Find and Format Species Data from GBIF:
How to format GBIF species data for Maxent

There are many sources of Species' data available through web services. Below is an example of how you would download and format data for a species through the GBIF portal.
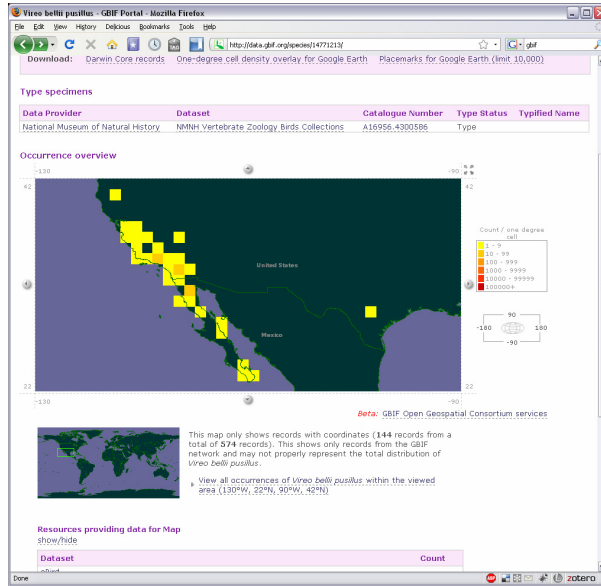
1. To access GBIF, go to http://www.gbif.org.

2. Choose **Data** > **Search** and for this example, we will search for: **Vireo bellii pusillus,** the Least Bell's Vireo, currently listed on California's endangered species list.

3. Click on the species name at the top of the screen. You will see a map that highlights the distribution of data available for the species.

4. Click "View all occurrences of Vireo bellii pusillus within the viewed area" and you will be brought to a download page. Here you can see a sample of the results listed on the page.

5. Click on the Download: **Spreadsheet of Results** link to download the data as a table.

6. In the following page, you can select the format that you would like to receive the data in, for maxent we will use **Comma separated values**.

7. Next, you can choose from a variety of different fields that are available for the data. You can use all of these fields to have more information, but for this exercise, we will only choose **Scientific name**, **Latitude**, and **Longitude** as these are the three fields necessary to run maxent. We can also choose **State/Province** so that we can be sure that the data covers California.
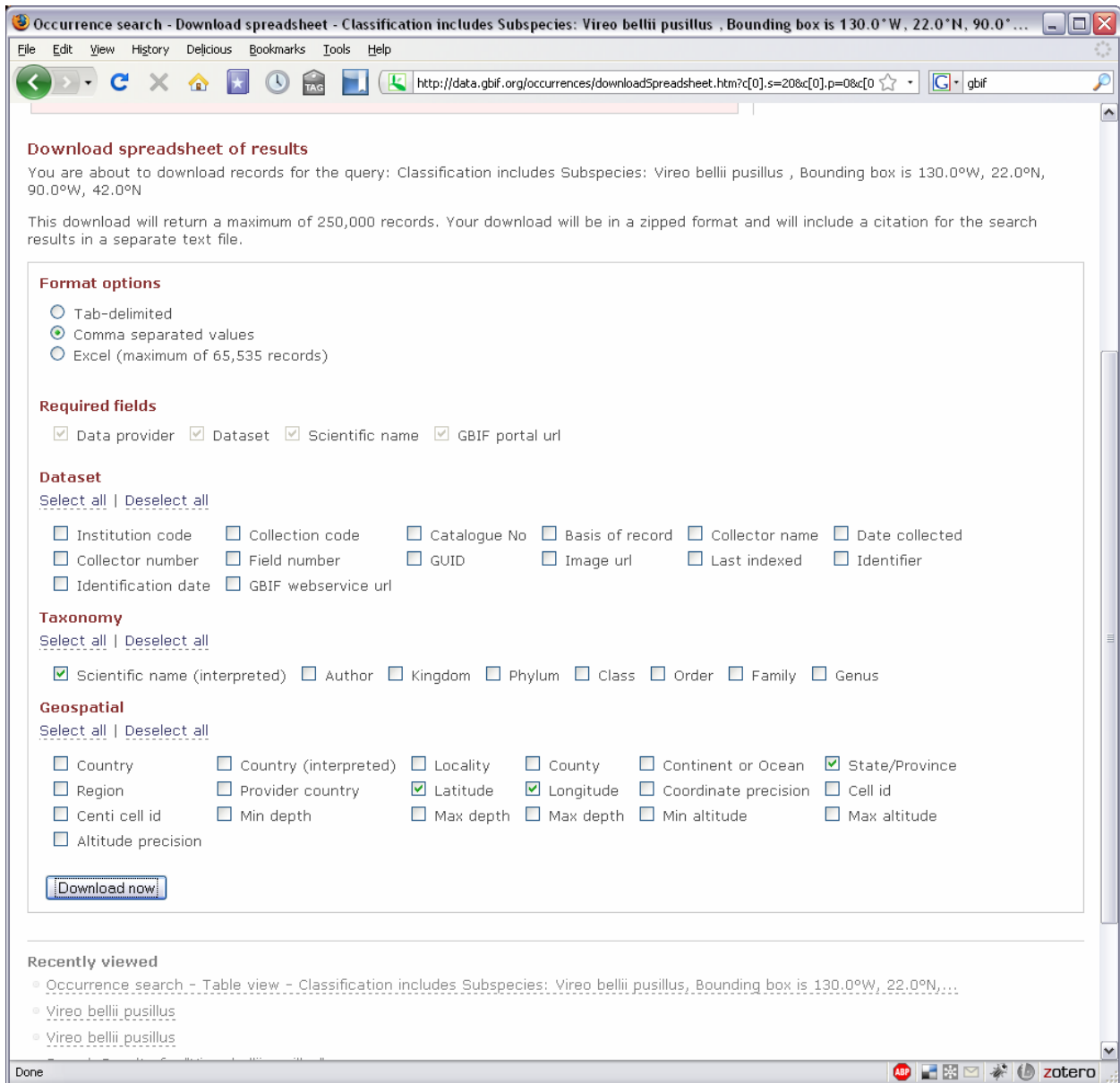
8. Once the download is complete, you will have to unzip the file. Using the free utility WinRAR, you can right click on the zip file and choose "Extract Here" and the csv file will be added to the current folder.
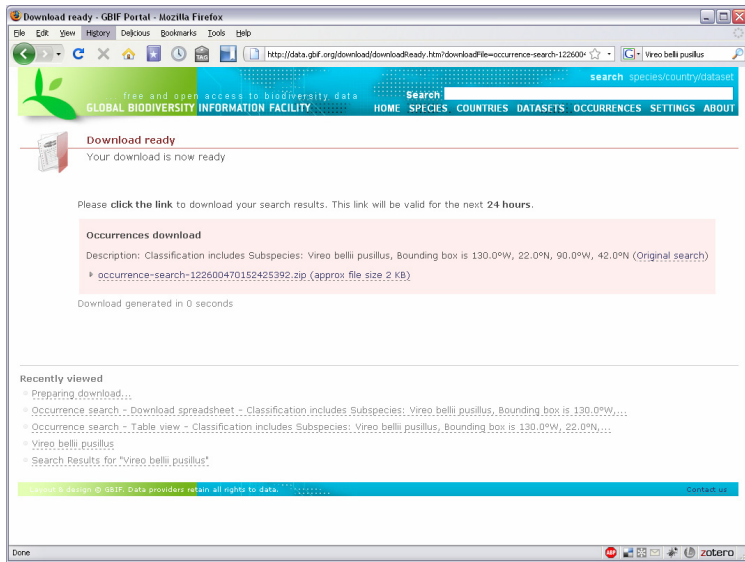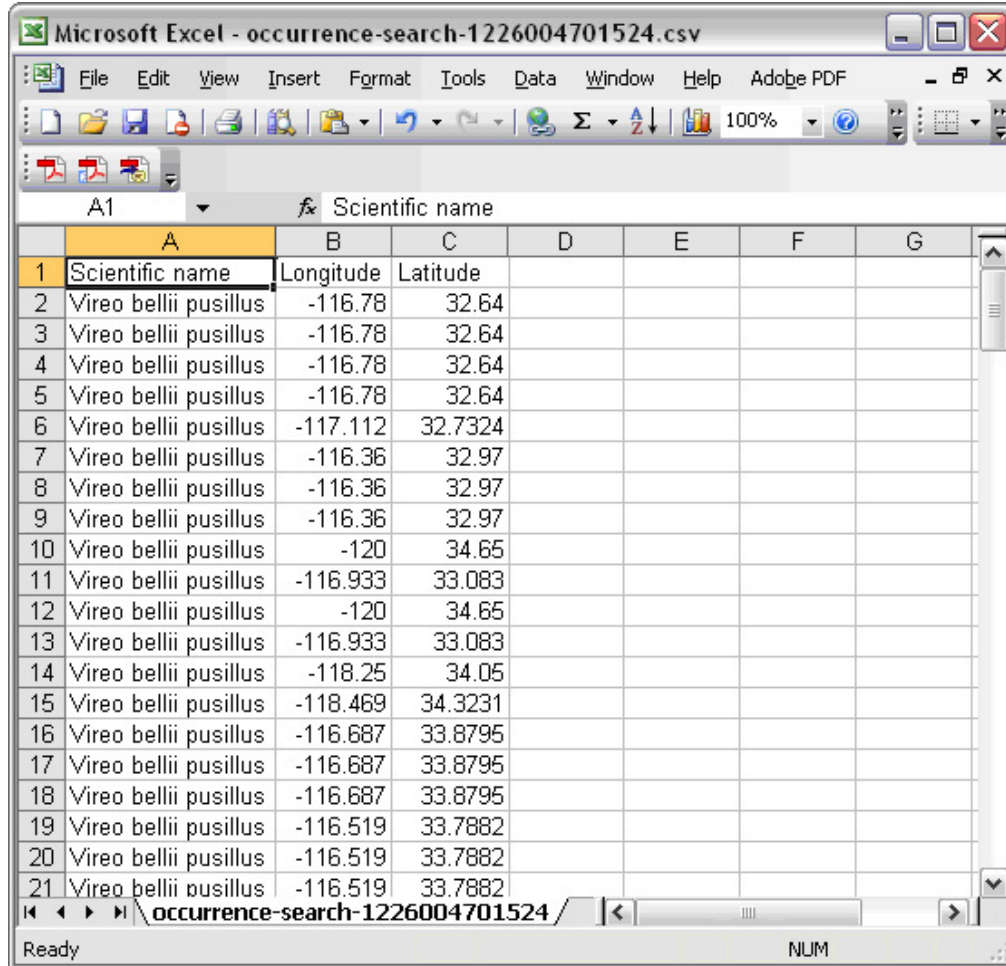

9. Next, we will open the csv file in excel for some minor formatting. In excel, choose **File > Open**. Be sure to set the Files of Type to csv to read the file.

10. To prepare the data for maxent, we can first sort by state and remove the point that do not fall in California. Then delete the columns for all but **Scientific Name**, **Latitude**, and **Longitude**.
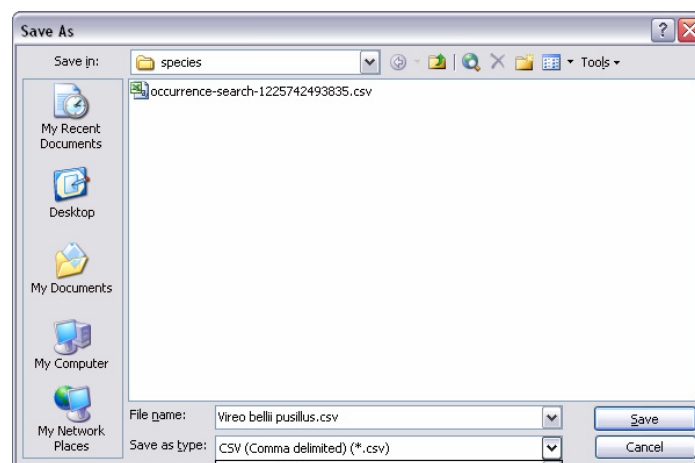

11. Lastly, we must swap the Longitude and Latitude columns, as maxent requires the data format specifically ordered to species name, x (long), y (lat).

12. Save the file as a .csv, and it will be ready for use in Maxent!