

# Viewing Turkey Vulture Movements Using Movebank and Google Earth

## Using Movebank

1. Go to [https://www.movebank.org/cms/webapp?gwt\\_fragment=page=search\\_map](https://www.movebank.org/cms/webapp?gwt_fragment=page=search_map)
2. On Search line type *acopian*, then click on the Search Button. Note that to track the New World Vulture study at the Hawk Mountain Sanctuary, which includes the four vultures satellite-tagged in Washington in collaboration with Coastal Raptors, select *Turkey Vulture Acopian Center USA GPS* (4<sup>th</sup> one down on the list). The box will turn gray.
3. Next, click on the small box, bordered in green, furthest to the left of *Turkey Vulture Acopian Center USA GPS*. A list of all of Hawk Mountain Sanctuary Association tracked birds will appear.

Turkey Vultures wing-tagged and satellite-tagged in Washington in 2018 in a collaborative project between Hawk Mountain Sanctuary Association and Coastal Raptors:

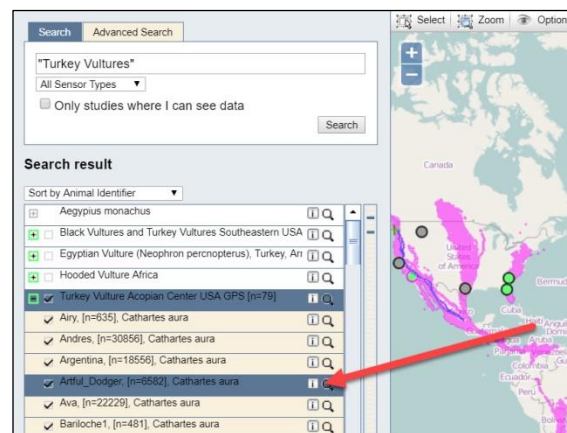
Name	Wing-tag code	Date Tagged	Location
Coy	CV	June 1	North side of Grays Harbor, 3 mi W of Hoquiam
Grayland	CC	June 2	On beach 1.3 mi north of Grayland
Airy	EE	June 5	Airport at Ocean Shores
Artful Dodger	HN	June 6	Airport at Ocean Shores

To highlight the movements of one vulture, scroll to the vulture name and click in the center of the box.

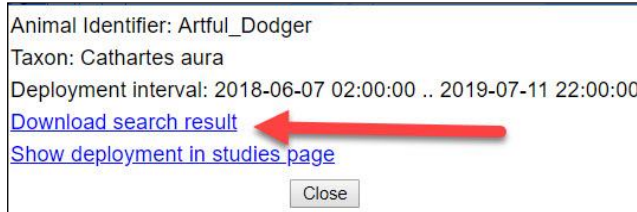
## Using Google Earth

- Location point data are transmitted once per hour from 5:00 AM to 10:00 PM Pacific STANDARD Time (PST). You can select points on the Google Earth map and find point information (of most interest are point date/time and point latitude/longitude).
- You have the option to set the time to the Study Area Time, which for this research is the Pacific Time Zone. Movebank uses Coordinated Universal Time (= UTC; formerly Greenwich Mean Time). UTC is 7 hours ahead of the Pacific Time Zone during Daylight Savings Time and 8 hours ahead during Standard Time.

4. Export data by clicking on the small gray information box **i** just left of the magnifying glass on the highlighted line for the bird you would like to follow.



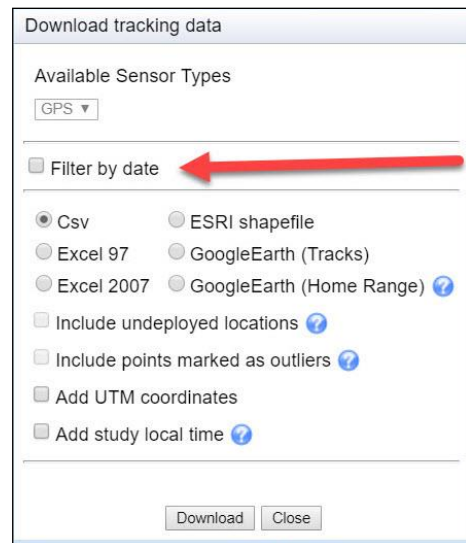
The window that pops up after clicking on the information box **i** as shown below and includes the Bird Name, Species Name and Deployment Interval (the Date and Time of the first signal recorded after the Bird was instrumented and released and the Date and Time of the last known Location; Note these Dates/Times are UTC).



5. Click on the blue-colored "Download Search Result" link.

6. The "Download tracking data" window shown here will pop up. View a bird's movements by clicking on "GoogleEarth (Tracks)". To also see Dates and Times of signals reported in the Pacific Time Zone (time zone of the research project), click on "Add study local time".

7. If you want to view a bird's movements for a portion of the dates the bird has been monitored (for example, year to date), the window has an option "Filter by date". If this box is unchecked, all locations since the beginning of the study are provided. To see a specific range of dates, click on "Filter by date" and select a range of dates using the "From" and "To" options provided.



Finally, click the "Download" button.

8. You can now open the file in Google Earth, as long as you have Google Earth on your computer and an internet connection on to do this. Keep in mind if you save a download that it will not be updated with newer data. You will need to download again for newer information.

9. Google Earth will load a map of all the locations for the chosen bird. If you hover the cursor over a location point it will turn into an arrow. Click and a table will pop up with information showing date, time, latitude and longitude of that location. The "Timestamp" at the top is the date and time in Coordinated Universal Time (UTC/GMT). The "Study Local Timestamp" at the bottom is the date and time in "Study Time zone: Pacific Time", which in the Summer Pacific Daylight Time is UTC/GMT -7 Hours. In Winter Pacific Standard Time is UTC/GMT -8 Hours. If you move the cursor over a point and it turns to a four-headed arrow, that means there are multiple transmissions from that same location point. Left click and additional points will appear. Click on any point and a table will pop up with the data for that location.