

Flax Pond Environmental Field Study – Procedure for Students

Field Data Collection

If the instructor has asked you to take photographs in the field that will be geotagged so that they can be linked to the map on Google Earth, photograph the GPS device with the time displayed at the start and end of the field activity so that calculations can be made later to compensate for any error in the camera's clock.

In the field, collect GPS waypoints within areas that represent the characteristic environments in your team's field area. On the data sheet, record the symbol that represents the environment in the row for that waypoint. Record notes about any other information that you feel is pertinent for that location. Include descriptions of any problems such as erosion or large numbers of dead plants. It is best to collect the GPS points well within the interior of an area rather than near the edge in order to allow for error in the GPS device's location capabilities. On the laminated aerial photograph, write the waypoint number at the point where you believe it is located. Sketch an approximate outline of the extent of the environment. Take photographs of these locations if you have a digital camera with you, and ask the adult instructor to take some with your team in the photograph. For larger areas, it is a good idea to create more than one waypoint, since it will help you determine boundaries of these areas when you use Google Earth in the laboratory.

If the extent of the environment is too small to appear on the laminated map, enter its description and, if possible, its approximate size on the data sheets. Mark its approximate location on the laminated map. In addition, record information on your data sheets or the laminated maps that can help the instructors answer questions that you may have.

Data Processing in the Laboratory

Upload the GPS data and save it as a GPX file with your team name as part of the file name. Ask an instructor for help you have any problems doing that if none of your team's members can solve the problem.

Start Google Earth.

Open any KMZ files that the instructors have given you in Google Earth

Open the GPX file in Google Earth

For each waypoint:

- 1) Right click its name in the Places pane and choose Properties
- 2) Add the environment symbol to the name field.
- 3) Add any notes from your data sheet to the description

Drawing Polygons to Outline Extents of Environments

Use the GPS data, your data sheet, the Google Earth imagery, any overlays that the instructors may have given you in the KMZ file, and the sketched areas on your laminated map as guides to identify the extent of environments within Flax Pond that you observed in the field. Document these environments on Google Earth by outlining them with polygons.

To add a polygon, click the Add Polygon icon on the toolbar, or on Add -> Polygon in the menu.

You may be able to work more effectively if the polygon you are creating has no fill, so that it does not obscure the enclosed imagery. To remove the fill, select the Style, Color tab, and in the Area pull-down menu, choose Outlined.

You can draw polygons in regular mode or freeform mode. In regular mode, you click each point you wish to have define the outline of the polygon. In freeform mode, you drag, while holding down the left mouse button to create points along the path of the mouse. You can switch between the two modes while drawing a polygon.

Right-clicking while drawing a polygon removes the most recent point you created, or the last one you selected. You can move points by dragging them with the mouse. See the Google Earth Tip Sheet and the online Google Earth Student User Guide for help. If, after putting in significant effort, you become convinced that your team is unable to find a solution to a particular problem, ask an instructor for help.

Enter the class code for the polygon in the name text field. Enter the notes in the description box.

For large areas you may draw more than one polygon, but make sure that the identifying and descriptive information is included in the name and description for each polygon.

The waypoints with the symbols you entered in their name fields will serve as labels for the polygons. The waypoint balloons can contain photographs, if you have taken any, and have uploaded them to Flickr or made other arrangements to embed them into the balloons. You embed them by writing appropriate HTML code in the description textbox. The Google [User Guide](#) explains how to do this in the section on KML and HTML.

Your team will use the map you created in Google Earth to present to the entire group what you found in your team's field area. If choose a color to represent each type of environment and change the label of the icon and the polygon outlines to that color, it will make your presentation clearer to the audience.