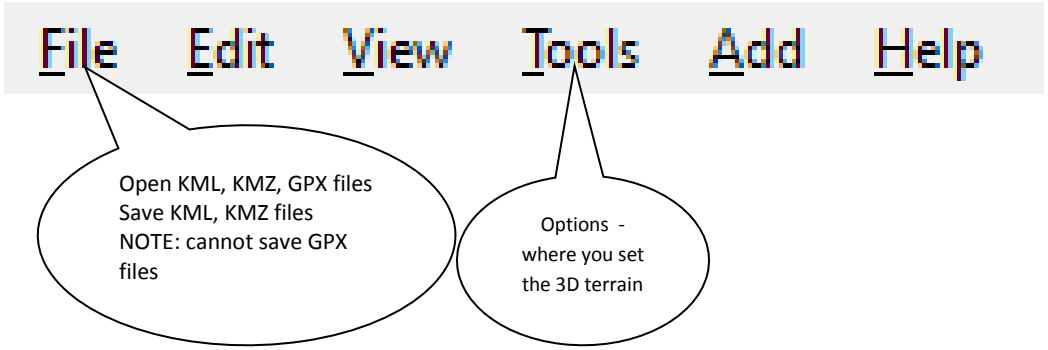
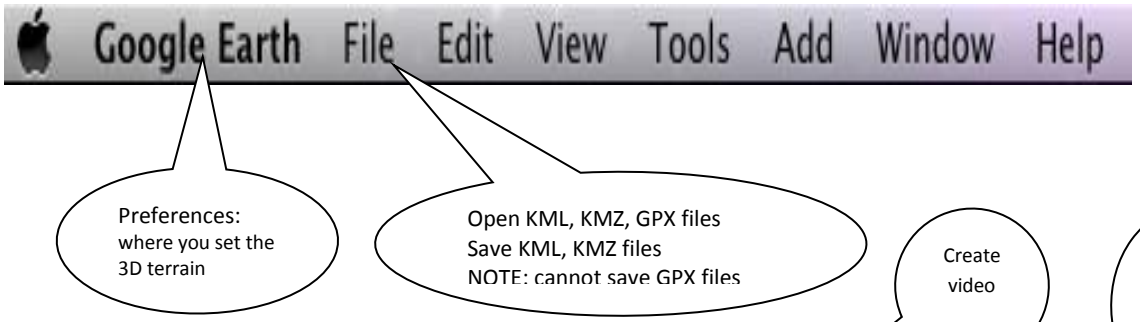
Google Earth Basic Screen

Download at: http://www.google.com/earth/index.html

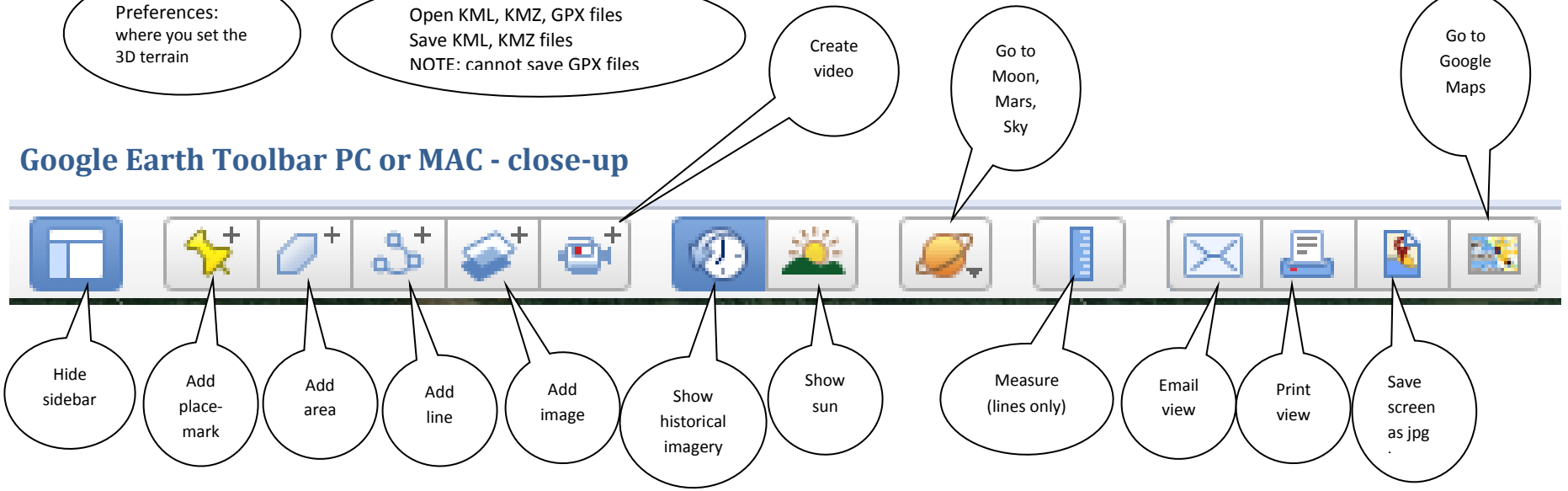
Google Earth Menu PC - close-up



Google Earth Menu Mac - close-up



Google Earth Toolbar PC or MAC - close-up



Adding Features to Google Earth - Placemarkers

1) If you wish to place the feature in a new folder, right click on My Places / Add Folder. Give the folder an appropriate name in the Folder Properties window *Optional:* Right click on that folder to add subfolders (give each subfolder an appropriate name)
2) Select the folder you want to add data to and then click on the Add Placemarker Tool  - a Properties window for the new placemarker opens

3) Change the Name to something appropriate and click marker type (to the right of the name) and select a marker type / color/ and size.
4) Grab the placemarker by clicking on it with the left mouse button and move it where you wish it to be
5) Type in any other information you want to store about the area in the Description Tab
6) Click OK to Save
7) Make sure you save the new files to the proper folder on the C:/ drive. It is always good practice to save your work before moving on. Right mouse click the file or folder and select Save Place As. Navigate where you want to store you data and save it there.

Editing a Feature in Google Earth - Placemarkers

1) Right click on the placemarker in My Places that you wish to edit and select the "Properties" menu it at the bottom of the list (MAC users select "Get Info" at the bottom of the list) - the Properties window for that placemarker opens
2)Grab and move the placemarker using the left mouse button
3)Edit Names and Description in the Description tab, color and opacity in the Style / Color tab, or change the placemarker type by clicking on the placemarker icon to the right of Name)
4) Click save to save and exit

Adding Features to Google Earth - Paths

1) If you wish to place the feature in a new folder, right click on My Places / Add Folder. Give the folder an appropriate name in the Folder Properties window *Optional:* Right click on that folder to add subfolders (give each subfolder an appropriate name)
2) Select the folder you want to add data to and then click on the Add Path Tool  - a Properties window for the new path opens

3) Change the Name to something appropriate and click on the Style/Color Tab - set the color / opacity you want.
4) Digitize the path the shape and length you want it.

- Single click creates 1 vertex
- Hold the left mouse button down creates streaming vertices
- Right mouse key OR Delete key on keyboard will delete the last vertices created in order
- To edit or move a vertex, place the curser over it until the vertex turns green (and you see a hand with a pointing finger) - then left mouse click on the green vertex and, holding the left mouse button down, move the vertex where you want it to go.
- You can add a new vertex between two existing ones but it must be in proper direction: select the vertex that is directly BEFORE the new vertex you wish to add (ie hold the curser over it until it is green and click on it to select it); then click on the path line where you wish to place the new vertex. You may select and move that vertex where you wish after

5) Click on the Measurements Tab to see the length. *Optional:* type that length estimate in the Description Tab so it pops up when you click on it.
6) Type in any other information you want to store about the path in the Description Tab
7) Click OK to Save
8) Make sure you save the new files to the proper folder on the C:/ drive. It is always good practice to save your work before moving on. Right mouse click the file or folder and select Save Place As. Navigate where you want to store you data and save it there.

Editing a Feature in Google Earth - Paths

1) Right click on the path in My Places that you wish to edit and select the "Properties" menu it at the bottom of the list (MAC users select "Get Info" at the bottom of the list) - the Properties window for that path opens
2)Edit vertices according to #4 above
3)Edit Names and Description in the Description tab, color and opacity in the Style / Color tab, obtain the new length (if any vertices were edited in 2) above) in the Measurements tab

Adding Features to Google Earth - Polygons

1) If you wish to place the feature in a new folder, right click on My Places / Add Folder. Give the folder an appropriate name in the Folder Properties window *Optional:* Right click on that folder to add subfolders (give each subfolder an appropriate name)
2) Select the folder you want to add data to and then click on the Add Polygon Tool  - a Properties window for the new polygon opens

3) Change the Name to something appropriate and click on the Style/Color Tab - set the color / opacity you want.
4) Digitize the polygon the shape and size you want it.

- Single click creates 1 vertex
- Hold the left mouse button down creates streaming vertices
- Right mouse key OR Delete key on keyboard will delete the last vertices created in order
- To edit or move a vertex, place the curser over it until the vertex turns green (and you see a hand with a pointing finger) - then you left click on the green vertex and holding the left mouse button down, move the vertex where you want it to go.
- You can add a new vertex between two existing ones but it must be in clockwise direction: select the vertex that will directly AFTER the new vertex you wish to add (ie hold the curser over it until it is green and click on it to select it); then click on the polygon line where you wish to place the new vertex. You may select and move that vertex where you wish after

5) *Optional:* type that acreage estimate from EasyAcreage (seen in next section) in the Description Tab so it pops up when you click on it.
6) Type in any other information you want to store about the area in the Description Tab
7) Click OK to Save
8) Make sure you save the new files to the proper folder on the C:/ drive. It is always good practice to save your work before moving on. Right mouse click the file or folder and select Save Place As. Navigate where you want to store you data and save it there. **Note: If you want to calculate acreage of your polygons using EasyAcreage - you must save them as .kml files (not .kmz). Note: EasyAcreage only works on PC as of this edit.**

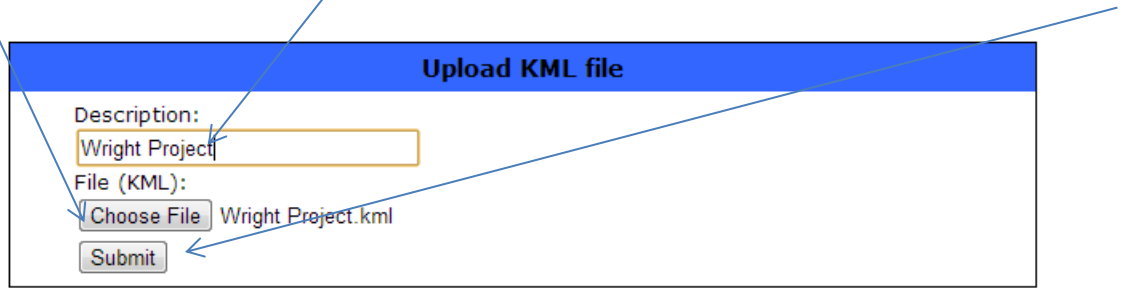
Editing a Feature in Google Earth - Polygons

1) Right click on the polygon in My Places that you wish to edit and select the "Properties" menu it at the bottom of the list (MAC users select "Get Info" at the bottom of the list) - the Properties window for that polygon opens
2)Edit vertices according to #4 above
3)Edit Names and Description in the Description tab, color and opacity in the Style / Color tab, obtain the new acreage (if any vertices were edited in 2) above) in the Measurements tab
4) Click save to save and exit

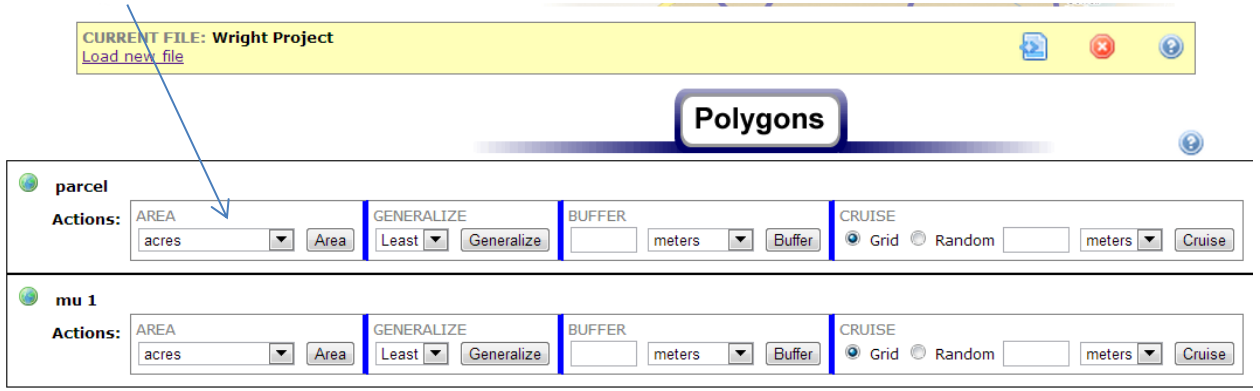
Calculating Acreage for Google Earth Polygons Using UNH Cooperative Extension KML Tools Project

Unfortunately, Google Earth at present does not calculate acreage. However the University of New Hampshire Cooperative Extension has created a free set of "KML Tools" that provides (among other things) acreage calculations of kml polygons files.

- Create polygons as described above, save them to the folder you want to keep them- **Note: make sure they are saved as .kml files and not .kmz – KML Tools only uses .kml files**
- Go to the UNH CES KML Tools Project website: http://extension.unh.edu/kmlTools/
- Follow the easy instructions:
  - Select your .kml file and add a desricption (you cannot proceed until a description is typed in). Click Submit.

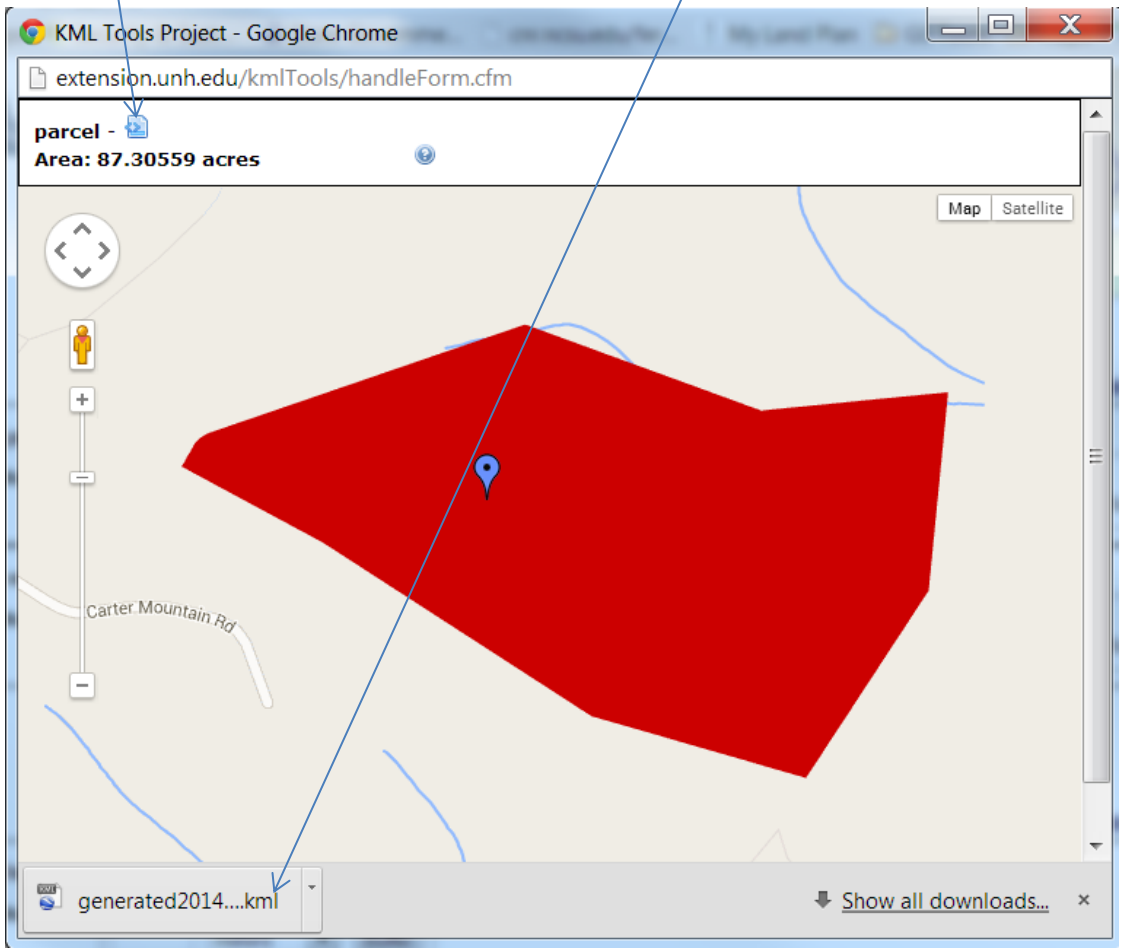


- The next screen will show you all the feature that are in the .kml file. In the example below, there are two polygon features, "parcel" and "mu 1". Select "acres" in the dropdown box for AREA. Then click area.



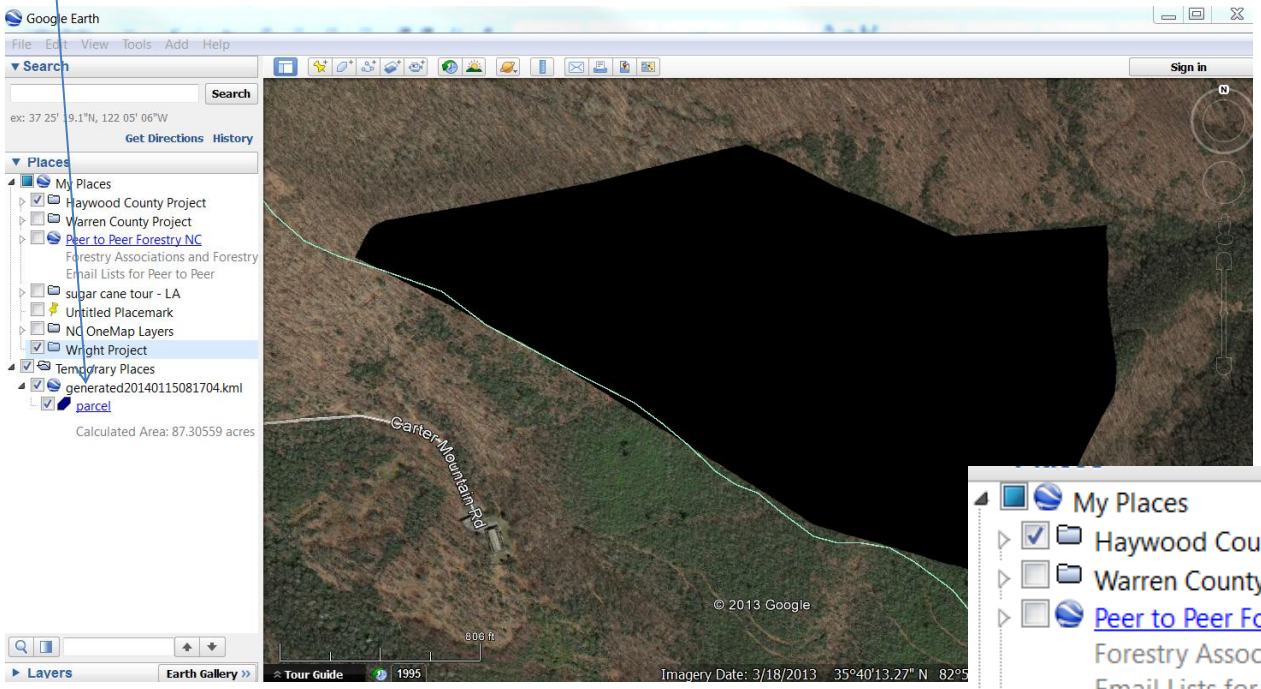
Calculating Acreage for Google Earth Polygons Using UNH Cooperative Extension KML Tools Project (continued)

- KML Tools creates a new feature calculates its acreage and posts it to Google Maps. You can either jot down the acreage and type it in the description of your feature in GE project, or your can download the new feature and pull it into GE and replace your original. To do so you click on the **download button**. By doing so, the following "generated" kml file is created. You can double click this with the mouse and it will place it it the Temporary Places in GE.

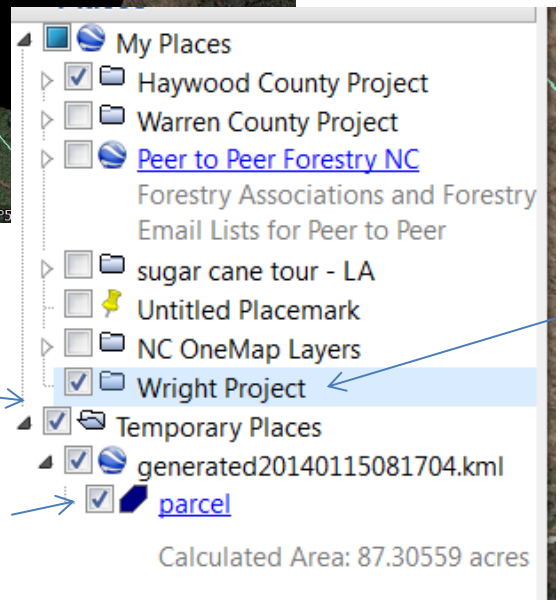


- **Calculating Acreage for Google Earth Polygons Using UNH Cooperative Extension KML Tools Project (continued)**

- Generated Parcel added to Google Earth Tempoary Places.



- You can expand the generated kml file select the parcel feature, Copy it, and Paste it into your Project Folder
- You can open the Parcel Properties and set the fill and outline colors as needed.
- Do this steps for all remaining polygons



1) Expand the "generated" kml file.

2) Copy the parcel feature.

3) Paste in your project folder.

Adding Web Map Services to Google Earth

Numerous agencies are developing web map services that can load data directly onto GE. You do not need to load all their data on your computer, you simple run a kml file that gets the data from there server and dynamically displays it on your computer. Better yet, you can save the kml in My Places so it loads everytime you open GE. You can turn them on and off so as you do other layers in My Places so you don't have wait for them to load each time you move around. Below are few examples from NCOneMap and the University of California.

1) Create a folder in the My Places section in GE named "Map Services Files"

Hydrography (NC Only)

1) Go to NC OneMap 2010 Data Explorer : http://204.211.160.20:8080/geoportal/dataexplorer/index.jsp
2) On the top left under "Find Services" tpye in "hydrography"
3) In the Search NC OneMap window that pops up select "NC OneMap Hydrography – Map Service"
4) The window expands – now select "Globe (.kml)" – this will download a "NC1Map_Hydrography.kmz" file to your computer.
5) Double click this and GE will open and place this in the Temporary Place section.
6) Copy this and paste it in your "NC OneMap Map Service Files" folder.
7) Save My Places (File / Save / Save My Places)

2010 Aerial Orthophotography (NC Only)

1) Go to NC OneMap 2010 Data Explorer : http://204.211.160.20:8080/geoportal/dataexplorer/index.jsp
2) On the top left under "Find Services" tpye in "2010 orthophotography"
3) In the Search NC OneMap window that pops up select "NC OneMap 2010 NC Statewide Orthoimagery - ArcGIS Image Service"
4) The window expands – now select "Download/Open" a new window opens. At the top line "View In" select "Google Earth" – this will download a "Imagery_Orthoimagery_2010.kmz" file to your computer.
5) Double click this and GE will open and place this in the Temporary Place section.
6) Copy this and paste it in your "NC OneMap Map Service Files" folder.
7) Save My Places (File / Save / Save My Places)

Soils Series (Whole US)

1) Go to University of California SoilWeb site : http://casoilresource.lawr.ucdavis.edu/drupal/book/export/html/902
2) Scroll down until you see the section "Dynamic Export of Soil Survey Data to KML through Soil-Web
3) There you will see a link "this KML file" – click on it and it will download a "SoilWeb.kmz" file to your computer.
4) Double click this and GE will open and place this in the Temporary Place section.
5) Copy this and paste it in your "NC OneMap Map Service Files" folder.

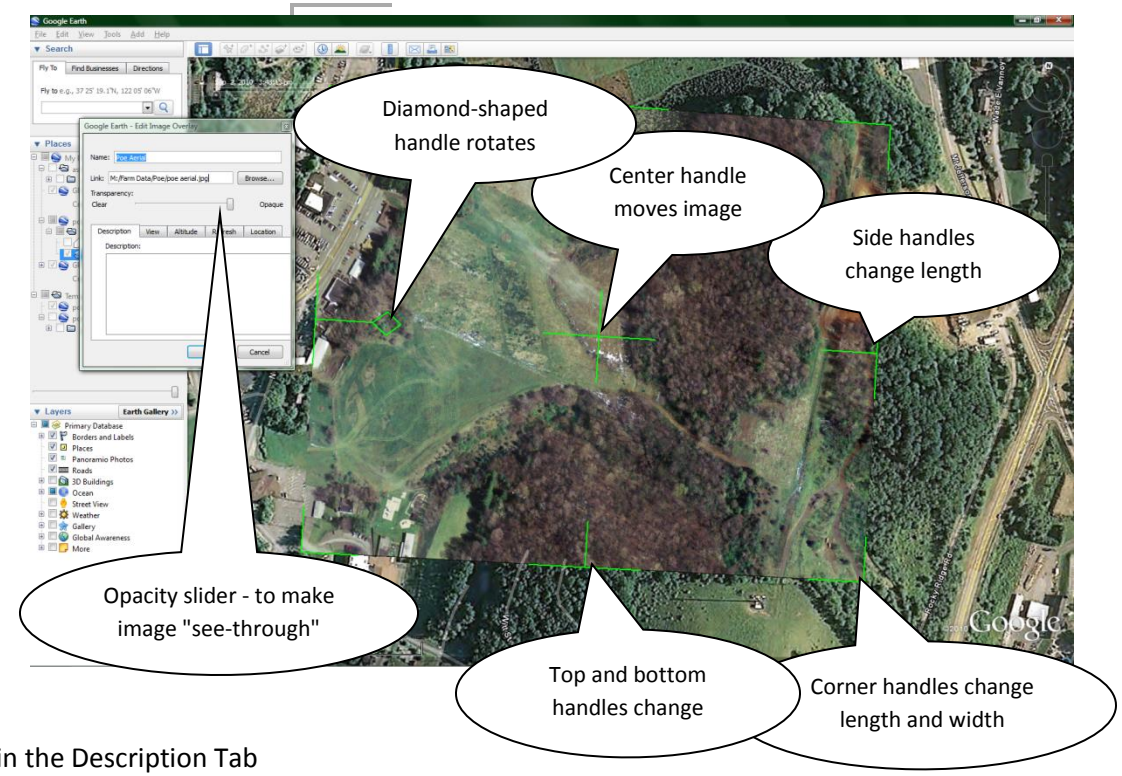
Adding Your Own Imagery to Google Earth -

NOTES:
a) this assumes you have imagery in a .jpg format (see the Obtaining Imagery Online section on how to do this)
b) this operation may be made much easier by turning off the Terrain (Tools/Options / 3D Tab and then uncheck the Show Terrain box). You can turn it back on after you line up your imagery.

1) If you wish to place the imagery in a new folder, right click on My Places / Add Folder. Give the folder an appropriate name in the Folder Properties window *Optional:* Right click on that folder to add subfolders (give each subfolder an appropriate name)
2) Position the view in Google earth so it approximates the area location and area the image will cover - this is where it will initially place the image when you load it
3) Select the folder you want to add data to and then click on the Add Image Overlay Tool -

Properties window for the new image opens
4) Change the Name to something appropriate.
5) Click on Browse and navigate to where you have stored your jpg image
6) When the image appears, it will not be lined up where it needs to be - that is left up to you.

- Use the Opaque to make the image "see-through (about 50% opaque)" so you can see where you want to line it up. You can and should re-adjusted this back and forth from opaque to "see-through" as you are lining things up
- Use the "handles" (see picture) to move, stretch, and rotate the image so it lines up with the aerial on Google Earth
- Best to line up road intersections, buildings, anything permanent rather than rely on changing things like streams, fields



7) Type in any other information you want to store about the area in the Description Tab
8) Click OK to Save - Select File/Save My Places to save your session

Editing Imagery Overlays in Google Earth

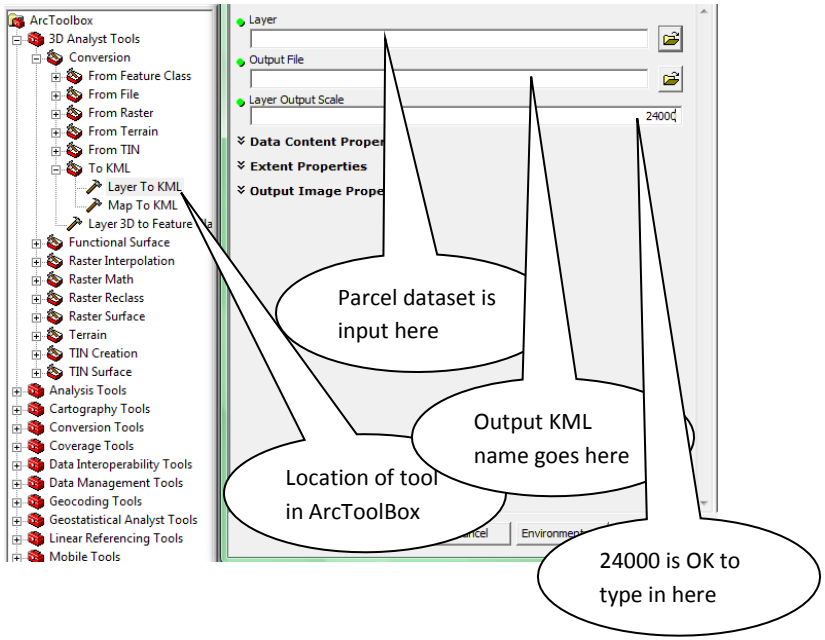
1) Right click on the image overlay in My Places that you wish to edit and select the “Properties” menu it at the bottom of the list (MAC users select “Get Info” at the bottom of the list) - the Properties window for that image overlay opens
2)Edit image position according to #6 above
3)Edit Names and Description in the Description tab,
4) Click save to save and exit

Obtaining Data for Use in Google Earth

Your county mapping office or tax office maintains records of your property. You should check with them to see if what data they can accommodate you with. Here is what you need to specify:

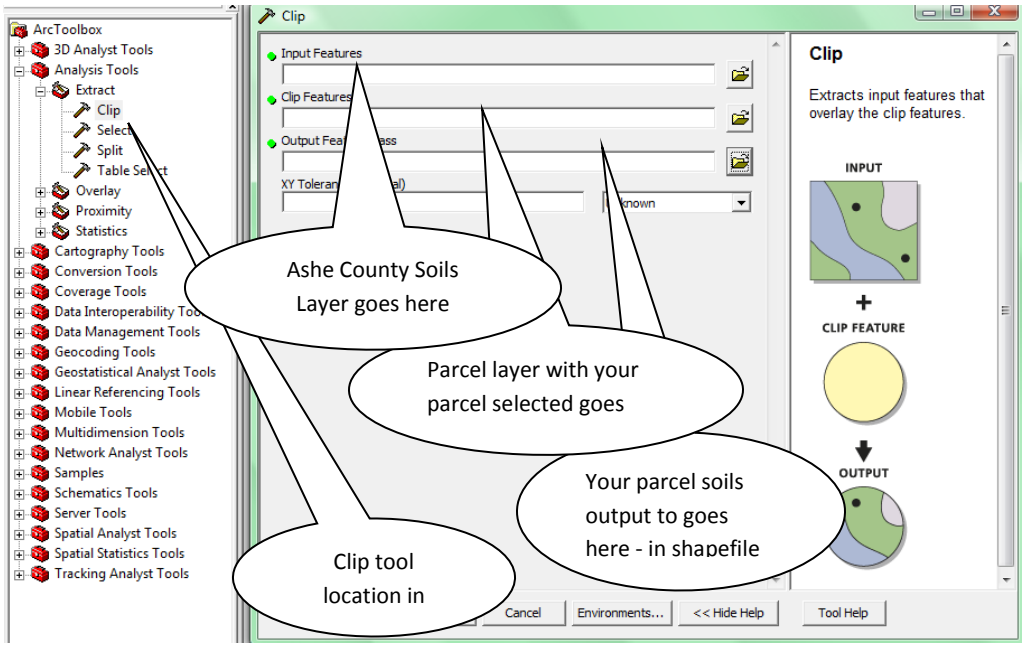
1) parcels in KML or KMZ format - chances are they have ArcGIS and that has a tool in ArcToolBox called **3D Analyst Tools/Conversion/To KML/Layer To KML**

- make sure you supply them with your PIN number and that the parcel is correct before they go through all the trouble getting it for you
- They MUST select ONLY the parcels you want and convert them to KML for you using the conversion program seen here to the right - otherwise the whole parcel set will be converted which takes way too much time and hassle to load up in Google Earth.
- They can place the KML on a thumbdrive or even email it to you. When you open it in Google Earth it will place it exactly where it needs to go.



2) soils in KML or KMZ format. Chances are the county has soils data as well. Here is the following of how they can get you the soils
just your property:

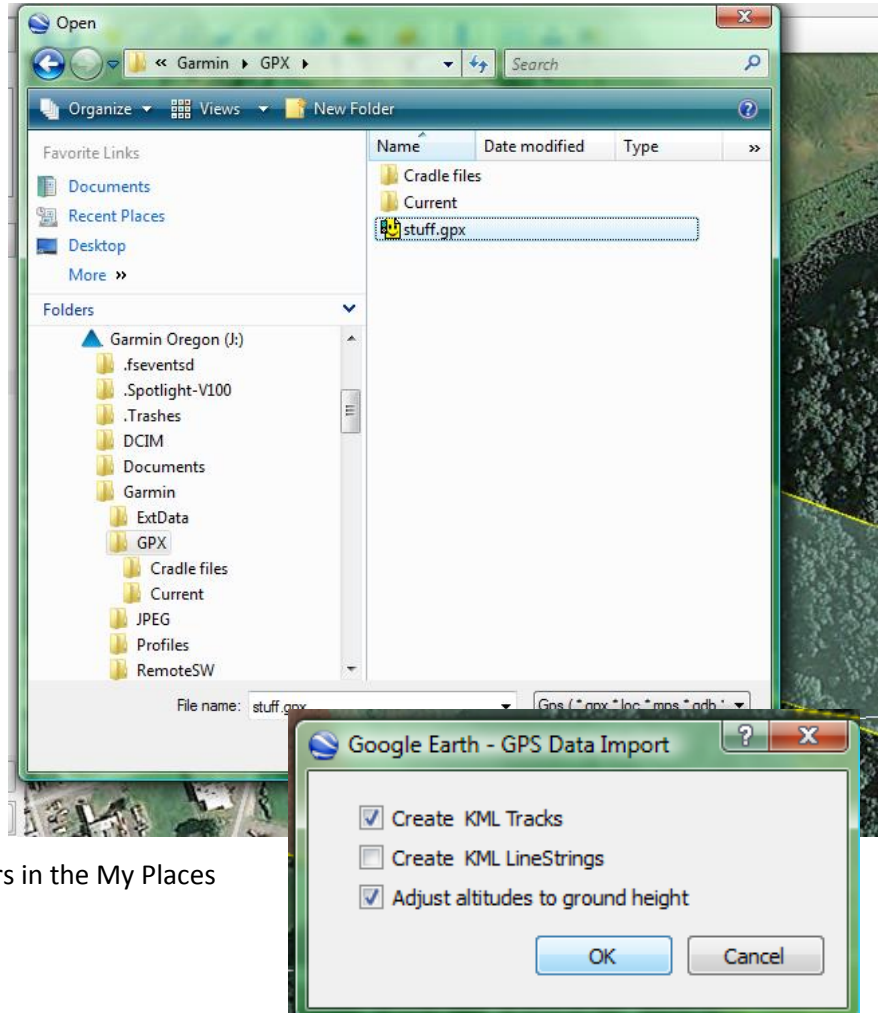
- They select your parcel from the parcel map
- In ArcToolBox, they select **Analysis Tools/Extract/Clip**
- The input is the county soils data, the clip layer is the county parcels data with your parcel selected and the output layer is a shapefile with some appropriate name (ie PoeSoils)
- The output file then needs to be converted to KML format using the same Layer To KML converted in the previous section (see 1) above) except the file getting converted is PoeSoils, not the parcel
- They can place the KML on a thumbdrive or even email it to you. When you open it in Google Earth it will place it exactly where it needs to go.



3) aerial photography in ".jpg" format. Most counties have their data in jpg format, however some store the data in a compressed format called Mr.Sid. Google does not read Mr.Sid format so they may need to convert the image for you.

- Provide the PIN of your parcel and they should be able to provide you with the most recent aerial photographty they have .
- Please stipulate you must have it in ".jpg" (called J-PEG) -they'll know what you mean. They can convert this for you by opening the image up in ArcGIS and selecting **File/Export Map**. They should select a high resolution (such 300-600 dpi), no background color, and make sure the format is jpg.
- They can place the .jpg on a thumbdrive or even email it to you. When Google Earth you will have to perform an Add Image Overlay to bring in the jpg (see Adding Imagery to Google Earth)

4) Loading GPS data to Google Earth - most GPS manufacturers have developed GPS receivers so they operate like a USB thumbdrive when you connect them to your computer. They simply show up as another device and you can upload and download files to them just like a thumbdrive. The format that many GPS companies have standardized for GPS data is called ".GPX" format (it stands for GPS Exchange format). When you collect data on most modern GPS receivers - it is stored in GPX format. Google Earth is able to directly read GPX format.



- To upload data from GPS receiver to Google Earth, simply plug the receiver to your computer and in Google Earth select File / Open
- Navigate to your GPS. Pictured here (on the left side of the Open window) is a Garmin Oregon (on the J drive). Inside that is the folder Garmin / GPX - on the Oregon units that is where the GPX files are stored - different makes and models will differ you just need to look until you find where the GPX files are stored.
- At the lower right corner of the Open window - select GPS (*.gpx....) from the dropdown menu. You'll see all the GPX files listed in the directory. Select the file(s) one you want and it and click Open.
- A GPS data import window will appear (seen to the right) - I usually leave any boxes checked (especially the adjust altitude to ground height) and click OK.
- It WILL place the new files into the Temporary Places folder so you need to go through and copy or move the files you want to keep to project folders in the My Places section.