Field & Lab Exercise 3 – Creating and Using a Data Dictionary   *Field/Lab*

Objectives:
1. Create a data dictionary in the field
2. Collect some data using the data dictionary
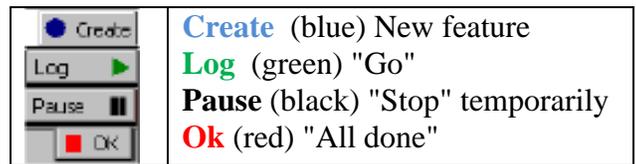
1. Create a data dictionary in the field.

So far, we've used either a generic data dictionary, or a custom one provided for you.   Custom dictionaries allow us to collect multiple attributes for features, and we can either try to do this in our field notebook or perhaps take advantage of the PDA computer we have in our GPS. Data dictionaries allow us to create a variety of different attribute types, including the ability to select from lists of possibilities. We might, for example want to record tree types selected from a list of "pine", "oak", "elm", etc., or maybe we know how to identify them to species and want to select from "*Pinus ponderosa*", "*Quercus agrifolia*", "*Abies concolor*", etc. Data dictionaries support quite a few data types, including images such as photographs you take with the Juno of features you want to georeference with the GPS.

Creating a Data Dictionary
A dictionary is handy when collecting feature data that may have attributes. You need to first create this dictionary, which you can use Pathfinder for, but you can also create in the field with the TerraSync on the GPS unit:
1. Go to the file manager, then Options to specify a **New Dictionary**. Call your dictionary **Quadfeatures**.
2. In the Edit Dictionary window, use Edit to create a New Feature called **manhole cover** with the following attributes:
    - **label** (type **text**)
    - **id** (type **text**, default **cov1**, auto-incrementing)
3. Create a New Feature called **lamp post**.
    - **id** (text, default **post1**, auto-incrementing)
    - **color** (menu). Add the following colors: "black" (default), "white", "unpainted", "red", clicking add again after the last one; then Close**.**
    - **comment** (text)
4. Create a new feature called **tree**. Create the following attributes for **tree**:
    - **treetype** (menu),
      choices: "Monterey pine", "Shore Pine", "other pine", "Cork oak", "cypress".
    - **circumf BH** (numeric)
    - **height distance** (numeric**)**
    - **height up angle** (numeric)
    - **height down angle** (numeric)
    - **health** (menu), choices: "healthy", "diseased", "broken", "needs pruning"
    - **description** (text)
    - **picture** (file)
5. Create a line type feature called **path.** Give it a "surface" menu attribute, with values "paved", "dirt", and "gravel".
6. Create any other feature types you want, then close out of the dictionary creation.

	Create (blue) New feature **Log** (green) "Go" **Pause** (black) "Stop" temporarily **Ok** (red) "All done"

2. Capture some points

➢ Create a new data file called **QuadData**, using your data dictionary.

➢ Turn on real-time differential, and in **Map**, go to **Layers**, then **Background files** and make sure the box is checked by **NeighOrthoSFSUTM**. If not checked yet, first set the current coordinate system to WGS 1984 UTM zone 10, then when you check it it will allow you to set it to that coordinate system.

➢ Capture a series of point features, including manhole covers, lamp posts, and trees, and fill in the data. Note how the auto-increment feature works on manhole covers.

➢ Capture two paths, one as a series of positions, the other as a series of averaged-position vertices.

1. For the first one, just log a series of positions while walking. When capturing a path, before pressing the Create button, select **Log Later** in Options. Then you can add the parameters before starting to log points. Enter the parameters, but don't press Ok – the same as with Log Now, this would close the features. There's a green Log button for when you are ready to start. Press the red square stop button when you're finished with the feature.

2. For the second path, capture the path as a series of vertices, waiting at each one. Again, leave the **Log Later** setting. For each vertex, stand at a location and use **Options/New Vertex** method to initiate the vertex, and capture it like you captured a point, with averaging. A message will be displayed: "Vertex 1 open   Remain stationary". *The red stop square button refers to the vertex*. Wait at each vertex until you have at least 20 points averaged, then press the red stop button to close the vertext. Note that when you stop it, another red stop button appears – this refers to the feature. Since it's not logging features unless you tell it to, you can move to the next vertex and repeat the process.

➢ Sometimes you may want to limit your collected positions to a maximum accuracy estimate. Go to **Setup/Logging Settings/Accuracy Settings** 🔧 and set **Use Accuracy-based Logging** to <u>Yes</u>**,** change the Required Accuracy to <u>5 m</u>.   Then capture some more features to see the effect.

Lab portion:
This part is the same as before: Use Pathfinder to download your points and export them to shapefiles, then bring them into ArcMap. Don't post-process them, unless you were not able to get real-time correction working.