

## Managing Photos with QGIS

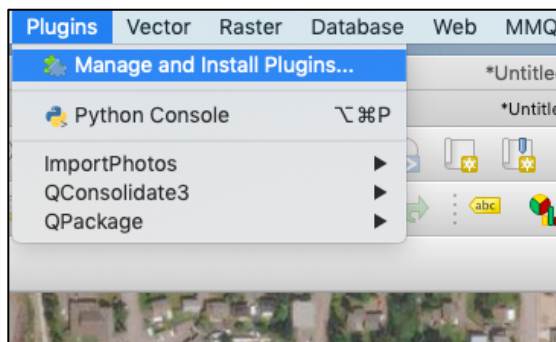
QGIS can be used to quickly and easily map the locations of georeferenced photos (i.e. photos taken with location information) and display thumbnails with the option of opening the full image on selection. This can be helpful to manage, categorize, and make use of important information embedded in photos.

*Note:* photos **must** be georeferenced! This may require a change of settings on the device before taking photos.

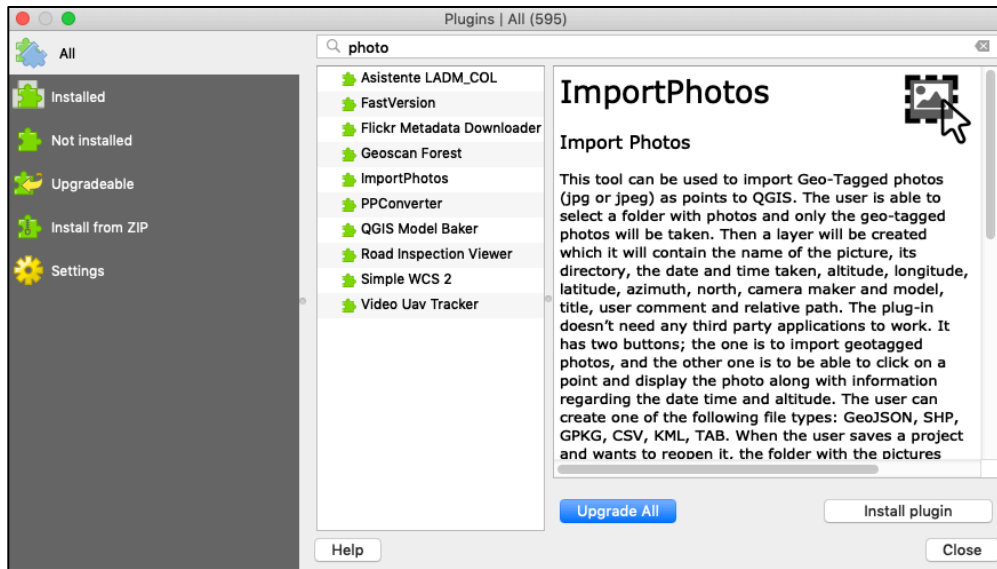
### Tutorial

1. Upload your georeferenced photos to an appropriate project folder on your server/device
2. Rename photos according to your naming convention if applicable
3. Open QGIS
4. Install ImportPhotos Plugin (if not previously installed)

Plugins > Manage and Install Plugins...

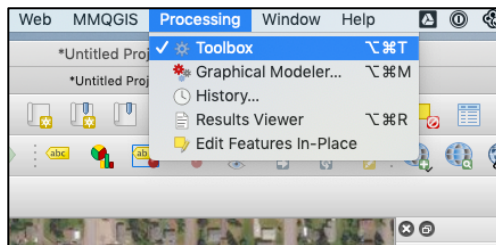


Search for “photo” > Select ImportPhotos > Click on install plugin > Close window

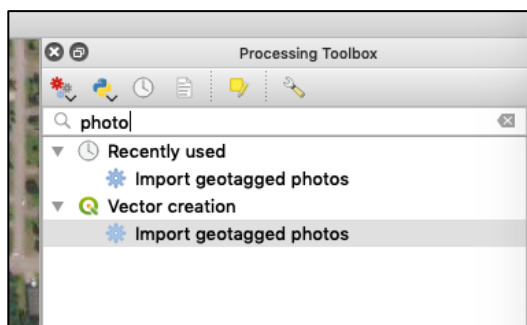


## 5. Open the **Import geotagged photos** processor and create data layer

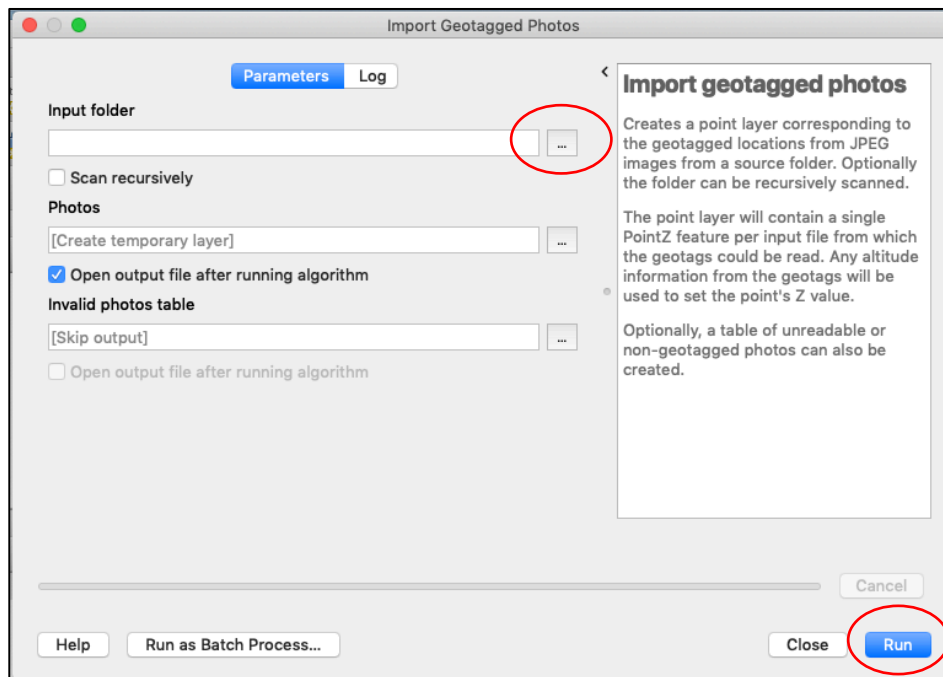
Processing > Toolbox



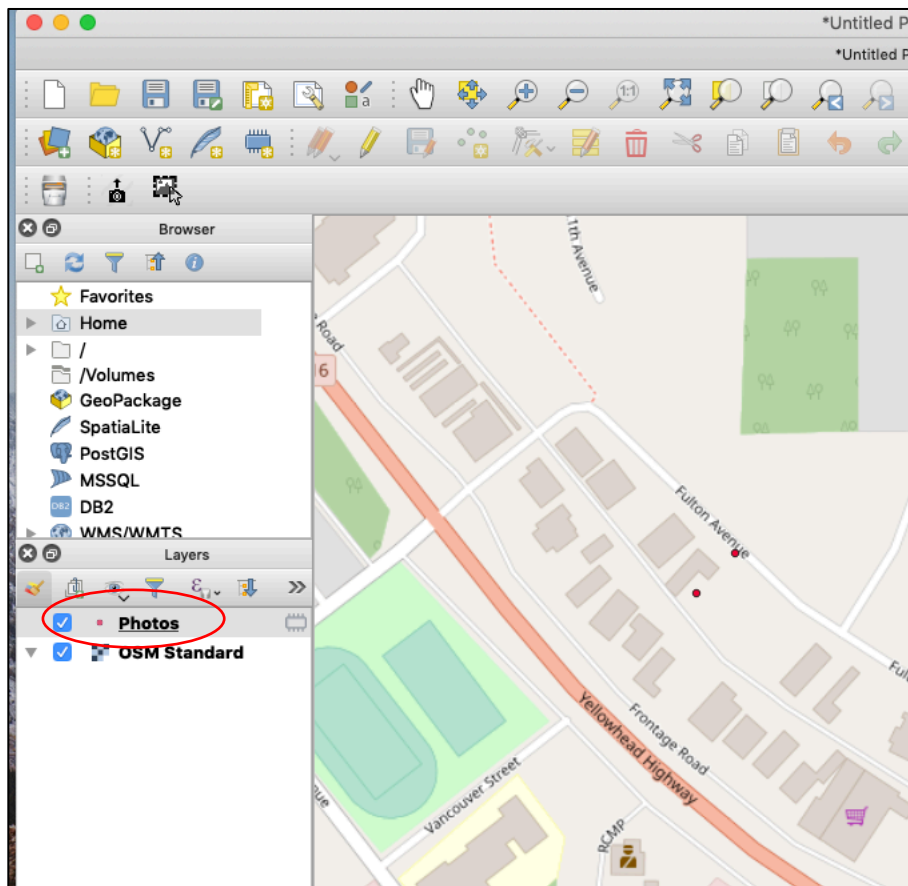
Type "photo" into the search bar > select Import geotagged photos



Under Input folder, click on the ellipses use the file explorer to navigate and select the **folder** where your photos are stored. Click on Run.



A temporary scratch layer “Photos” was created using the geographical information from the georeferenced photos to plot the locations of the photos as points:



6. If necessary, change your QGIS project projection to EPSG:3005 -NAD 83/BC – Albers
7. Export your data layer to save it.
8. Review the layer attribute table. Depending on what app/camera you are using to take photos it might look slightly different.

Right click on the layer > open attribute table.

The screenshot shows the attribute table for the 'Photos' layer. The table has 9 columns: 'photo', 'filename', 'directory', 'altitude', 'direction', 'longitude', 'latitude', and 'timestamp'. There are two rows of data. The first row has a 'photo' value of '/Users/ekaterina/...' and a 'timestamp' of '2020-02-11...'. The second row has a 'photo' value of '/Users/ekaterina/...' and a 'timestamp' of '2020-02-11...'. The 'photo' column values are highlighted with a green box.

	photo	filename	directory	altitude	direction	longitude	latitude	timestamp
1	/Users/ekaterina/...	20200211_085613	/Users/ekaterina/...	486.00000	NULL	-127.156928...	54.7773616...	2020-02-11...
2	/Users/ekaterina/...	20200211_093422	/Users/ekaterina/...	487.00000	NULL	-127.157441...	54.7770559...	2020-02-11...

In this example:

Photo = file pathway

Filename = name of photo file

Directory = parent director of photo

Altitude (m) from photo

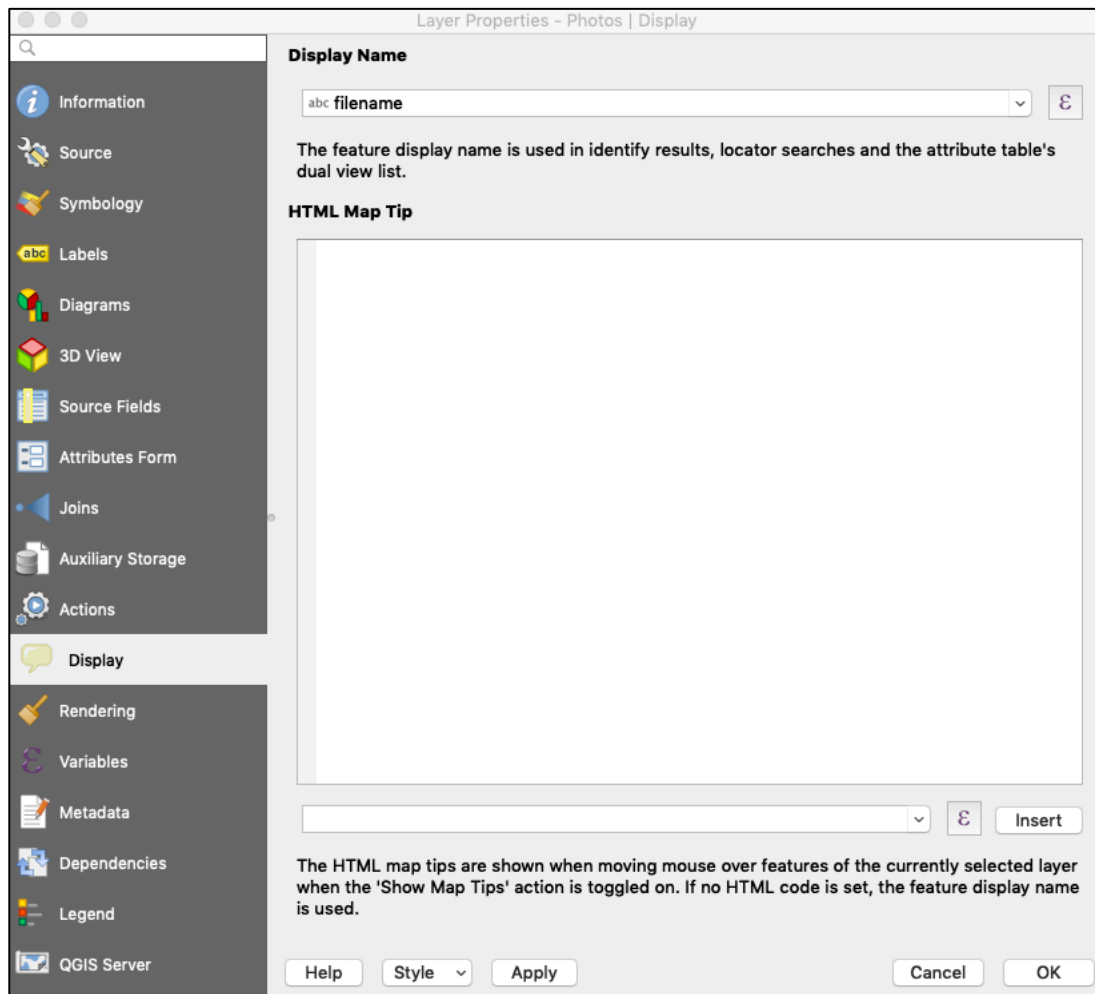
Longitude (decimal degrees) from photo

Latitude (decimal degrees) from photo

Timestamp (year-month-day T hour-minute-second) from photo

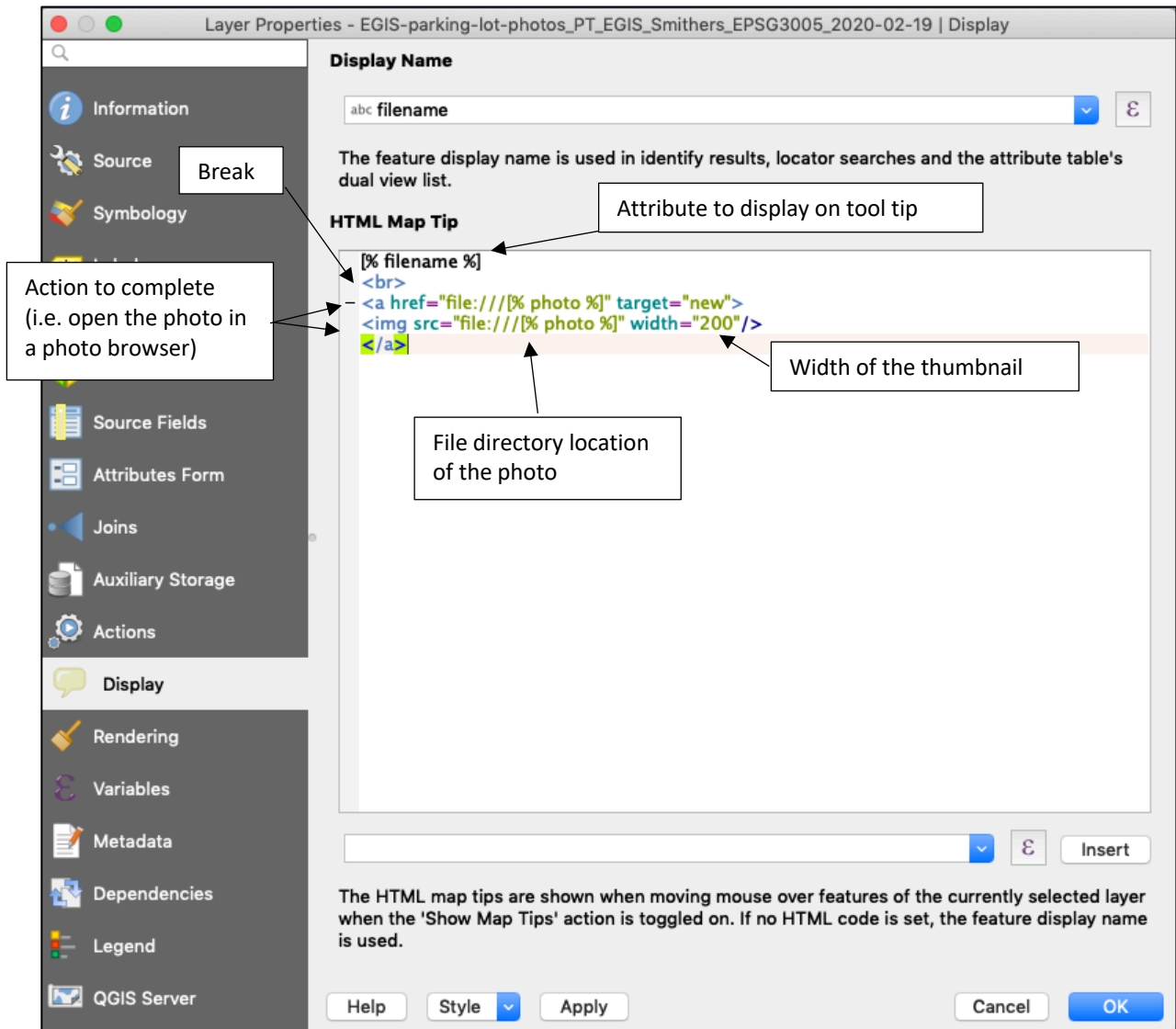
## 9. Set up tooltip to view photos

Right click on the layer > Properties > Display



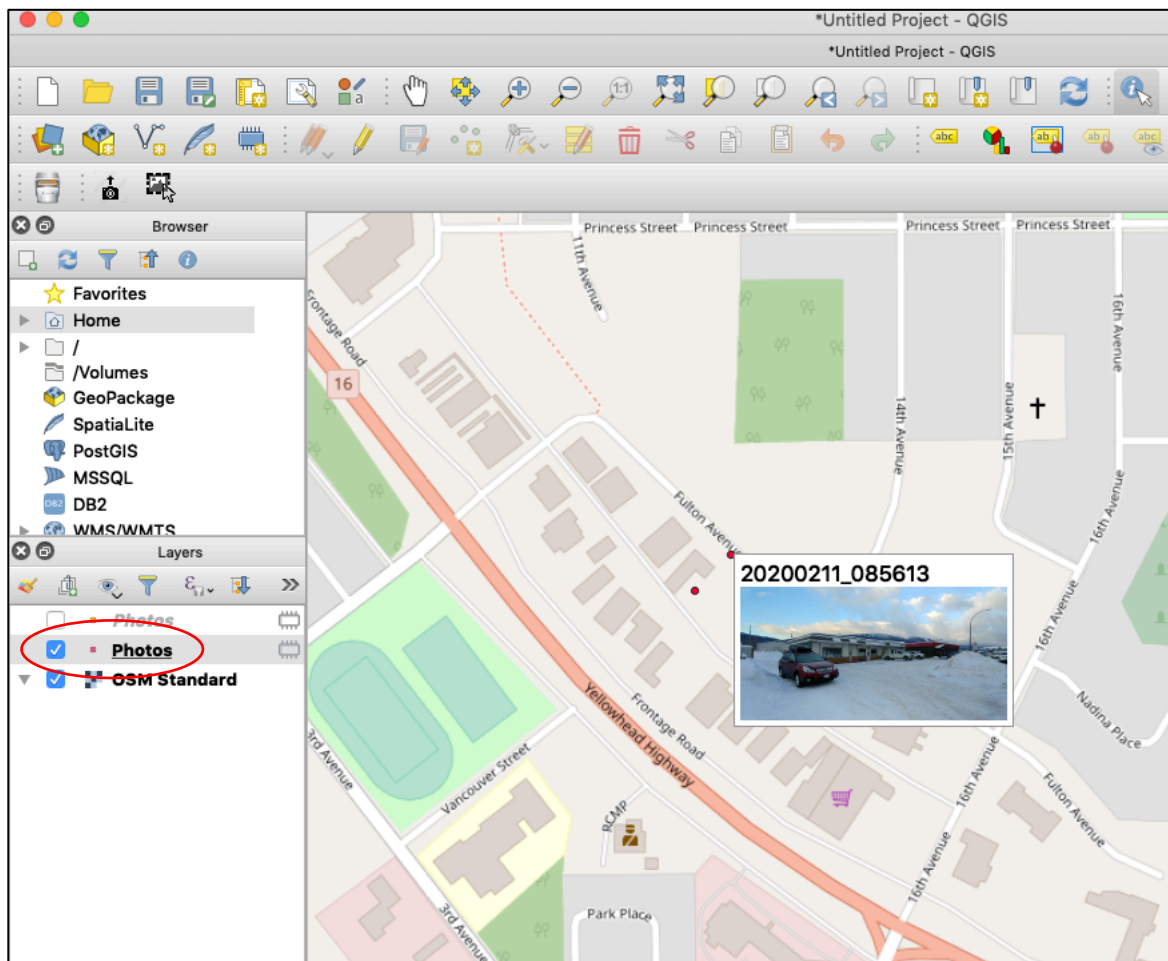
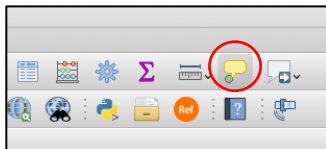
Copy the following lines into the HTML Map Tip:

```
[% filename %]  
<br>  
<a href="file:///[% photo %]" target="new">  
  
</a>
```



## 10. View the photos in tool tip.

To view the photo thumbnails, ensure the 'Show Map Tips' action is toggled on and the correct layer is selected in the Layers panel. Hover your mouse over a data point. The corresponding photo thumbnail and display attribute will appear.



## 11. Click on the thumbnail to open the full-size photo in your photo browser.

Reference video:

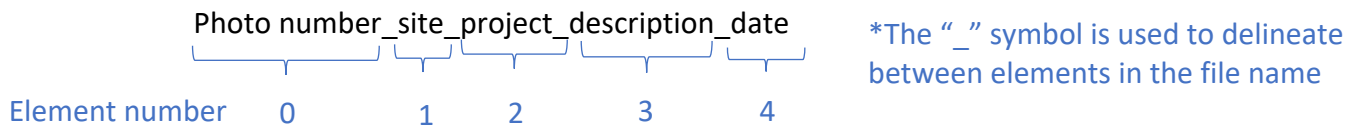
<https://www.youtube.com/watch?v=BgjsfM8mUsc>

## Ideas/Discussion on Additional Applications

1. Add attributes to help categorize photo locations (e.g. “type” representing principle feature such as building, CMT, moose tracks, etc.)
2. Add site, project, description attributes (see example #1)
3. Use date stamp to filter locations by day
4. Take photos of field notes and save in a separate folder to create a field note data layer
5. Add GPS tracks/waypoints
6. Save/copy your style to apply to other photo layers (you can select Map Display specifically when copying)
7. Customize information in tool tip (see example #2)
8. Add Wedge Buffers to represent the field of view (see example #3)

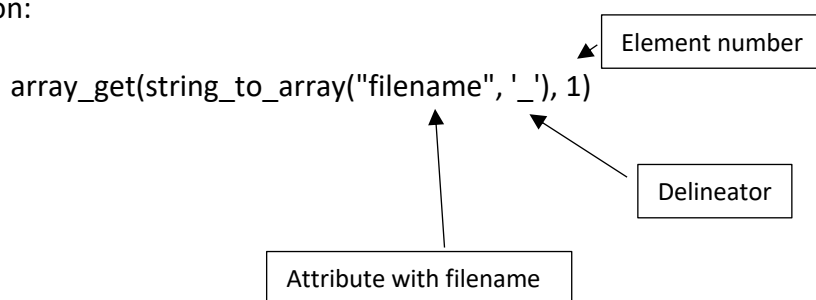
### Example #1: Add attributes from filename with ESI naming convention

Photo naming convention from ESI Data Management Framework:

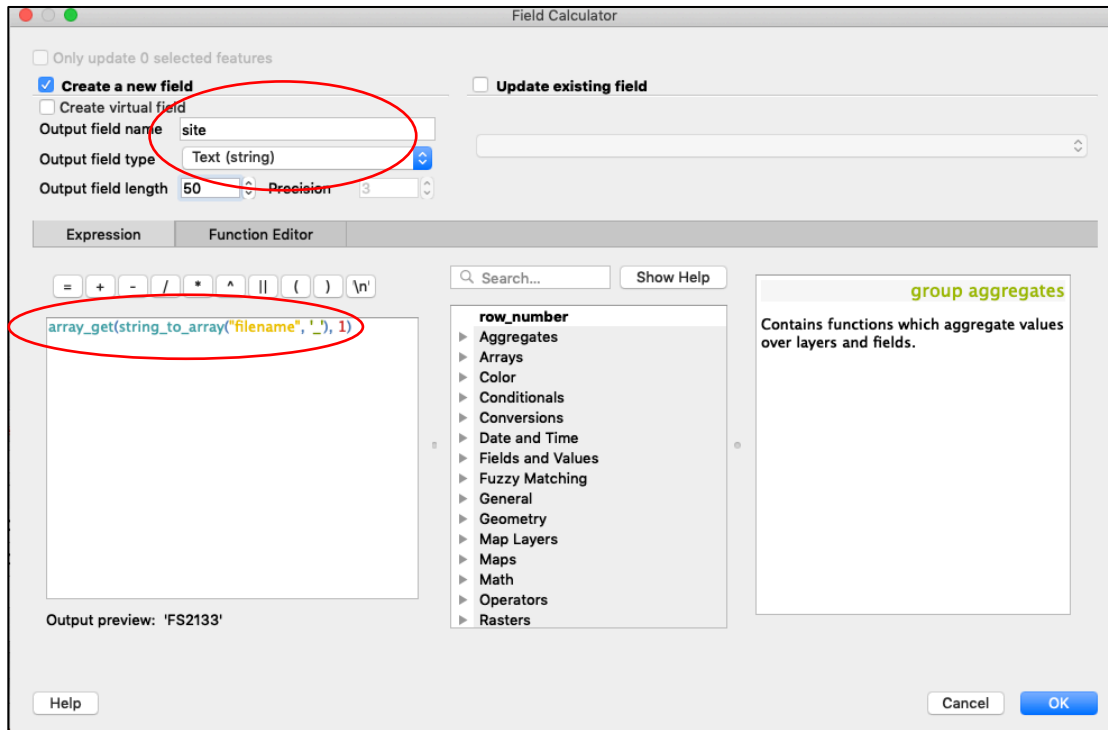


e.g. IMG21133\_FS2133\_19-18\_wetlands-facing-south\_2019-05-02

In order to create a field for site (for example) using the filename, open the Field Calculator from the Attribute Table, complete the name and type of the new field, and add the following function:



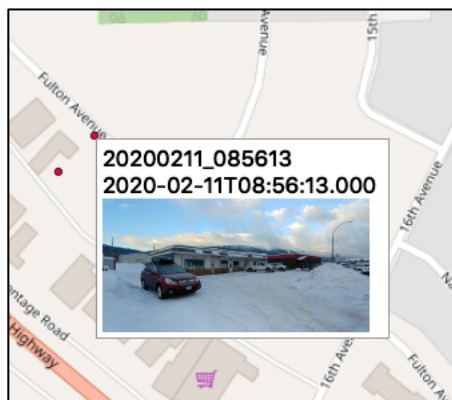




**Example #2: Add date/time to tool tip**

Add fields to the tooltip by modifying the input in the display (Step 9 of tutorial)

```
[% filename %]
<br>
[% timestamp %]
<br>
<a href = "file://[% photo %]" target = "new">
<img src = "file://[% photo %]" width = 200>
</a>
```



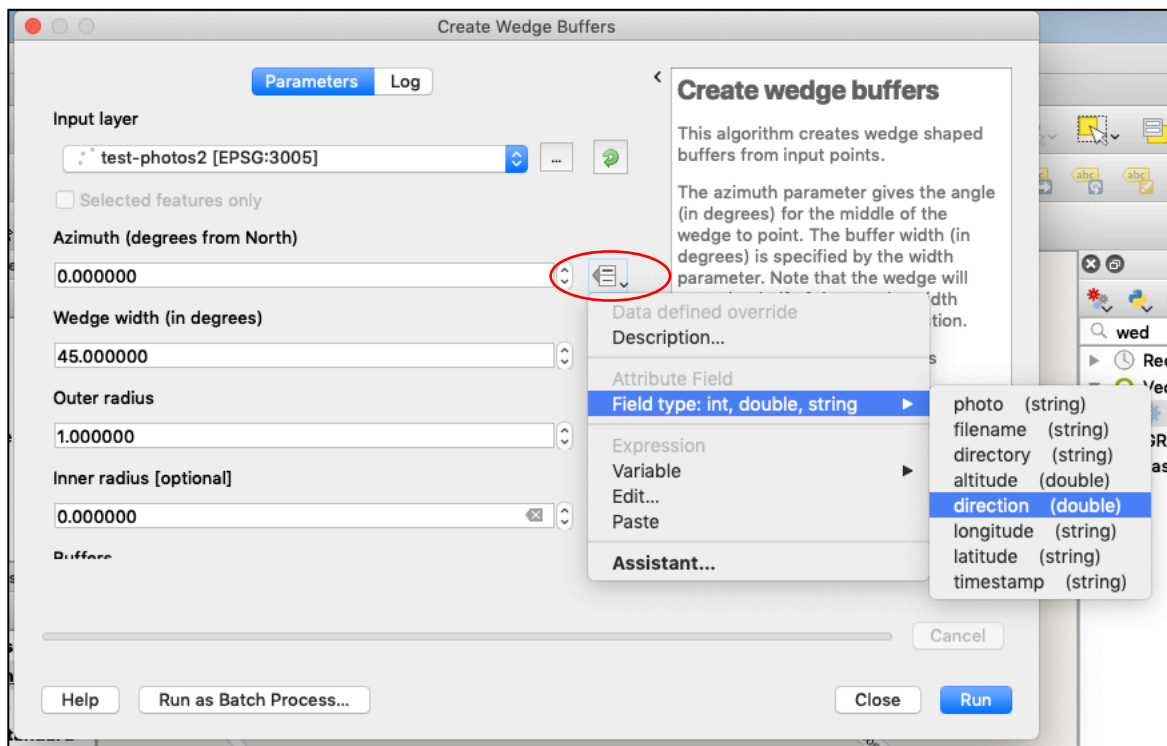
## Example #3: Adding Wedge Buffers

If you have azimuth information in your photos (i.e. which direction the camera was pointing when the photo was taken) you can add **Wedge Buffers** to represent the field of view.

Processing > Toolbox > search for Create Wedge Buffers > Input photo data layer

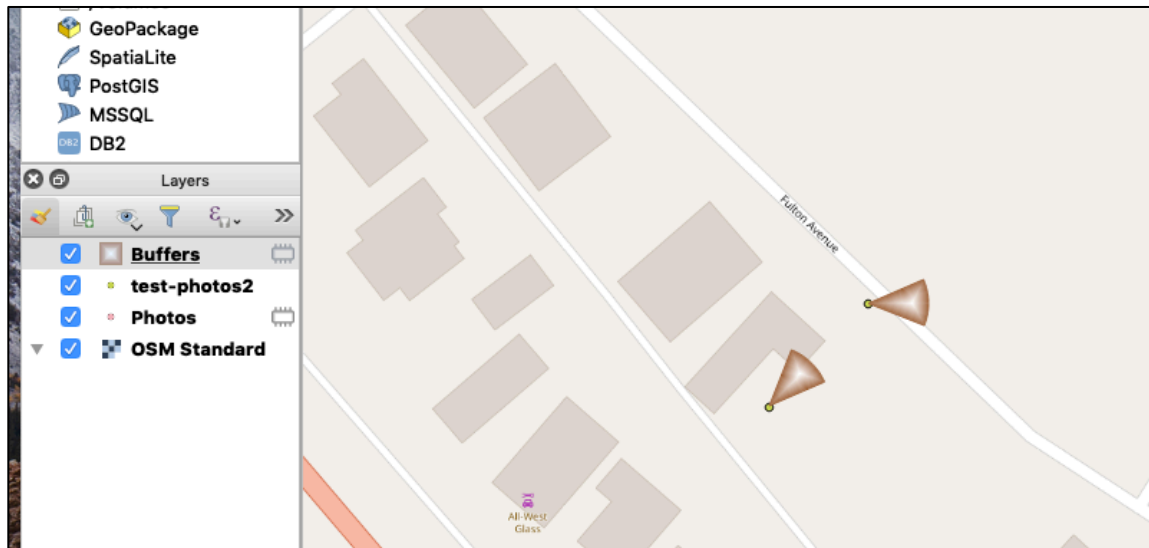
Note: To set the width of the buffer in meters, make sure your data layer is in a projection with meters as a base (i.e. EPSG:3005 -NAD 83/BC – Albers or UTM)

Under Azimuth (degrees from North), use the menu icon on the right to select Field type > direction.



Set Outer radius to a distance which makes sense for the scale you are working at (e.g. 30 m).

Click Run.



Reference <https://communityhealthmaps.nlm.nih.gov/2019/02/21/mapping-field-photos-in-qgis/>