

## Data Wrangling With eBird – Part 1

I am planning a trip to Cottonwood, Arizona during the last week of May, 2014 for the Verde Valley Birding Festival. This is an area that is north of Phoenix and south of Flagstaff. It is not included in the American Birding Association's Birdfinding Guide to Southeast Arizona. Can eBird help me with what kind of birds to expect then? The answer is “Yes”. This post is a tutorial of how to get eBird data into a spreadsheet so you can do just that for the last week of April in Yavapai County, Arizona. In Part 1 we will just get the data into the spreadsheet. In future Parts we will explore some of the possibilities of what can be done with this data.

By now I am sure many of you have at least heard about eBird, a Citizen Science project. It is an online database of bird sightings from around the world contributed by birders of all skills. Last year, eBird reached a milestone of over 100 million sightings!!!

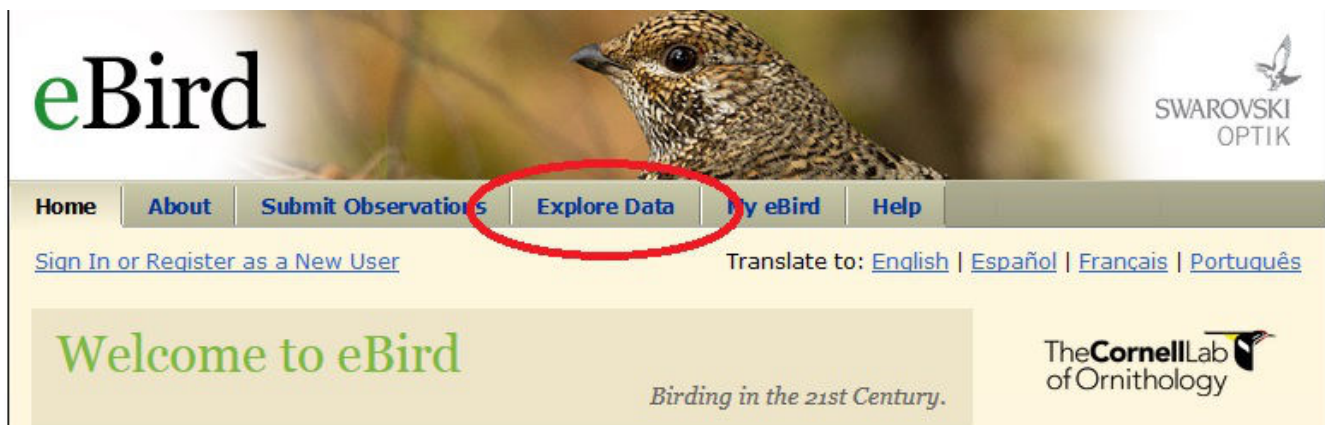
If you don't already contribute to this effort, you should consider it. It is quite easy. You can contribute at their website at <http://ebird.org> or through an app like BirdLog or you can convert data from your existing sightings database with whatever listing software you are using. A lot of online help for this is available.

Ebird has a surprising amount of research value on their website. A birder can get “live” maps for a specific species, a bar chart of abundance for a list of species for a number of different geographical areas, or even line graphs showing abundance of a species by season. It is fun stuff!

But eBird data wrangling? What is that? Basically it is just a fun term for getting data out of eBird into a format that you can use for research on your own. But can't you just get the bird list for Yavapai County, Arizona from eBird without using a spreadsheet? Well, sort of. What you actually get will be a list of species with bar charts for the entire month of April. The online resource does not drill down any further. But you can get every week of the year inside the spreadsheet we're about to create!

This post assumes you are somewhat familiar with 1) Microsoft Excel (or some spreadsheet that can read Excel—I am using LibreOffice Calc in this example) and 2) eBird.

Ready? Ok. Here we go. Get online with your favorite browser and go to the website, <http://ebird.org>. Click on the tab that says “Explore Data”.



Click on “Bar Charts”.

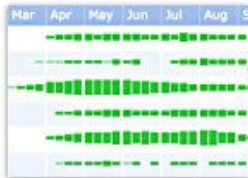


## View and Explore Data



### [Range and Point Maps](#)

Explore interactive range maps by species or subspecies — zoom in for details



### [Bar Charts](#)

Find out what birds to expect throughout the year in a region or location



### [Line Graphs](#)

Explore different metrics of species occurrence

### **Your Totals**

Track your totals and compare with other eBirders.

#### [Yard Totals](#)

How many species and checklists have you submitted for your yard?

#### [Patch Totals](#)

How many have you submitted for your favorite birding patches?

#### [Top 100](#)

Compare with the top eBirders in your region.

Select “Arizona” for our target state and then click on the “Counties in Arizona” radio button. After you have done this, click on the “Continue” button.



[« Start Over](#)

## Choose a Location

Create a bar chart of species occurrence for your region of interest.

**Current Location:** Choose a Location

**Select a region:**

United States

- Alabama
- Alaska
- Arizona**
- Arkansas
- California
- Colorado
- Connecticut

1

**Then select a subregion:**

- Entire region
- Counties in Arizona**
- Hotspots in Arizona
- Bird Conservation Regions in Arizona
- Important Bird Areas in Arizona

2

or

**Select from within:**

- Bird Conservation Regions

Continue

3

Here you could click on multiple counties. For now all we need is one. Click on “Yavapai” to select Yavapai County. Then click on the “Continue” button to proceed.

[« Start Over](#)

## Choose up to 15 counties

Apache
Cochise
Coconino
Gila
Graham
Greenlee
La Paz
Maricopa
Mohave
Navajo
Pima
Pinal
Santa Cruz
<b>Yavapai</b>
Yuma

2

Bam! You can now see “Bird Observations”. This is a list of all the birds that have been recorded in eBird for Yavapai County, Arizona for all years (1900 to present) and all months. As of the writing of this post, 342 species have been recorded in eBird.

The bar charts actually represent something eBird calls “Frequency of Checklists”. It is simply the percent of checklists which have a particular species recorded. For instance, if a bird like Red-faced Warbler occurred on 3 checklists and a total of 300 checklists were submitted, then the value shown here would be 3 divided by 300 or 1%. It will be displayed in the final spreadsheet as 0.01. Got it?

Page down on this web page until you get to the bottom.



« Start Over

## Bird Observations

▼ **Date Range:**

1/1 - 12/31, 1900-2013 **Combine Years**

▼ **For**

[ [Yavapai](#) ]

Last updated ~19 hrs ago.

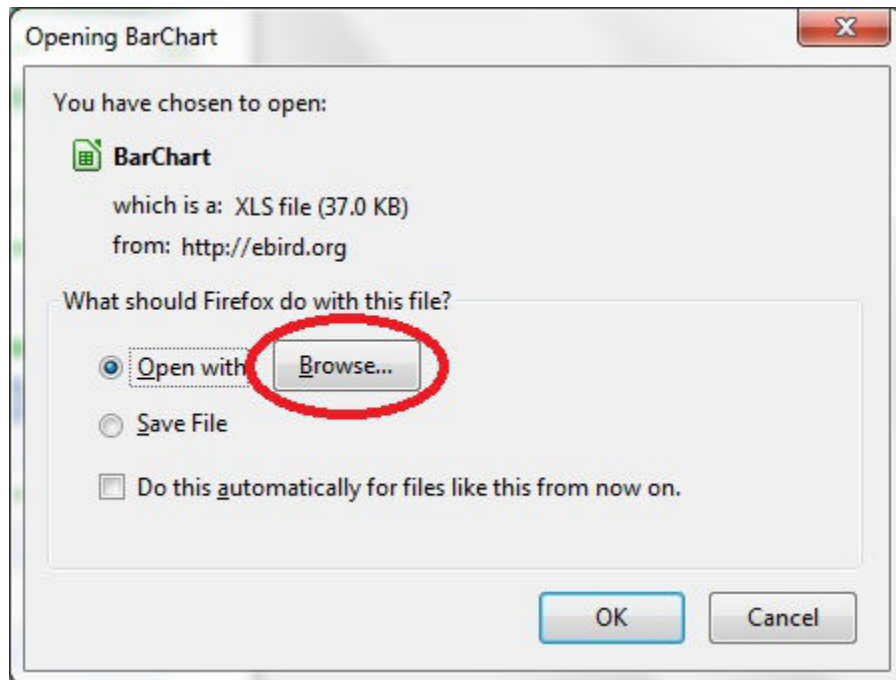
342 species (+33 other taxa)



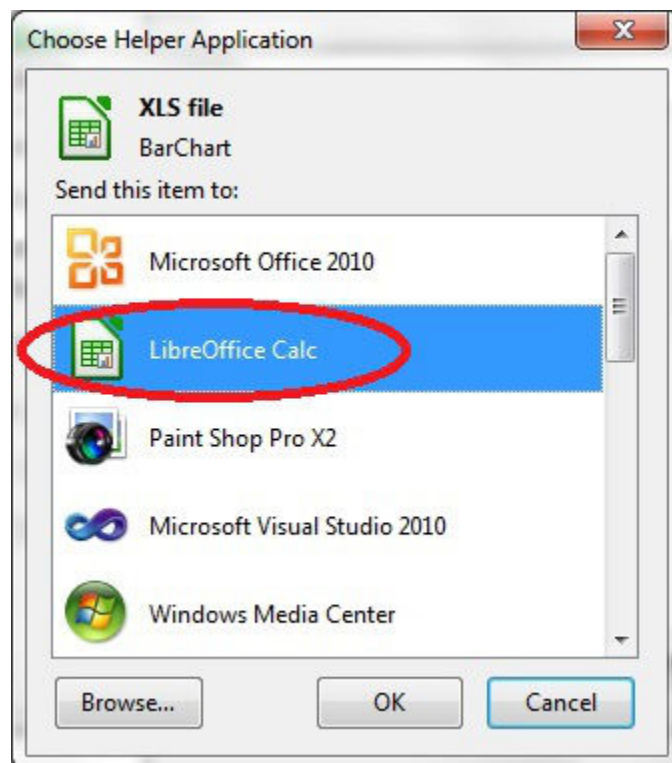
Click on "Download Histogram Data" at the bottom right.



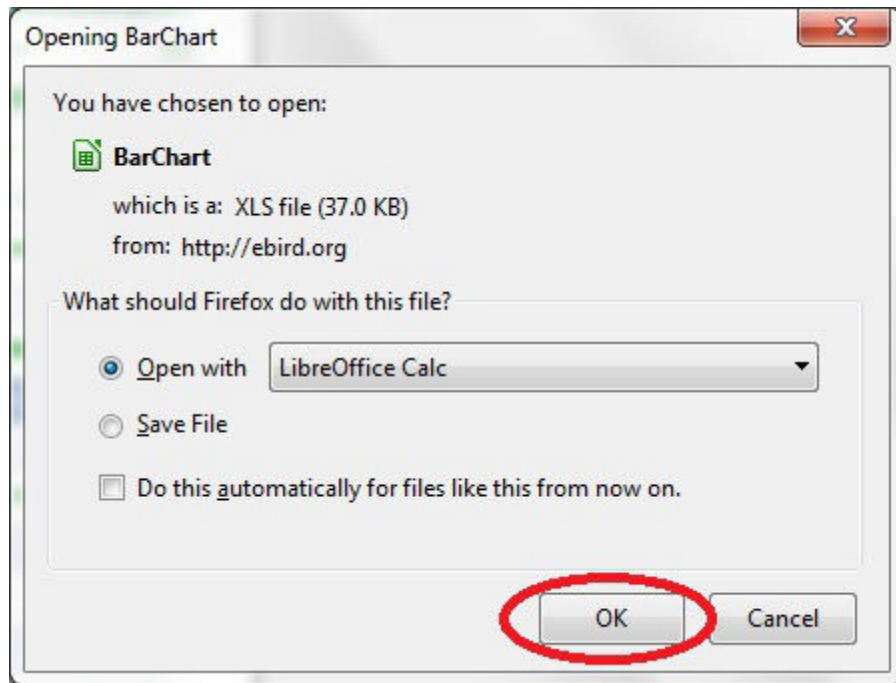
Click on the “Browse” button to see a list of available programs.



Select your spreadsheet of choice.

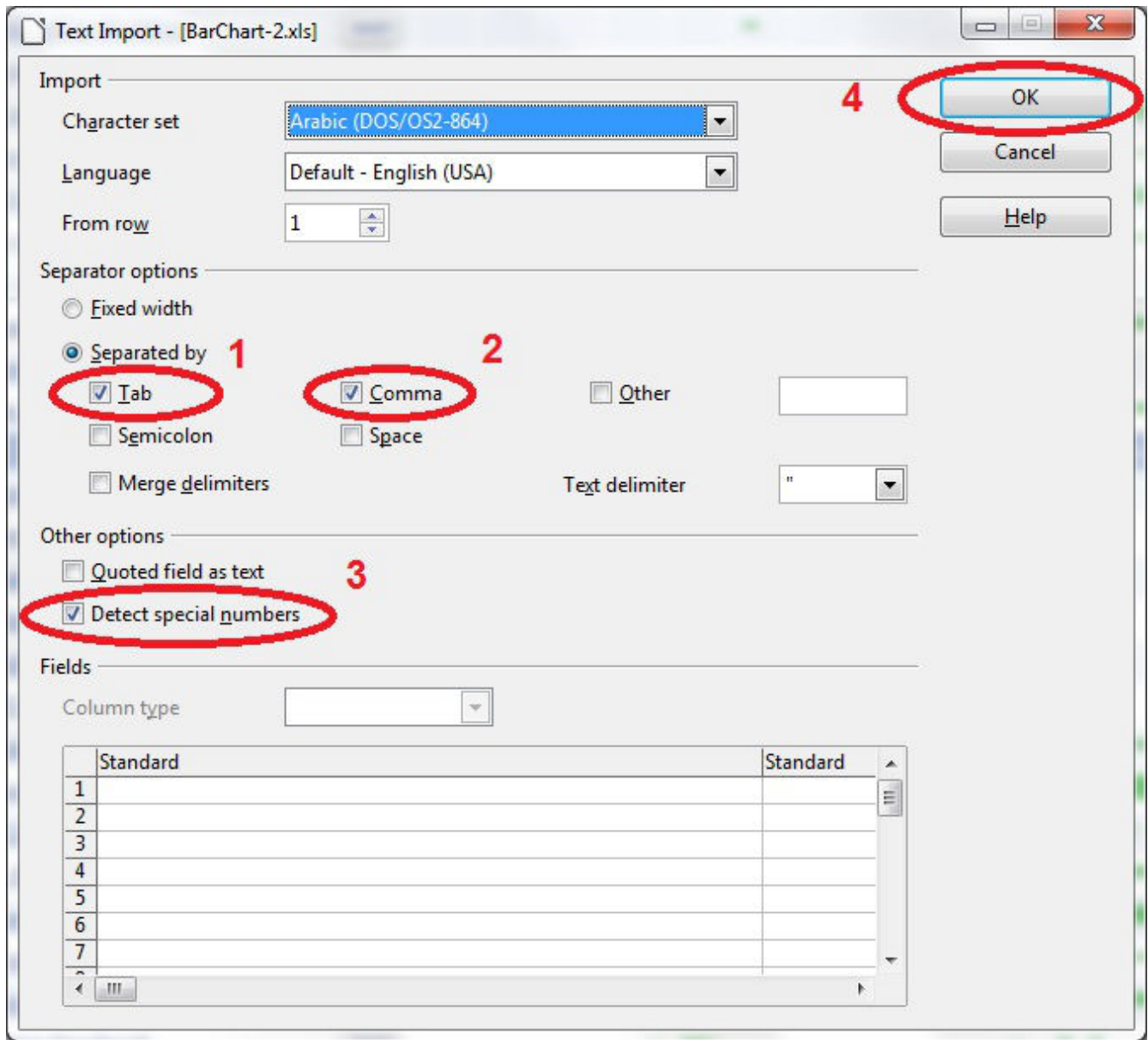


Click the “Ok” button to continue.



Click on “Tab” and “Comma” under “Separated by” (Excel may be different). If you are using Libreoffice like I am you will definitely want to click the check box, “Detect special numbers”. This will make sure that numbers in scientific notation will be read correctly. Click “Ok” to continue.





Shazam! Data in what looks like a spreadsheet! Note that you cannot do anything with yet. It is in read-only format.

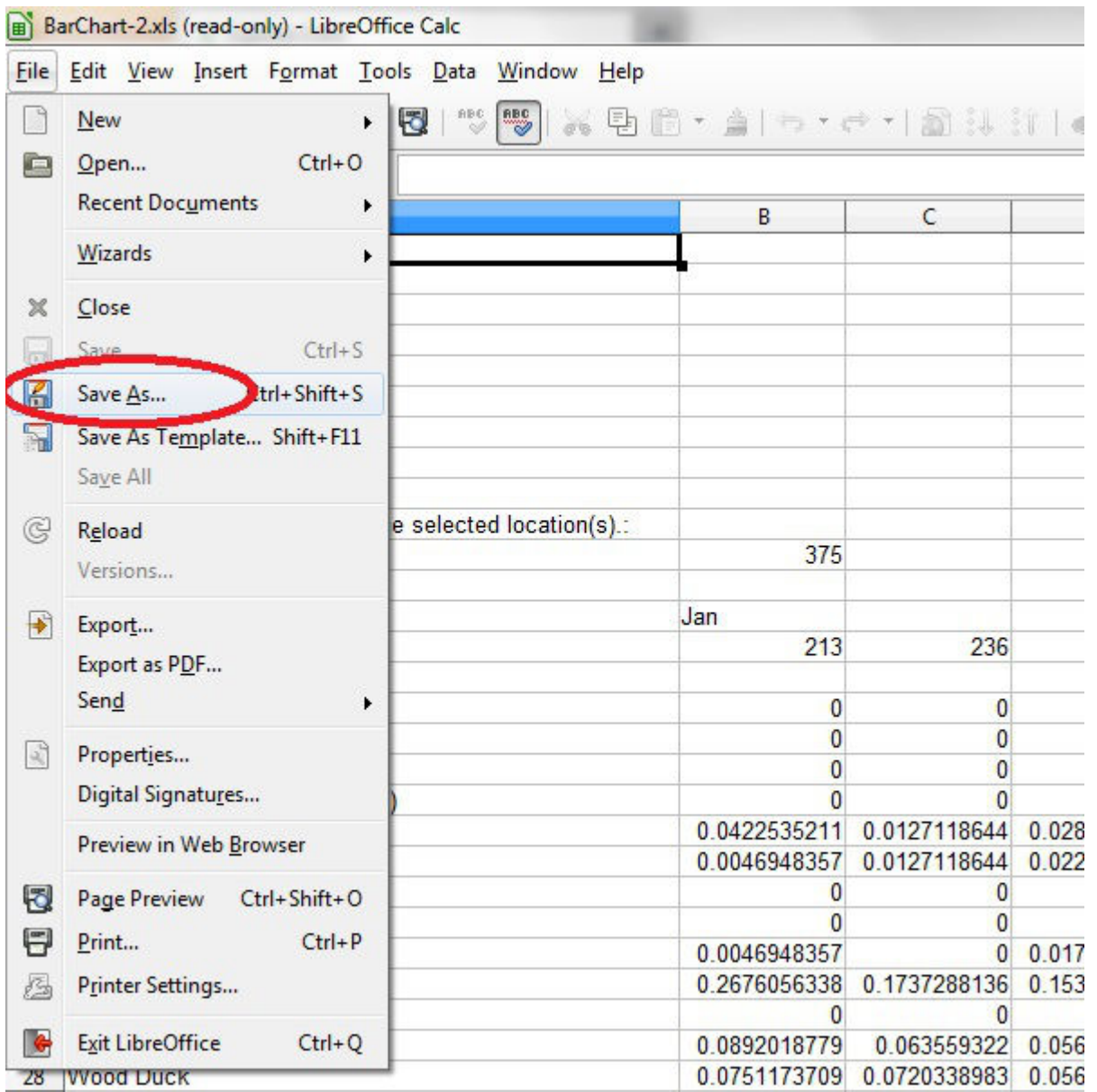
BarChart-2.xls (read-only) - LibreOffice Calc

File Edit View Insert Format Tools Data Window Help

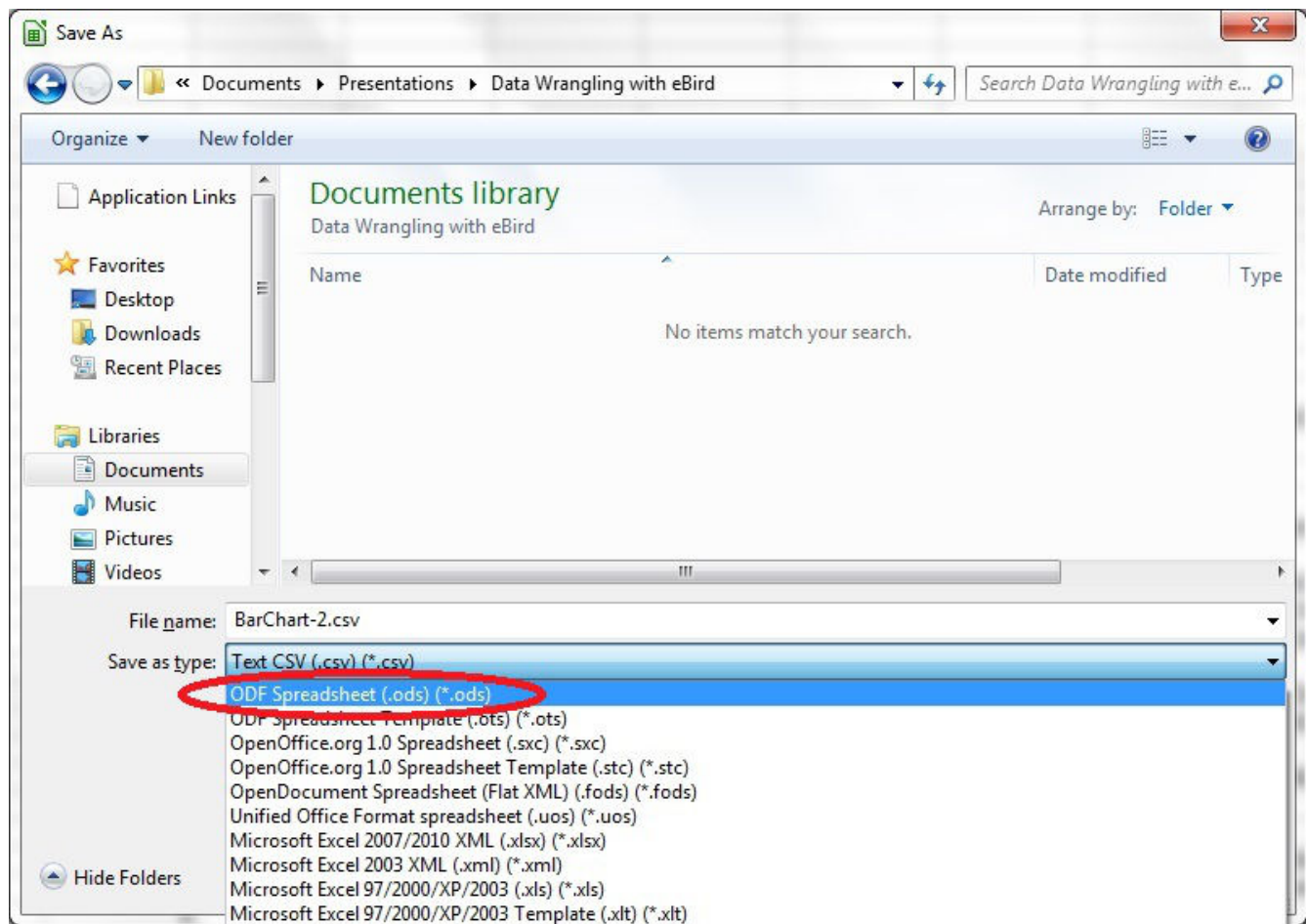
A1

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							
6							
7							
8							
9							
10	Frequency of observations in the selected location(s):						
11	Number of taxa:	375					
12							
13		Jan				Feb	
14	Sample Size:	213	236	176	213	193	152
15							
16	Black-bellied Whistling-Duck	0	0	0	0	0	0
17	Swan Goose (Domestic type)	0	0	0	0	0	0
18	Greater White-fronted Goose	0	0	0	0	0.0103626943	0
19	Graylag Goose (Domestic type)	0	0	0	0	0	0.0065789474
20	Snow Goose	0.0422535211	0.0127118644	0.0284090909	0.0234741784	0.0466321244	0.0460526316
21	Ross's Goose	0.0046948357	0.0127118644	0.0227272727	0.0187793427	0.0103626943	0.0065789474
22	Snow/Ross's Goose	0	0	0	0.0046948357	0	0
23	Brant	0	0	0	0	0	0
24	Cackling Goose	0.0046948357	0	0.0170454545	0.0046948357	0	0
25	Canada Goose	0.2676056338	0.1737288136	0.1534090909	0.1971830986	0.1606217617	0.1710526316
26	Trumpeter Swan	0	0	0	0.0015	0.0015	0
27	Tundra Swan	0.0892018779	0.063559322	0.0568181818	0.0892018779	0.067357513	0.0723684211
28	Wood Duck	0.0751173709	0.0720338983	0.0568181818	0.0469483568	0.0466321244	0.0263157895
29	Gadwall	0.2394366197	0.2245762712	0.1704545455	0.1596244131	0.1554404145	0.125
30	Eurasian Wigeon	0	0	0	0	0	0
31	American Wigeon	0.2018779343	0.1610169492	0.1875	0.1643192488	0.1865284974	0.1907894737

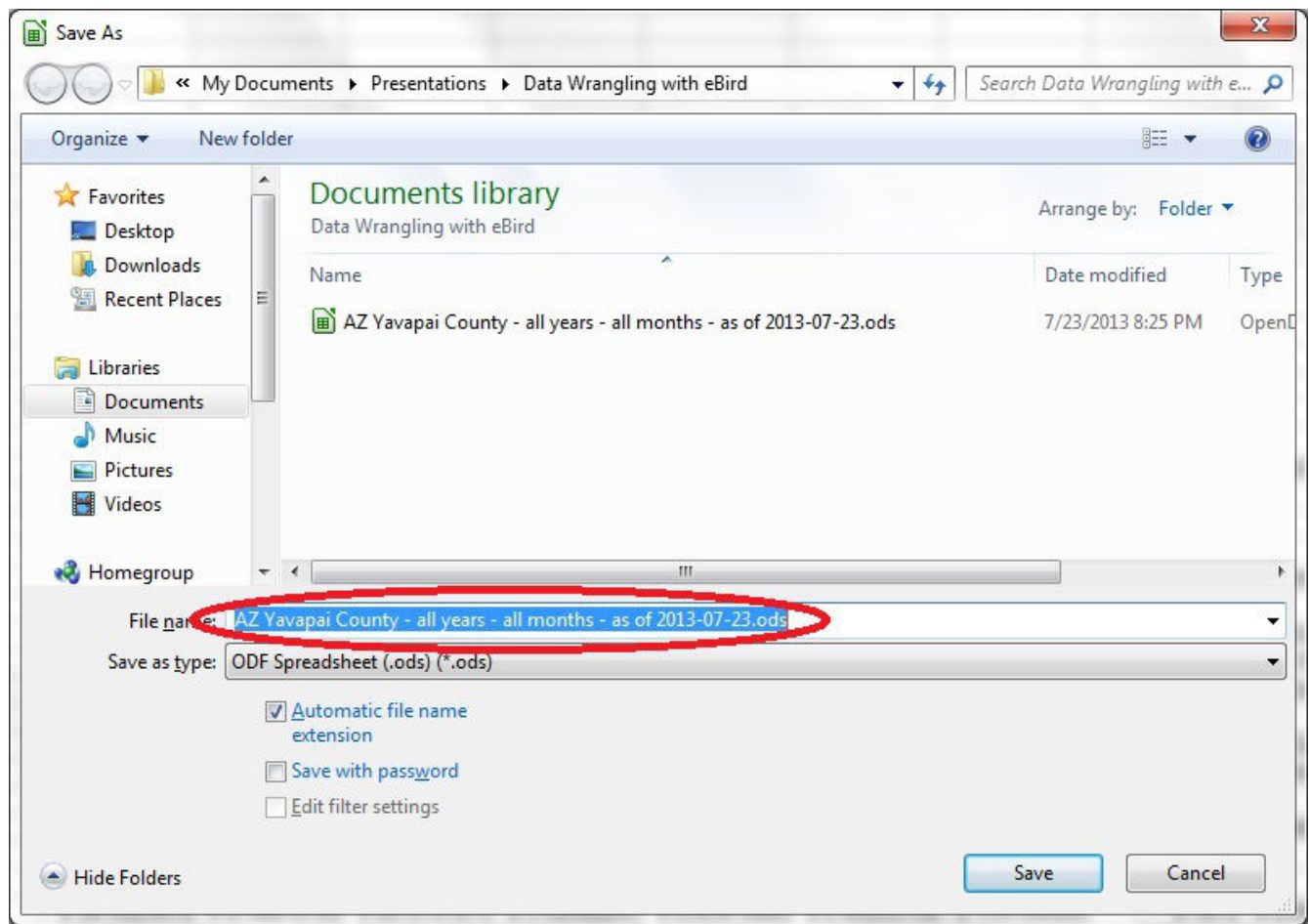
Now let's save it as a spreadsheet so we can do magic with it later. Click on "File > Save As" from the top spreadsheet menu.



Save the file as a spreadsheet. It currently is in CSV format (comma separated values).



Select the directory where you want to save the file and then type in the filename. Click on the “Save” button. You now have a spreadsheet with eBird data in it.



In the next post I will show you how to use this data.