

GPS Tutorial for Winter Raptor Surveys

GPS technology has given us a much more accurate method for recording raptor sighting locations as opposed to the “old” method of using mile markers read from the car’s odometer. Using a different vehicle or just changing the tires alters the odometer readings, as does differences in the track made each time a route is run. These anomalies can throw the accuracy off by more than a mile at the end of a 60 mile route. There are small handheld GPS devices (like the Garmin etrex10) also most new cars and smart phones have GPS coordinate apps, so it has now become an easily accessed technology. . The problem with recording coordinates instead of mile markers is the time it takes to record the larger string of numbers. There are times when one cannot stop to watch the bird and the data has to be recorded “on the fly”. We would all rather be searching for and watching the raptors instead of recording long strings of numbers. After years of experience using coordinates and learning about the technology, here are some hints and strategies to address the problem with recording GPS coordinates.

The Technology

The traditional format for recording Latitude and Longitude coordinates is Degree, Minutes and Seconds. Like time, these are in increments of 60 units. With the advent of computer mapping other decimal (base 10) formats were created and different GPS devices and apps use different formats. It’s like saying the time is 12:15, a quarter past 12 or 12.25. Each one of these formats lends itself to particular situations and they can be converted back and forth by formula manipulation. The most common formats are the traditional Degree, Minute, Second (42°27’21”N - 87°49’37”W), the finer scale of Degree, Minute, Decimal Seconds (42°27’21.49”N -87°49’37.56”W), Decimal degrees (42.455985N -87.827105W) and Degree, Decimal Minutes (42°27.357’N -87°49.629’W). Any of these formats can be entered into the database.

Recording the GPS Coordinates

Because of the relatively short distances traveled during a winter raptor survey, no matter what format your device uses the first numbers (degrees and maybe minutes) for each point will probably not change from point to point and do not need to be written down every time. By writing the starting location using the complete coordinate string and then subsequently recording only those last few number that have changed from the last sighting will save time and should suffice. If using Decimal degrees, 3 or 4 decimal places is enough. Recording the entire coordinate string at the end of the run will also be a helpful way to double check the accuracy of the data.

Way Point Method

Obtaining coordinates is even quicker and easier if your device has options to record the track and/or mark “way points”. *My Tracks, My Tracks-The GPS Logger, GPS Tracks* or other apps are able to do both. Using the GPS device to record the track as you drive it creates the type of file (kmz.file) necessary for a computer to store the track and to use the locations for data analysis. “Way points” are a method that some GPS devices/apps use to save in the memory the coordinates of a particular place. That waypoint is then given a unique, usually 3 digit number. If you have this option, placing a waypoint at the location a raptor is seen and recording the associated number is quickly done. The numbers and the associated coordinates can then be uploaded to a computer or recorded on the data sheet after the run is finished. Paul’s recording system as we run our routes are to turn on the GPS unit and start recording the track at the beginning of the run. He marks a waypoint when we see a bird and records the waypoint number on the form with the other data (i.e. species, age/sex, activity etc). He then stops and **saves** the track recording when we reach the end of the route. When we get home, he uploads the data in the GPS unit to his computer and the data is ready to copy and paste into the database.