

Using Google Earth Pro to Map Western Joshua Trees

Applications for a Western Joshua Tree Conservation Act Incidental Take Permit (WJTCA ITP) must include a census of all western Joshua trees on the project site. The census must include size information and photographs that categorize WJTs according to size classes.

This guide provides step by step instructions for creating a map to accompany the census using Google Earth Pro.

[WJTCA ITP Census Instructions](#)

Step 1: Collect data



Yucca brevifolia, the Western Joshua Tree.

By Jarek Tuszyński / CC-BY-SA-3.0

Collect the following data:

- The latitude and longitude (lat/long) of the corners of your project site. The project site includes the extent to which project activities will occur. The census area is your project site plus an additional 15-meter (~50 feet) buffer around that extent.
- If your data is in degrees, minutes, seconds (ex. 35° 36' 45") convert it to decimal degree (ex. 35.6125) using an [online conversion tool](#).
- The lat/long locations of each Western Joshua Tree (WJT) in the project site, regardless of whether it is being taken.

Collect data for each tree according to requirements on the Census Instructions, being sure to keep track of the data associated with each tree. This data will go into a table which will accompany the map.

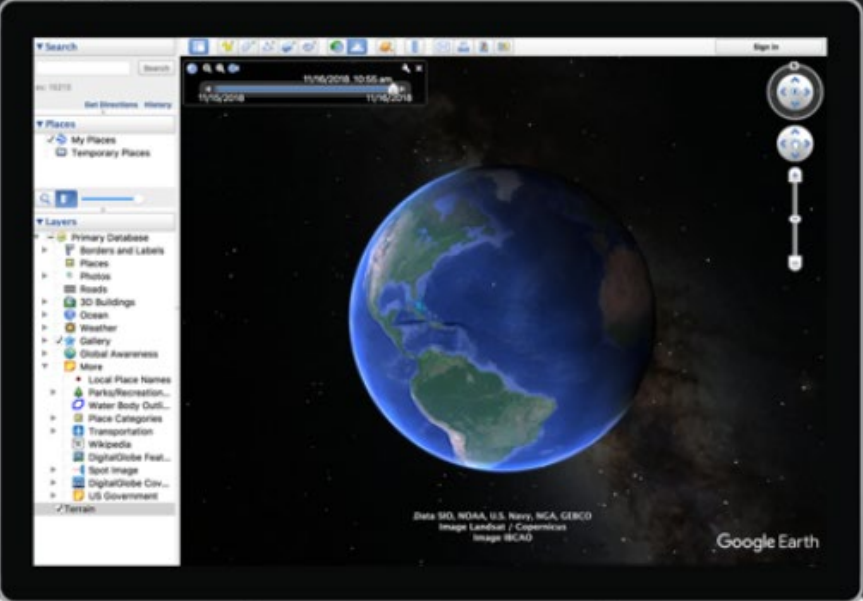
Step 1: Collect data (cont.)



Western Joshua Tree Fruit By Robb Hannawacker

- If your project site is not easily identifiable by satellite imagery, you can collect the coordinates of the boundary corners using a GPS device (such as those used for hiking or backcountry navigation) or cell phone with Location Services to record the required coordinates.
- Many free smartphone apps are available to help you collect GPS coordinates, such as Google Maps, Apple Maps, Strava, Avenza, etc. Guidance on best methods for collecting and viewing locational data should be available online or directly in the app. Touching and holding your zoomed-in location in the Google or Apple Maps app displays the coordinates of that location.

Step 2: Install Google Earth Pro.



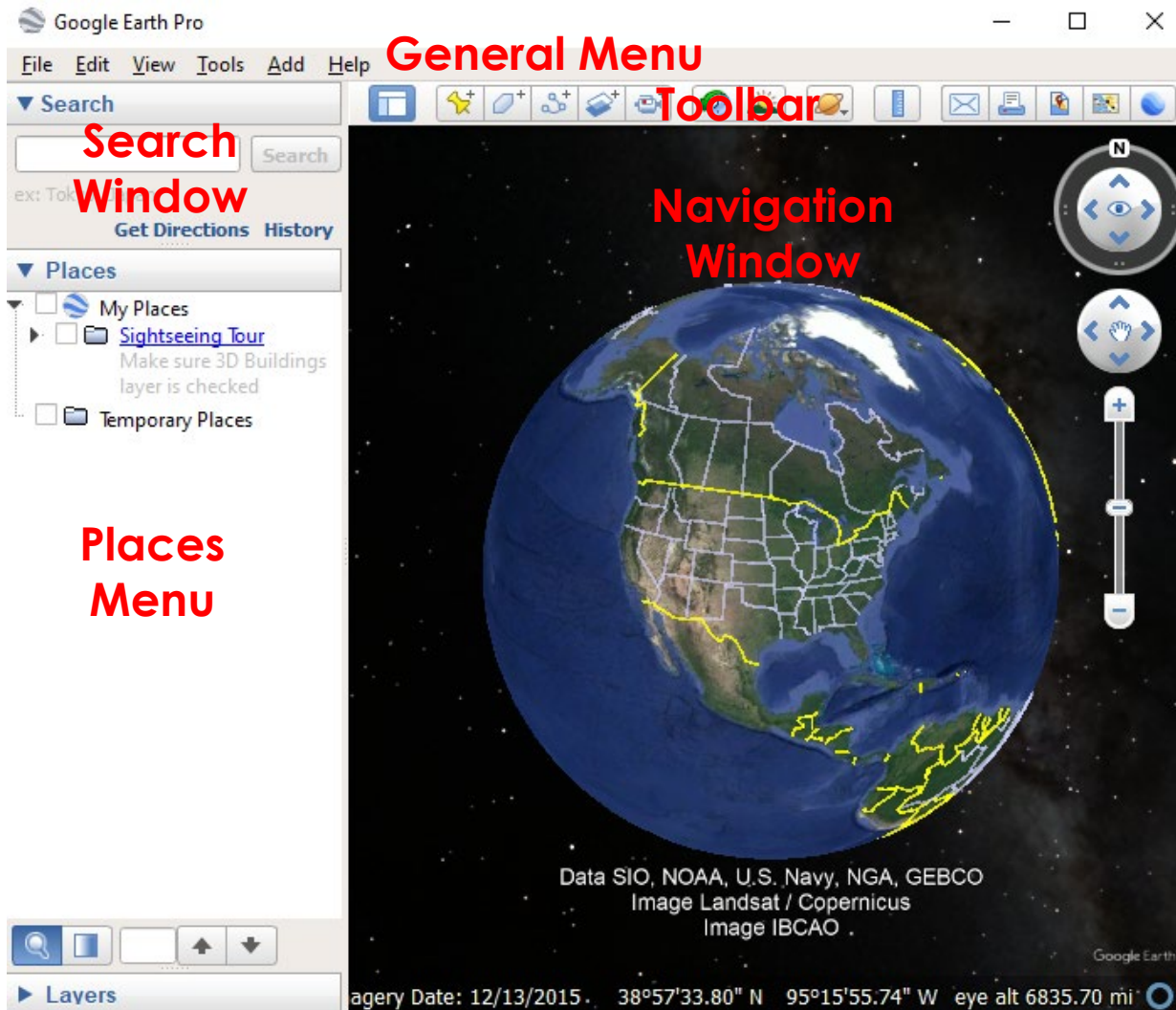
Create maps with advanced tools

Google Earth Pro on desktop is free for users with advanced feature needs. Import and export GIS data, and go back in time with historical imagery. Available on PC, Mac, or Linux.

[Download Earth Pro on desktop](#)

- Go to <https://www.google.com/earth/versions/>.
- Click on “Download Earth Pro on desktop” then on “Accept and Download” on the page that opens to download the installer file.
- Double-click on installer file “GoogleEarthProSetup.exe” (it should be in your downloads folder, or wherever files download to your system) to install.
- Launch “Google Earth Pro.”

Step 2a: Familiarize yourself with the layout – Main Window.



General Menu or “Menu” – Used to access features like “Save,” “Print,” and other tasks. Many features here are also on the “Toolbar.”

Search Window – Used to find locations on the map using addresses or lat/long coordinates.

Places Menu – click here to quickly zoom to items and saved places. Also used to select items to format properties.

Toolbar – Contains various tools for drawing and using common features of Google Earth Pro.

Navigation Window – Where sites will be viewed and maps created.

Step 2b: Familiarize yourself with the layout – most commonly used tools.



Open/Close Search Window and Places Menu

Create Placemark (Point) tool

Create Polygon tool

Create Path (Line) tool

Measure Tool

Email map as Attachment

Create map to print out or save to PDF

Create map to save as JPEG or PNG

Open map in Google Maps

Open map in Google Earth Web version

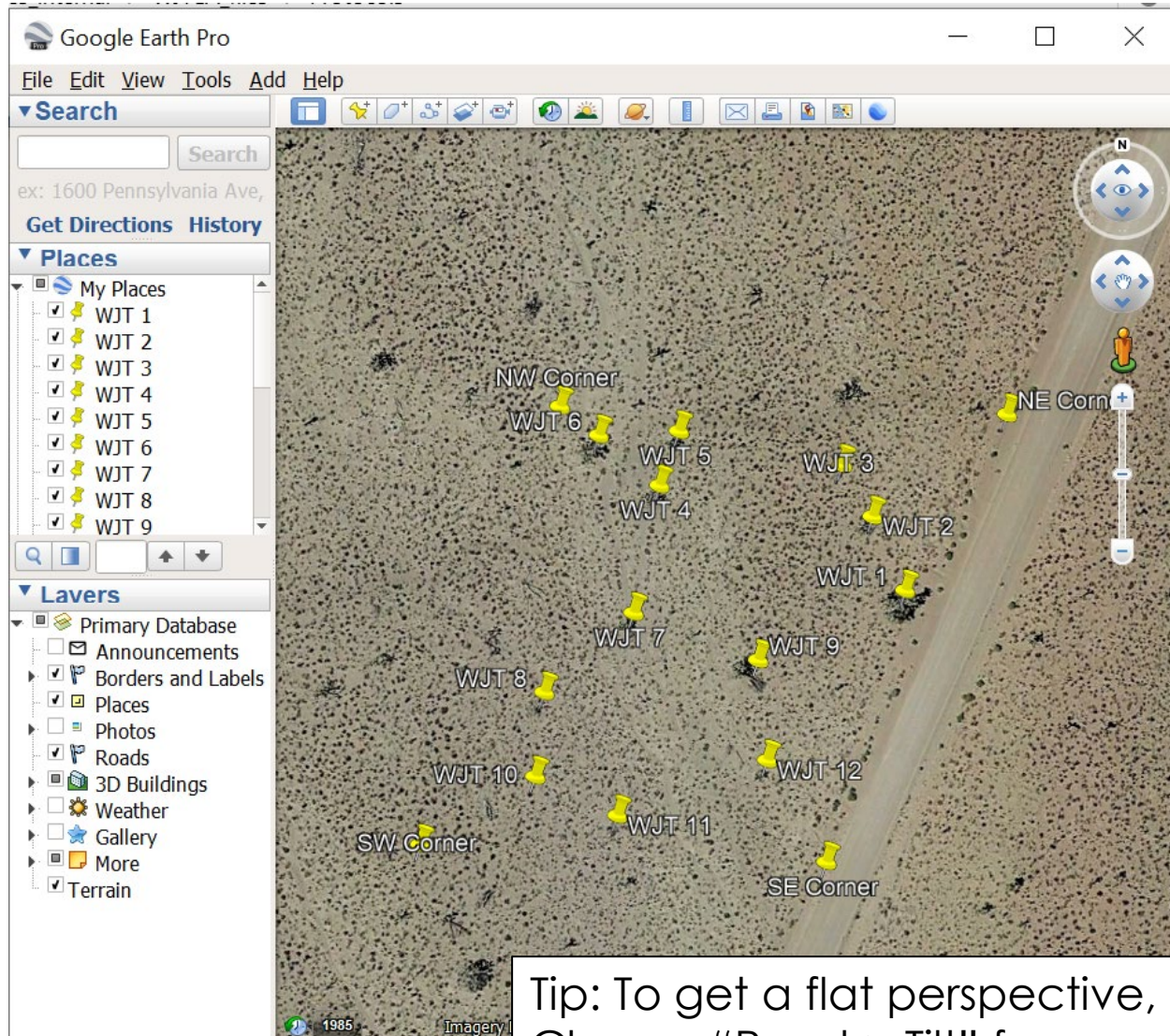


Navigation

Zoom, rotate, level, and pan tools (you can also use your mouse to zoom and pan)

Note: If this tool disappears, open it by going to the main menu and choosing "View > Show Navigation > Always"

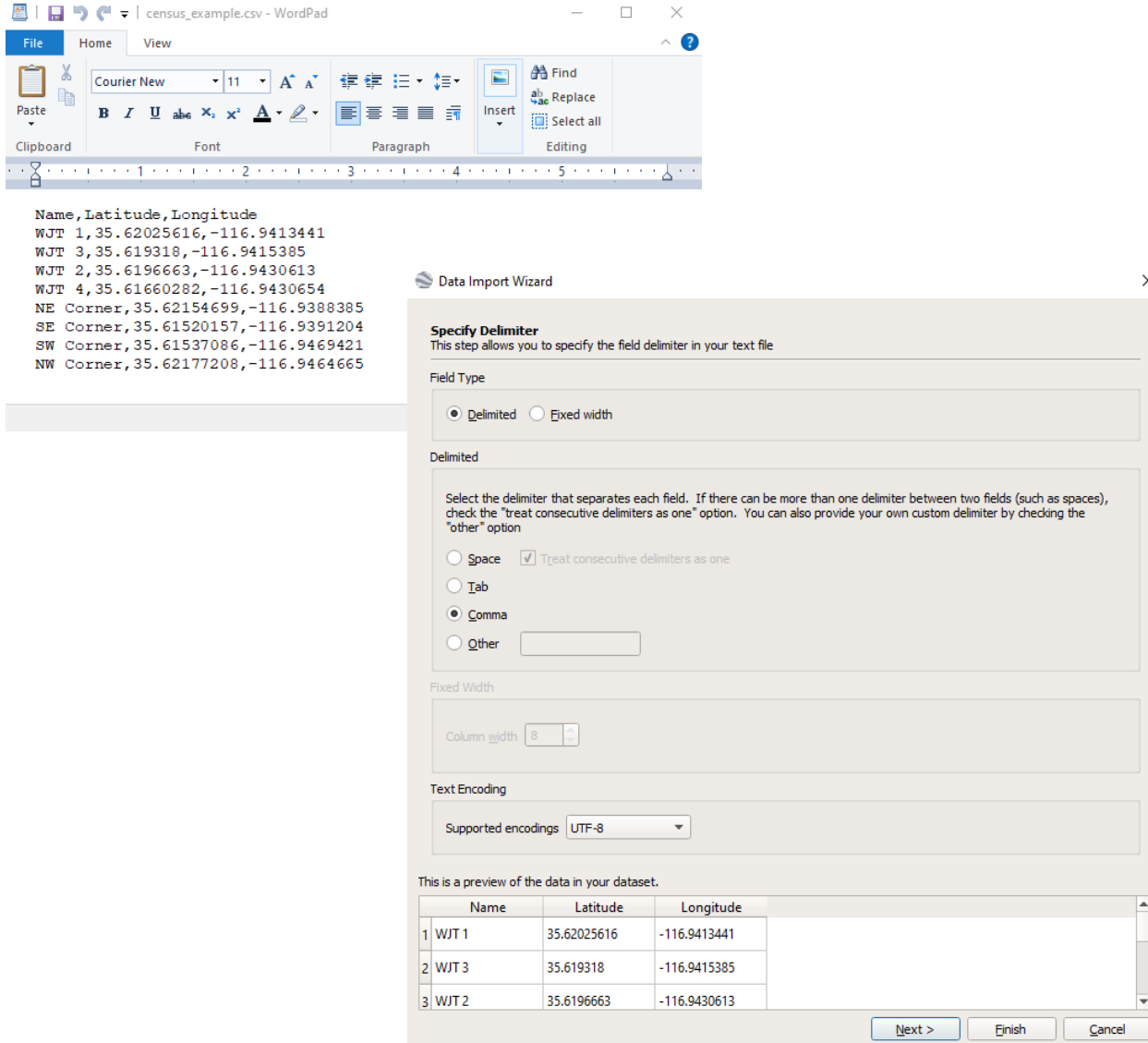
Step 3 – Add collected data to map.



Tip: To get a flat perspective, Choose "Reset > Tilt" from the "View" Menu.

- Using one of the collected lat/long coordinates, zoom to the project site using the search box.
 - Enter values in lat, long order (i.e., 35.6206, -115.941).
 - Because all longitudes are negative in California, be sure to put a "-" sign in front of the longitude value.
 - Close the box below the Search tool by clicking on the x in the bottom right.
- Click on the Placemark tool and enter the latitude and longitude values in the windows.
- Name the point. ("WJT 1," "NW Corner," etc.)
- Hit "OK."
- Continue until all points are entered.
- Note how all points appear under "Places" as you enter them.

Step 3 Add collected data to map (**alternate method**) – Import collected data using “csv” file.



The image shows a WordPad window with a CSV file named 'census_example.csv'. The text in the window is as follows:

```
Name, Latitude, Longitude
WJT 1, 35.62025616, -116.9413441
WJT 3, 35.619318, -116.9415385
WJT 2, 35.6196663, -116.9430613
WJT 4, 35.61660282, -116.9430654
NE Corner, 35.62154699, -116.9388385
SE Corner, 35.61520157, -116.9391204
SW Corner, 35.61537086, -116.9469421
NW Corner, 35.62177208, -116.9464665
```

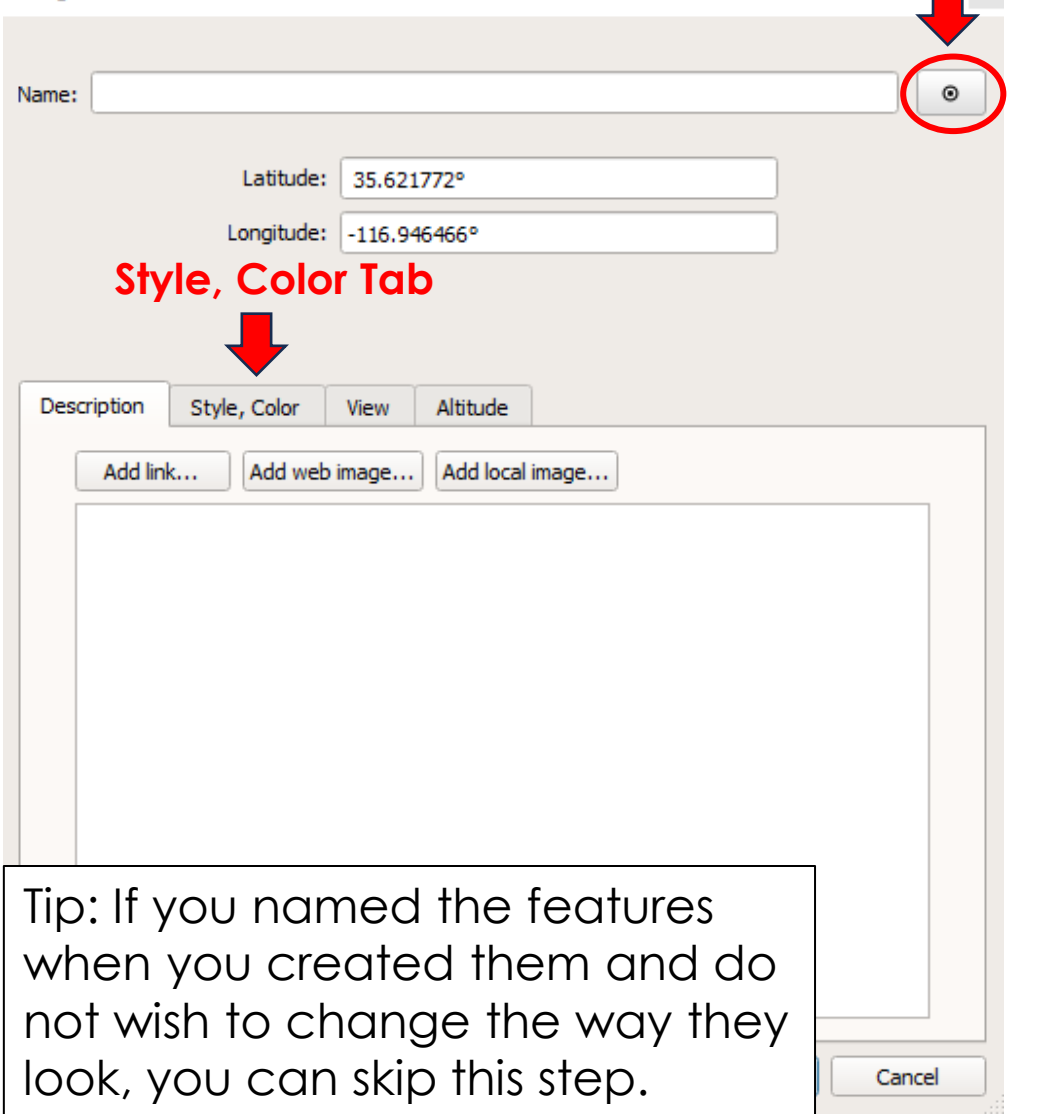
Overlaid on the bottom right is the 'Data Import Wizard' dialog box, 'Specify Delimiter' step. The 'Field Type' is 'Delimited'. Under 'Delimited', 'Comma' is selected as the delimiter, and 'Treat consecutive delimiters as one' is checked. The 'Text Encoding' is set to 'UTF-8'. A preview table at the bottom shows the data being imported:

	Name	Latitude	Longitude
1	WJT 1	35.62025616	-116.9413441
2	WJT 3	35.619318	-116.9415385
3	WJT 2	35.6196663	-116.9430613

- Enter values in WordPad (or Notepad, or Notepad++) as follows:
 - First row: “Name, latitude, longitude”
 - Following rows: Point Name, point latitude, point longitude
 - All values should be divided by commas with no spaces in between
 - It is only necessary to enter lat/long values to 5 decimal places.
 - But sure to put the “-” in front of the latitude value.
- Save the file with a .csv extension (if csv is not an option. Just type “.csv” at the end of the name).
- Go to Google Earth Pro and choose “Import” from the file menu.
- Navigate to .csv file and open file.
- Accept defaults. Click “Finish.” Do not assign a style template.
- You may need to turn on the features by checking the boxes next to the name under “Temporary Places.”

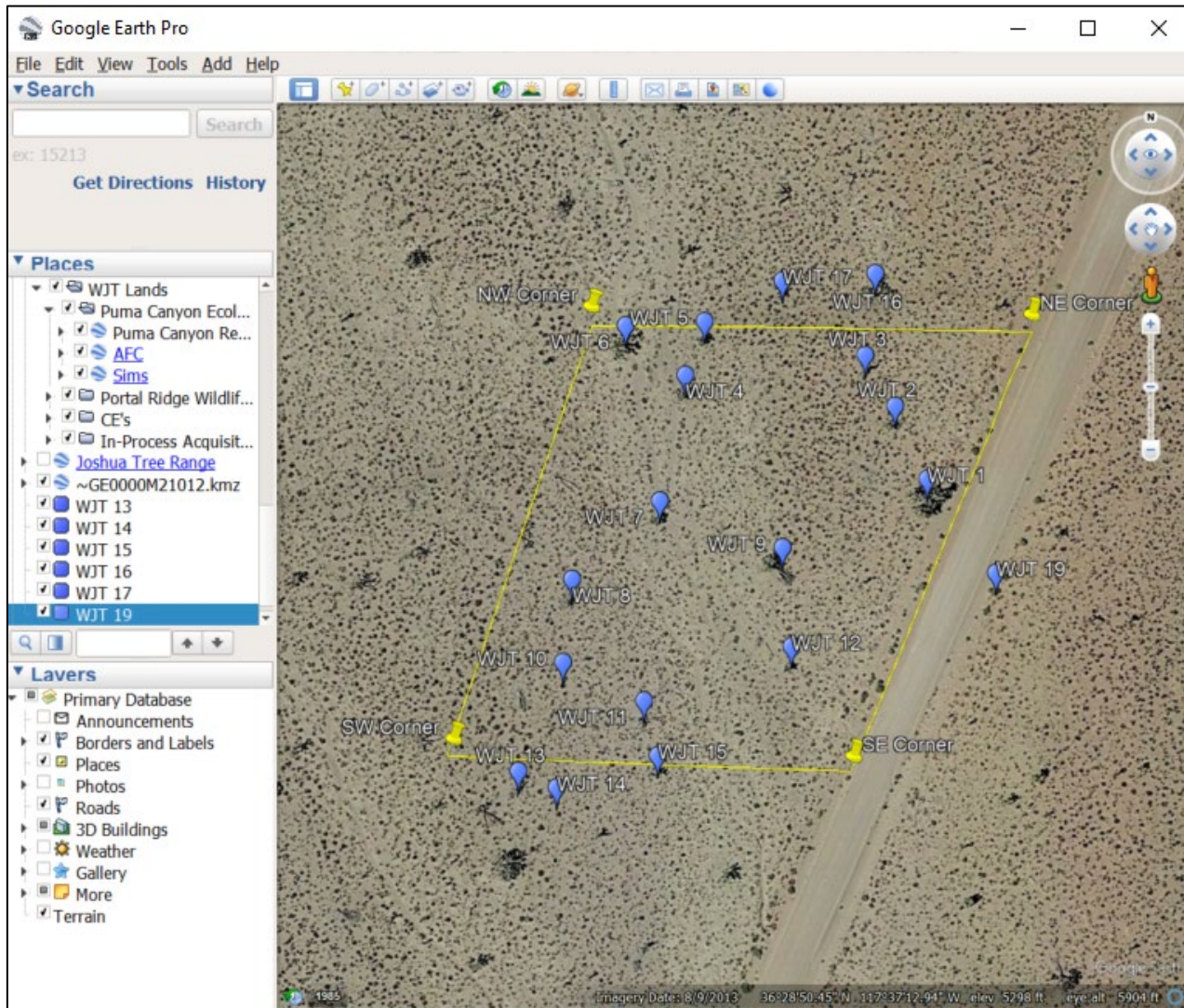
Step 4 – Name and Format Point Features

Google Earth - Edit Placemark



- On your map, click on the point feature to see its current name.
- With the cursor still over the feature, right-click to open the “Properties” window (you may also click on the point, then select “Edit>Properties” from the menu).
- Name feature in “Name” window. This will be the label.
- Use the “Icon” tool to choose an Icon and then format that icon in the “Style, Color” tab. You can also change the color of the label here. “Scale” changes the size of the point or text.
- Click “OK” to close window and apply changes.

Step 5 – Draw Polygon Features

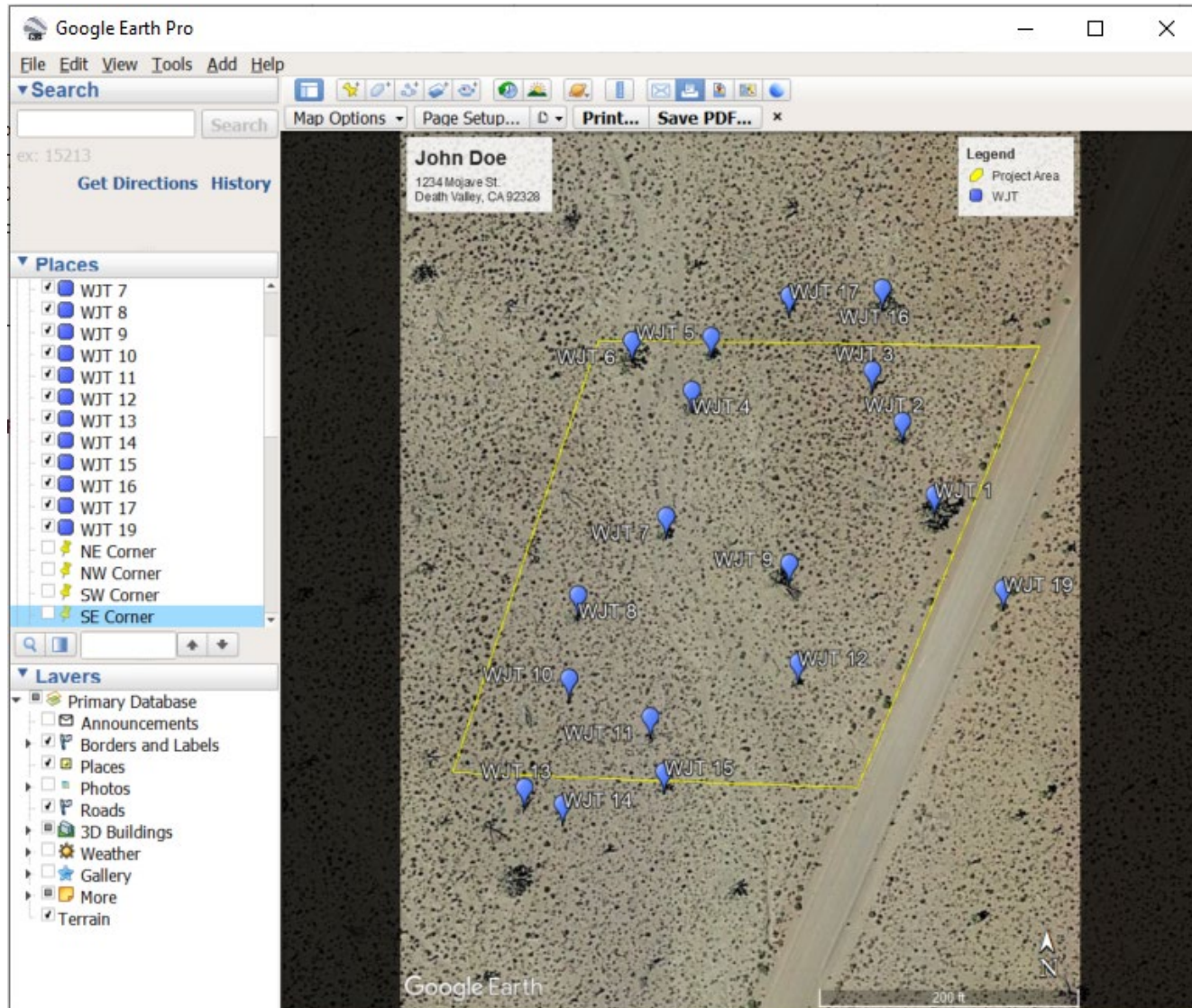


Click on Polygon Tool.

- Name polygon in window.
- Click on “Style, Color” tab.
- Under Lines, click the box next to “Color” to change the line to any bright, high contrast color and “Width” to “2.0.”
- Under Area, choose the same color you selected for Lines, and enter “0” in “Opacity” box. This will ensure the legend displays the polygon correctly. **Do not click “OK” yet.**
- With the “Properties” window still open, click on the Property Boundary Points, in order, to draw the boundary.
- Click “OK to save changes.

Note: If you need to close the program and come back, choose “Save” when it asked if you want to save the files to your “Save Places” folder.

Step 6 – Print map



- If you have closed the program, you can click on the group name under “My Places” to zoom to it.
- Use “Reset > Tile” under the “View” menu to flatten the view.
- Turn off any unnecessary points using the check box in the “Places” window.
- Choose your print option from the toolbar.
 - Print – Print to paper or pdf
 - Save Image – create JPEG or PNG
- If some features are not displayed in the legend, click the legend and a box will appear. Click “Refresh from View” on the bottom.
- Click on map title and rename and add description. Please include your name and project location (address or APN).
- Change “Page Setup” to “Portrait”.
- Zoom/pan to that site is visible.
- Print or Save PDF.