**AIM-UP! Activity to download spatial data**

Specimens in natural history collections are often georeferenced, or have latitude and longitude data in addition to a description of the locality. Spatial data is important for addressing many types of questions in biology, such as range shifts or variation across a species distribution. There are multiple sources of this type of data. It can come from an aggregator (such as [VertNet](http://vertnet.org/) or [GBIF](http://gbif.org/)) or from a museum database (such as [Arctos](http://arctos.database.museum/)). Note that it is always a good idea to verify data with the source, the institution housing the collection, when using an aggregator. In this activity we are going to use two different approaches for downloading spatial data, each of them has a benefit but may also require caution when using those data. This activity is to introduce you to the sources of spatial data and how to download it.

**Downloading data from a museum database, Arctos** [**http://arctos.database.museum/**](http://arctos.database.museum/)

Note – there are a lot of different options for searching using Arctos, if you would like to explore those options, please do the [Introduction to Arctos](http://aimup.unm.edu/documents/introductionto-arctos.pdf) activity.

1. Using an internet browser, navigate to the Arctos webpage. Arctos may work in multiple browsers, but performs best when accessed using Mozilla Firefox.
2. To download data from Arctos you will need an account. This can be done by clicking the “Create Account” blue button on the top right of the screen.



1. Once you have created an account, return to the specimen search page. On the top section, the “Identifiers” section in the “Collection” down box, choose “Check all”.



1. In the “Identification and Taxonomy” section, type in Mustela nigripes. Then click the “Search” button at the top.



1. This search should return 73 specimen records. Not all of them have latitude and longitude data, but you can delete those records after you download the records. On the results page, click on the “Tools: Map, Customize, or Download” drop-down box and select “Download”.
2. After you agree to the terms, a comma-separated value (csv) file will download to your computer that can be opened in Microsoft Excel.
3. Once you open the file in Excel, you can sort it by latitude or longitude and delete the records that are not georeferenced. This should leave you with records that can now be used to map specimens in a GIS program.

**Downloading data from an aggregator, VertNet** [**http://vertnet.org/**](http://vertnet.org/)

1. Navigate to the VertNet website and click on the “Search Options” link on the bottom left.



2. On the search page, click the “Is mappable” box, type in Mustela nigripes in the “Exact phrase” box, and click the blue search button on the right.



1. Once the search has completed, a table of records will appear at the bottom of the **same page**, scroll down to see the results. There should be 60 records of *Mustela nigripes* that have latitude and longitude coordinates. Click on the green “Download” button on the right above the results table. A window will pop up asking for an email address to send the results to.



1. A link will be emailed to the address you entered that will allow you to download a text file. This file is capable of being opened in Excel, but you must follow these steps to do it.
2. Open Excel, and choose File -> Open, then select the .txt file from VertNet.
3. Excel will ask you a series of questions, but you can just click the “Finish” button on the first window.
4. The file will now open in Excel and will appear similar to the Arctos file, but will have different columns.