring into MS Word. In Word, you can add text boxes to include other information such as field identifiers, acreage, farm name, account ID, etc.

Alternatively, skip to Lesson 7 to learn how to create a finished map product within QGIS (version 3.4 or later).