

Working with Data Activity Sheet

Objective:

During this activity, you will use the online Motus Dashboard to explore specific wildlife species, Motus stations, and Motus projects. By the end of the activity, you should have a working knowledge of the Motus dashboard and what features it offers researchers. From the home screen of the dashboard, you may notice there are 5 separate tabs with different ways to view the Motus data; you will investigate each tab in turn. Please complete each section carefully.

Working with Motus Stations

Go to motus.org/explore and click on “Motus Data Dashboard.” Once the dashboard loads, click on “Find a Station”. Answer the following questions based on this dashboard.

1. Using the map, find the Motus station that is closest to you.
 - a. What is the name and number of the Motus Station?
 - b. How many species have been detected at this tower?
 - c. How many individual animals have been detected at this tower?
 - d. When was the last data received by this tower?
2. Click off the Motus station closest to you and go back to the dashboard. You may notice that each station is colored differently. Click on “Map Legend”. Based on the legend...
 - a. What do the different colors of the stations mean?
 - b. Click on “Latest Data” in the map legend. The colors of the stations should change after this toggle.
 - i. What does it mean if a station is yellow?
 - ii. What does it mean if a station is blue?
 - c. Click on “Antennae” in the map legend. The stations should appear different after this toggle. What is this selection showing you about the Motus towers?
 - d. Click on “Clusters” in the map legend. The stations should appear different after this toggle. How are the stations being shown differently now? Why might this be helpful for researchers to see the stations in this way?

3. In the map legend, go back to the first “Stations” option. Leave the map legend. Now, find a random station in a country that is not the United States with at least 5 detections and answer the following questions:
 - a. What is the name and number of the Motus Station?
 - b. How many species have been detected at this tower?
 - c. How many individual animals have been detected at this tower?
 - d. When was the last data received by this tower?
4. Now, click on “View Station” after clicking on the station you chose. In the side bar window that should appear on the left, click on “More Details”:
 - a. What is the station frequency?
 - b. When was the station first established?
5. Click off “More Details” and refer to the side bar. Complete the table below based on this information for 3 different species.

Species	# of Animals Detected	# of Stations Visited	# of Projects with tags	Last Detection of Species

6. Click on “Chart” in the upper right corner of the side bar on the left of the screen. What is this chart showing?
7. Click on “Table” in the upper right corner of the side bar on the left of the screen. Give the following information for the third animal listed:
 - a. Species:
 - b. Tag Deployment #:
 - c. Arrival Date:
 - d. Distance Travelled:
 - e. Stopover Duration:
 - f. Average Speed:

8. Write a paragraph about 1) why it would be beneficial for scientists to have many options to look at the same data and 2) what you thought about this section of the Motus dashboard.

Working with Motus Projects

Go to motus.org/explore and click on “Motus Data Dashboard.” Once the dashboard loads, click on “Find a Project”. Answer the following questions based on this grid.

1. How many total projects are currently in Motus as of today?
2. In the upper right corner, change “Groups” to “Yes”. How many groups are currently listed in the Motus database?
3. Go back to the original “projects” page. Click on a project that interests you and answer the following questions:
 - a. What is the initial tagging site of the project (if there is one)?
 - b. What species are listed for the project?
 - c. How many individual animals of each species are tagged?
 - d. How many stations did each species visit?
 - e. When was the last detection for each species?
 - f. Click on the map legend. What are the four themes in which you can organize the flight paths by? Hint: The map will change colors as you toggle between the options.
4. Why would organizing data into projects be beneficial for researchers using Motus?

Working with Motus Regions

Go to motus.org/explore and click on “Motus Data Dashboard.” Once the dashboard loads, click on “Summarize by Region”. Answer the following questions based on this dashboard.

1. How many regions are listed in Motus?
2. Click “Sort by Stations”. What 5 regions have the most stations?
3. Why might it be beneficial for researchers to group data by region?
4. Zoom out of the map. What continent(s) seem to have the least number of Motus towers?
What barriers/factors could exist that would lead to this uneven distribution of Motus towers?

Working with Motus Animals

Go to motus.org/explore and click on “Motus Data Dashboard.” Once the dashboard loads, click on “Find an Animal”. Answer the following questions based on this dashboard.

1. What do the white/black icons on the map represent?
2. Zoom all the way out on the map. How many total animals have been tagged and recorded in the Motus database?
3. In the search bar, type between 10,000 and 30,000. Continue to type in numbers until you find an animal that has been detected at 5 or more towers. Complete the following questions and table about the individual animal that appears. (add more clarification)
 - a. What is the Motus tag number of the animal?
 - b. What species of animal is it?
 - c. When was the animal first tagged/deployed?
 - d. When was the animal last detected?
 - e. What frequency is the animal being detected by?
 - f. How many stations has the animal visited?

Complete the table below to describe the flight path of the animal. You will need to look at both the map and the table.

Visit #	Name of Station	Station Number	Arrival Date	Distance Travelled	Average Speed	Other Info?
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Working with Motus Species

Go to motus.org/explore and click on “Motus Data Dashboard.” Once the dashboard loads, click on “Summarize by Species”. Answer the following questions based on this grid. Please choose any species that interests you the most.

1. Species #1:
 - a. Scientific Name:
 - b. # of Animals Tagged:
 - c. # of Projects with Animal:
 - d. # of Stations Visited:
 - e. Click on the species you are interested in and look at the map with all the recorded flight paths. Look at a bird range map on e-bird for the species. Does the Motus dashboard map reflect the range map on the internet? What is the same and what is different?
 - f. Click on the “Chart” toggle on the left window. What month(s) have the most detections for the species? Why is this important to note? Hint: There are many ways you can organize the chart in the “Select Chart” dropdown menu that could be helpful.

2. Species #2:

- a. Scientific Name:
- b. # of Animals Tagged:
- c. # of Projects with Animal:
- d. # of Stations Visited:
- e. Click on the species you are interested in and look at the map with all the recorded flight paths. Look at a bird range map on e-bird for the species. Does the Motus dashboard map reflect the range map on the internet? What is the same and what is different?
- f. Click on the “Chart” toggle on the left window. What month(s) have the most detections for the species? Why is this important to note? Hint: There are many ways you can organize the chart in the “Select Chart” dropdown menu that could be helpful.

3. Species #3:
 - a. Scientific Name:
 - b. # of Animals Tagged:
 - c. # of Projects with Animal:
 - d. # of Stations Visited:
 - e. Click on the species you are interested in and look at the map with all the recorded flight paths. Look at a bird range map on e-bird for the species. Does the Motus dashboard map reflect the range map on the internet? What is the same and what is different?
 - f. Click on the “Chart” toggle on the left window. What month(s) have the most detections for the species? Why is this important to note? Hint: There are many ways you can organize the chart in the “Select Chart” dropdown menu that could be helpful.
4. Why are certain species not listed while others are? For instance, why is the American Crow not on Motus?
5. What is the most interesting thing to you about the species in Motus?