



FLICKR PHOTOSERIES ANALYSIS FOR ASSESSING ECOSYSTEM CULTURAL SERVICES: Method Compendium

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OVERVIEW

This method will allow you to download all the public pictures of your study area that have been uploaded on the Flickr social network and to organize them in an Excel spreadsheet to perform a manual classification. The method use a Flickr Application Programming Interface (API) to retrieve all the geotagged public pictures uploaded on Flickr. The Flickr API uses standard Hypertext Transfer Protocol (HTTP) methods to retrieve and manipulate data.

Using ArcGIS can facilitate the work. But in order to provide a general approach we did not included the steps to follow using ArcGIS.

STEP 1. ACQUIRE THE API KEY

The API for public data must be accompanied by an identifier, which is an API key or access token. To use the Flickr API you need to have an application key. To acquire an API key follow the link:

<https://www.flickr.com/services/apps/create/apply>

We will use the Flickr API “flickr.photos.search” , this is an HTTP query which returns a list of photos matching some criteria. For our photoseries analysis we need to retrieve all the public photos that have been taken within the study area boundaries which are defined by a bounding box.

STEP 2. CONSTRUCT THE SOURCE URL

To construct the source URL of the HTTP request we will use this interface:

<https://www.flickr.com/services/api/explore/flickr.photos.search>

The fields you need to check and fill are the following:

Bbox = Bounding Box of the area that will be searched (the 4 values represent the bottom-left corner of the box and the top-right corner, minimum_longitude, minimum_latitude, maximum_longitude, maximum_latitude). The coordinates should be expressed in Decimal Degrees. For the case of 4 Quatre-Montagnes - OpenNESS case study05 – the Bbox will be: 5.461462, 44.968986, 5.657065, 45.241986.

bbox	optional	<input checked="" type="checkbox"/>	5.461462, 44.968986, 5
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extras = a comma-delimited list of extra information to fetch for each returned record. For our analysis you need to enter: "owner_name, description, date_upload, date_taken, geo, tags, url_o".

per_page = Number of photos to return per page. You should enter "500", this is the maximum allowed value.

page = The page of results to return. If this argument is omitted, it defaults to 1.

extras	optional	<input checked="" type="checkbox"/>	owner name, descriptio
per_page	optional	<input checked="" type="checkbox"/>	500
page	optional	<input checked="" type="checkbox"/>	1

You don't need to specify any other argument. You can find a detailed description of all the arguments, and error codes, at the following documentation page:

<https://www.flickr.com/services/api/flickr.photos.search.html>

Click on "Call Method". A box will appear with the list of returned records (see image below). Note that on the third line you can read the total number of pictures that have been returned (3382 in the example below), you can also read how many pages and the number of photos per page which are returned (you will retrieve the maximum allowed value of photos per page which is 500). You should always inspect the page, pages, per page, and total attributes of the returned XML to see if you need to make more calls for multiple pages

Below the box you can read the URL link.

[Back to the flickr.photos.search documentation](#)

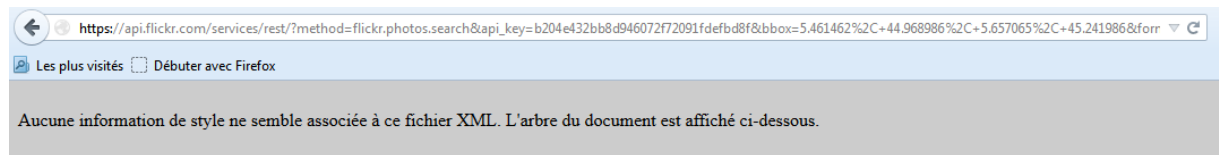
```
<?xml version="1.0" encoding="utf-8" ?>
<rsp stat="ok">
  <photos page="1" pages="34" perpage="100" total="3382">
    <photo id="15773356121" owner="79162188@N08" secret="7d45d76191" server="8578" farm="9" title="Cha
    <photo id="15062751873" owner="72418921@N00" secret="e6f78711bd" server="3954" farm="4" title="" i
    <photo id="15682129225" owner="72418921@N00" secret="2b8f2a3750" server="5606" farm="6" title="" i
    <photo id="15496671358" owner="72418921@N00" secret="bea2e981e7" server="3940" farm="4" title="Le
    <photo id="14988143504" owner="79162188@N08" secret="11e429f960" server="5600" farm="6" title="Les
    <photo id="15422780628" owner="79162188@N08" secret="a72ce00949" server="5605" farm="6" title="Les
    <photo id="14987727754" owner="72418921@N00" secret="1e2f7cbd85" server="3954" farm="4" title="" i
    <photo id="15385898588" owner="78873869@N03" secret="ef9b117311" server="3933" farm="4" title="19
    <photo id="15526441405" owner="79162188@N08" secret="64c2391c5d" server="3956" farm="4" title="Dax
    <photo id="15323239677" owner="128497824@N02" secret="df3f2443f1" server="2948" farm="3" title="Ha
    <photo id="15486641166" owner="128497824@N02" secret="b2e66f775f" server="3941" farm="4" title="Ha
    <photo id="15319559238" owner="66082759@N06" secret="ac2f66db59" server="3939" farm="4" title="Gre
    <photo id="15505193255" owner="66082759@N06" secret="11cc5c7475" server="5615" farm="6" title="Blu
    <photo id="15424083116" owner="61477777@N00" secret="5e498006ec" server="5598" farm="6" title="" i
    <photo id="15260367989" owner="61477777@N00" secret="ef4fd26767" server="3936" farm="4" title="" i
    <photo id="15424083536" owner="61477777@N00" secret="11a6008409" server="3931" farm="4" title="" i
    <photo id="15447153995" owner="61477777@N00" secret="320417be7b" server="5597" farm="6" title="" i
    <photo id="15419722225" owner="79162188@N08" secret="7fcee7253" server="3929" farm="4" title="Mée
    <photo id="15334748225" owner="77669261@N04" secret="1be2820943" server="3845" farm="4" title="ime
    <photo id="15146730537" owner="77669261@N04" secret="25dbc1074c" server="3867" farm="4" title="Gre
    <photo id="15318773815" owner="79162188@N08" secret="87f23f49bc" server="5584" farm="6" title="Mée
    <photo id="15099668137" owner="100597270@N04" secret="bf284457be" server="3902" farm="4" title="Ba
    <photo id="15261538006" owner="69717942@N09" secret="bec4a7e95f" server="3862" farm="4" title="Gre
```



URL: https://api.flickr.com/services/rest/?method=flickr.photos.search&api_key=961947f5e826ea57710d90c2ff434b98&bbox=5.461462%2C+44.968986%2C+5.657065%2C+45.241986&format=rest&auth_token=72157649064405667-2e38b8dba78cc302&api_sig=32f3fe471cd0277589bb4203e824d852

You have to lunch the URL from your web browser (Copy and paste the URL), the response will be an HTML page which shows the photo records (see image below).

Save the HTML page.



```
-<rsp stat="ok">
  <photos page="1" pages="34" perpage="100" total="3383">
    <photo id="15859530736" owner="45034467@N03" secret="78228ac0aa" server="8654" farm="9" title="Chute d'automne" ispublic="1" isfriend="0" isfa
    <photo id="15859144261" owner="61477777@N00" secret="d4213eb461" server="7546" farm="8" title="" ispublic="1" isfriend="0" isfamily="0"/>
    <photo id="15773356121" owner="79162188@N08" secret="7d45d76191" server="8578" farm="9" title="Chartreuse & Belledonne" ispublic="1" isfriend
    <photo id="15682129225" owner="72418921@N00" secret="2b8f2a3750" server="5606" farm="6" title="" ispublic="1" isfriend="0" isfamily="0"/>
    <photo id="15496671358" owner="72418921@N00" secret="bea2e981e7" server="3940" farm="4" title="Le mont-blanc vu de saint nizier" ispublic="1" is
    <photo id="14988143504" owner="79162188@N08" secret="11e429f960" server="5600" farm="6" title="Les Allières" ispublic="1" isfriend="0" isfamily
    <photo id="15422780628" owner="79162188@N08" secret="a72ce00949" server="5605" farm="6" title="Les Allières" ispublic="1" isfriend="0" isfamily
    <photo id="14987727754" owner="72418921@N00" secret="1e2f7cbd85" server="3954" farm="4" title="" ispublic="1" isfriend="0" isfamily="0"/>
    <photo id="15385898588" owner="78873869@N03" secret="ef9b117311" server="3933" farm="4" title="19 Octobre 2014" ispublic="1" isfriend="0" isfa
```

STEP 3. IMPORT THE LIST OF PHOTOS IN AN EXCEL SPREADSHEET

Open Excel and open the HTML file as an xml table and say ok to let Excel creating the schema.

You need to make more API calls for multiple pages. So you have to Repeat STEP 2. For every page: change the value "page" within the API interface page:

<https://www.flickr.com/services/api/explore/flickr.photos.search>

leave all the other values unchanged. Save every html page.

You can now put all the pages together in one single Excel spreadsheet.

STEP 4. CONSTRUCT THE SOURCE URL

You can notice that for some picture the source URL is missing. You can construct the source URL to a photo once you know its ID, server ID, farm ID and secret.

The URL takes the following format:

http://farm{farm-id}.staticflickr.com/{server-id}/{id}_{secret}.jpg

For example:

For the record:

```
<photo id="14137015680" owner="78873869@N03" secret="b67f1c29fd" server="2913"
farm="3" title="1er Juin 2014" ispublic="1" isfriend="0" isfamily="0" />
```

The URL is:

http://farm3.staticflickr.com/2913/14137015680_b67f1c29fd.jpg

You can use an Excel formula to construct the URL for all the records where it is missing, the formula should look like the following example:

```
= "http://farm"&J2&".staticflickr.com/"&I2&"/"&F2&"_"&H2&".jpg"
```

STEP 5. CLASSIFY THE PHOTOS

You can now click on the source URL to visualize each photo on your web browser.

Delete all the fields that are not needed, keep the followings:

- id
- owner
- title
- date taken
- ownername
- tags
- latitude
- longitude
- url_o
- description

“id”, “owner”, “datetaken”, “ownername”, “latitude” and “longitude” are important variables for our analysis; “tags” and “description” are free text entered by the Flickr users, they can optionally be used to get additional or preliminary information on the photo content.

You can now import the classification schema which has been provided and start classifying the pictures (see Excel file).

If you want to localize your photos, you can do it by searching for the given lat long coordinates of the photo in GoogleEarth.

You can also import all the pictures as point Shapefile in a GIS platform.