Exercise 5: Explore species and trends with Observations Map and Analyst

Purpose: In this exercise, we will introduce you to two other data exploration and discovery tools in the AKN.

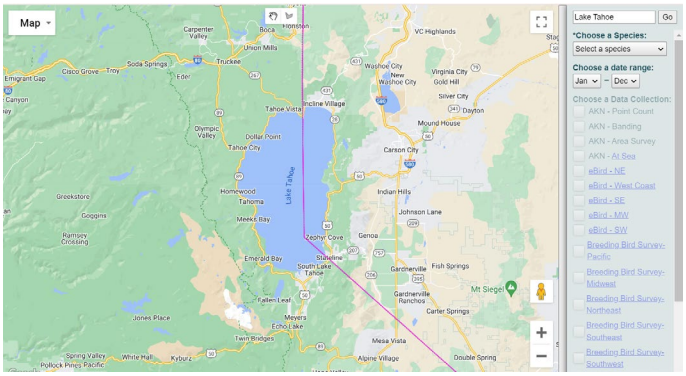
The Observations Map lets you explore survey locations and data from multiple sources (AKN, BBS, or eBird) and examine species occurrence and trends. Unlike the RAIL tool, this is not a modeled dataset, but actual observation data that has been set to Level 2 sharing and above.

The Analyst Application allows you to retrieve and analyze data in your project. This tool requires an account and is available to anyone that is a Project Leader in your project.

Goals: 1) Understand how to use the Observations Map to find survey locations from different datasets for a particular species and examine species trends. 2) Use the Analyst Application to create a species list, check effort summaries, and examine trends.

Observations Map

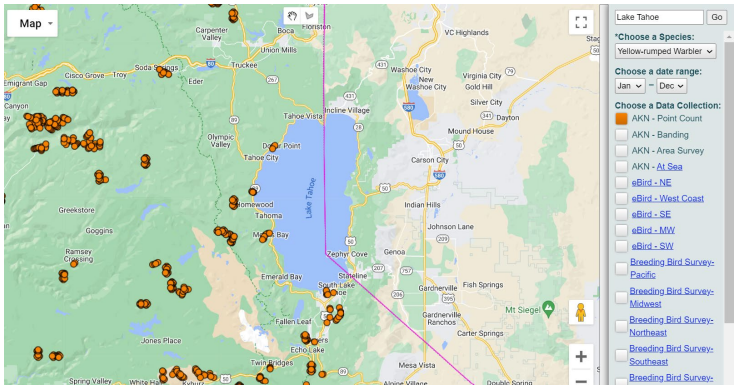
1. Navigate to the **Observations Map**. You can find a link on the DoW AKN Portal (www.dodakn.org) under the “Manage Data” tab. Scroll down to the heading “Explore Data” and click on the Observation Map.
2. Let’s start by getting oriented to the Observations Map:
    a. To **zoom in / out**, scroll or click on the Plus/Minus icons in the menu in the lower right corner. You can also double-click the mouse to zoom.
    b. To **pan**, click-hold the mouse and drag.
    c. “**Search by address**” lets you zoom into a specific area by name. Type in a place name and click Go.



d. Once you have zoomed in on the area you want to investigate, look at the dropdown menu under **Choose a species** - the tool requires you to pick a specific species first. Pick one from the dropdown list, and you will see the Data Collections turn on.

e. **Choose a date range** - use this if you want to further filter the search to be only within a range of months (say the breeding season), or leave it as Jan - Dec.

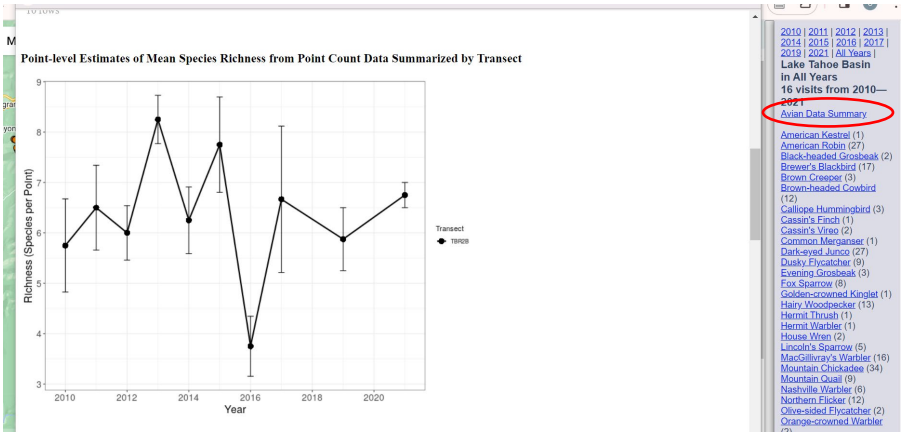
f. **Choose a data collection** - choose from the AKN (all from our data warehouses), eBird, and BBS collections. Dots will appear in colors showing where observations were made for that species in the area you're looking at. Note that some of the larger collections (e.g. eBird) are broken into regional datasets for system performance.



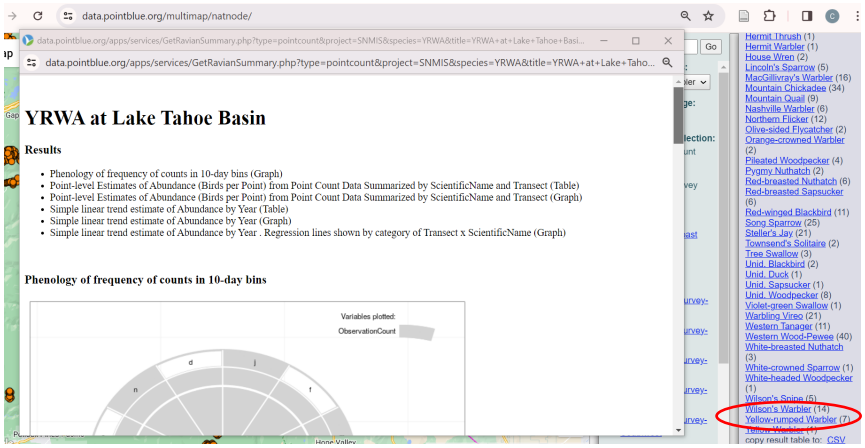
g. **Click on a map dot** - this will give you information about what was surveyed and observed at that location in the panel to the right.

   i. If a year is listed at the top, you can click on it to see a summary of that year.

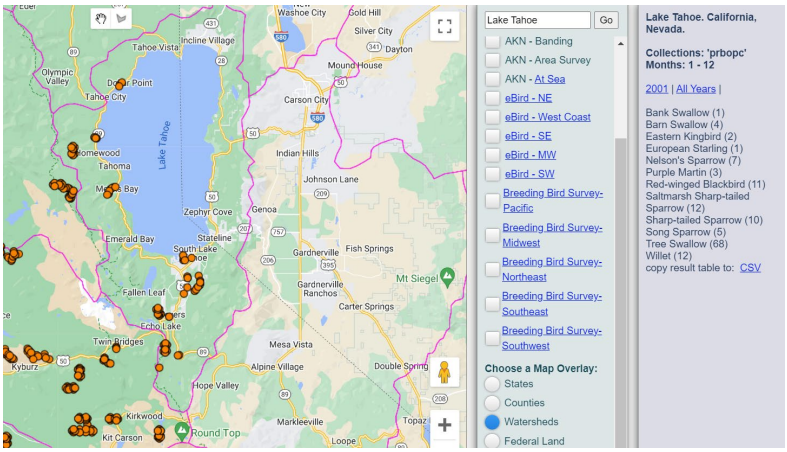
   ii. **Avian Data Summary** - for AKN or BBS data only, click on this link to get an Analyst report of **species richness** for this location. (Be patient letting this live analytics report run. You'll see a twirling icon in the upper left corner while it is running.)



iii. **Species** - for AKN or BBS data only, click on a species link to get an Analyst report of **phenology** and **species abundance**. Again, be patient in letting this live analytics report run.



h. **Choose a map overlay** – you can visualize and summarize specific areas on the map by choosing a map overlay. Choose the type of summary you are interested in (try "Watersheds"), and **click on the map somewhere within the polygon you want to summarize**. You will get a summary of observations for that area in the right panel. Note, state summaries take several minutes to run and load.



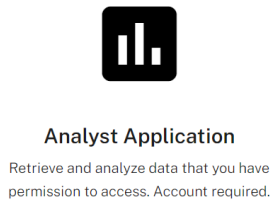
Example: Use the Observations Map to find data and trends

You are doing a quick assessment of Brewer's sparrows around Lake Havasu City and are interested in seeing what data/information is available from the AKN.

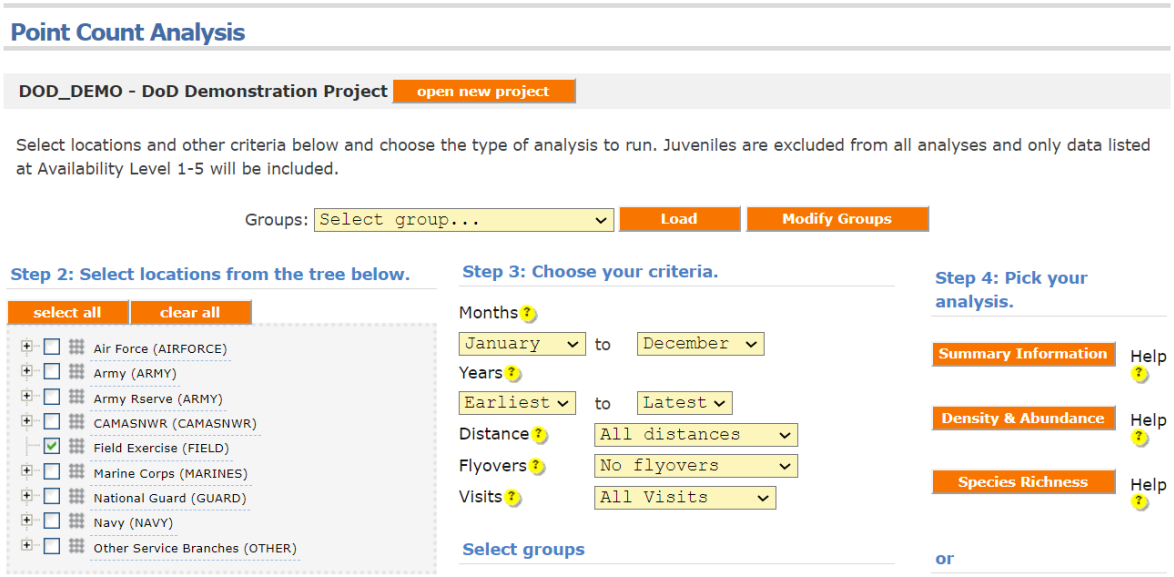
a. What do you see about where observations are?
b. What trends do you see about Brewer's sparrows?

Analyst

1. Navigate to the **Analyst** application and log in if needed. You can find a link to the Analyst application on the DoW AKN Portal (www.dodakn.org). Click on the "Manage Data" tab on the home screen. Scroll down to the heading "Explore Data" and click on the Analyst application.

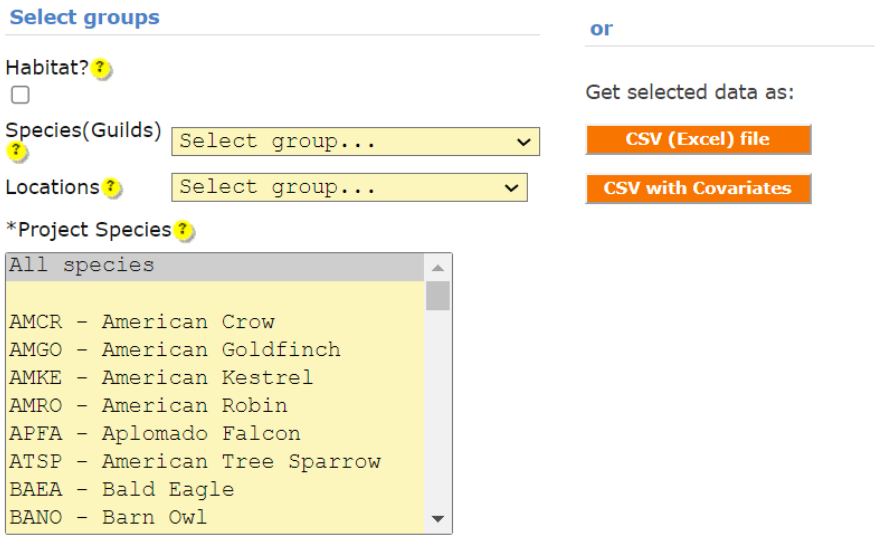


2. The next page asks you to select the type of data you will be analyzing. Click on "**Point Counts**".
3. Select the project **DOD_DEMO** and click the orange "Next" button.
    a. Note that if you have more than one project, you can analyze data for multiple projects at once. Hold down the control button to select more than one project.



4. At the top you will see "Groups", this does not apply to this project and can be left blank.
5. Under "Step 2", select the sampling units you would like to analyze.
    a. If you completed the Field Exercise during this training, find your transect name and check the box next to it. (If not, select the "CAMASNWR" sampling unit.)
    b. Click on '+' icons to expand the menu. Selecting a transect will automatically select all the points that are nested under it.
    c. If the project contains a large amount of data, not all tools will run. If this occurs, you can limit your data by selecting a lower level of sampling unit (or changing other criteria).
6. Under "Step 3", choose the criteria of the data you would like to analyze.
    a. **Months** and **Years**: Can be used to select specific months and years. In this case can be left as "Earliest" to "Latest".
    b. **Distance**: Use the dropdown box to change distance to "All Distances"
    c. **Flyovers**: The default is set to exclude flyovers, but you can choose to include flyovers if you want to.

d. **Visits**: Default is set to “All Visits”.
e. You can leave the “Species (Guilds)” and “Location” fields blank.
f. Under “**Project Species**”, select either “All species” or the species you would like to analyze, you can select more than one by holding the Shift key.



7. Under “Step 4”, select the type of Analysis you would like to run. Each of the options is discussed below.

Types of Analyses

Summary Information

This is a great way to quickly summarize data and effort. This analysis provides tables for number of visits, observations, and species by month and year. As well as provides a table of richness, diversity, dominance and evenness indices for all locations selected.

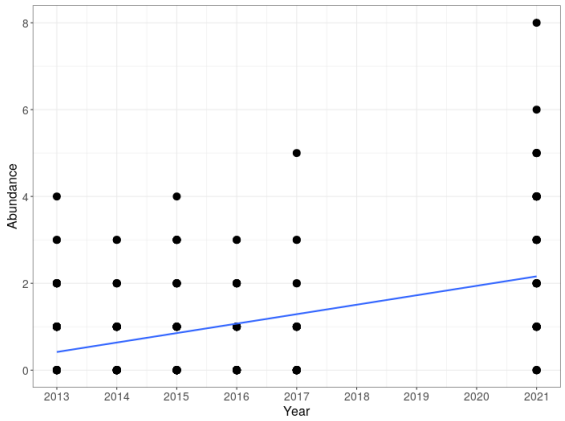
Common Name	2013	2014	2015	2016	2017	2021
Acadian Flycatcher	6	11	25	12	14	15
Alder Flycatcher	0	0	0	0	1	0
American Crow	41	28	42	29	24	113
American Goldfinch	14	1	5	6	3	16
American Redstart	0	1	0	1	1	2
American Robin	0	0	0	0	1	0
Barred Owl	0	0	0	0	0	1

Example of number of observation of species by year.

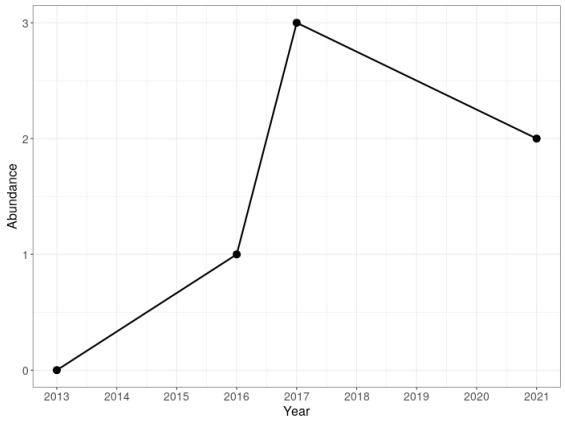
Density and Abundance

This tool summarizes density estimates by transect in a graph and table format, as well as provides a simple linear trend analysis on density and a trend analysis on abundance.

This tool works best with limited species selected; it starts to run slowly with too much data. If you receive an error message, try decreasing the number of species selected under “Project Species”.



Example of linear trends in abundance over years.



Example point level estimate of abundance for AMCR.

Species Richness

This analysis provides point-level mean species richness estimate for each transect each year in table and graph format. It also provides a linear trend analysis for this measure grouped by transect and overall.

Extra Credit: Explore Camas National Wildlife Refuge Data

In DOD_DEMO, there is an example dataset from the Camas National Wildlife Refuge. This is a real dataset from the AKN (available openly at sharing Level 5 to download in the Data Downloader tool). You can read more about this study here: https://meridian.allenpress.com/jfwm/article/12/1/27/462421/Sagebrush-Bird-Communities-Differ-with-Varying

You can use this dataset to explore examples of trends and abundance for sagebrush-associated birds.

1) In Analyst under the DOD_DEMO project, check the box next to the **CAMASNWR** study area.
2) Explore the available analyses to answer the following questions:
    a. What years are available for this data? _____
    b. How many species were observed across all years of the project? _____
    c. How many times per year were these points monitored? _____
    d. What was the most abundant species in each year? _____

       _____
    e. Examine graphs of density and abundance for Western Meadowlark, Horned Lark, Brewer's Sparrow, and Sagebrush Sparrow. What do you notice about the trends for these species? _____

       _____
    f. Notice how the three transects are separated by habitat type (MONO= Crested Wheatgrass, NON= Sagebrush with non-native understory, SAGE= Sagebrush with native understory). Does the overall abundance and trend for these species differ by transect? _____

       _____
    g. Examine the species richness graphs. How does species richness vary by habitat type? _____

       _____

Answer Key available on training website, under the "Exercises" tab.