Preliminary IP Plan

1. Group: Melissa Moreno, Lydia Nilsark, Timothy King

2. Biological Question: What terrestrial ecosystem supports the largest adult dragonfly population? The study is to measure the density dependence in three different habitats: the old filed, forest, and a wetland (NATL).

3. Peer Reviewed Articles:

-Balzan, Mario V. 2012. Associations of dragonflies (Odonata) to habitat variables within the Maltese Islands: A spatio-temporal approach. Journal of Insect Science. 12: 1-18

This article describes how dragonfly breeding is affected by vegetation, environment and structure. This relates to our experiment because there will be three different areas we are measuring dragonflies, and normally many dragonflies can be found in breeding areas.

-Kietzka, Gabriella J., Pryke, James S. 2015. Landscape ecological networks are successful in supporting a diverse dragonfly assemblage. INSECT CONSERVATION AND DIVERSITY. 8: 229-237

This article describes how dragonflies behave in certain environments, especially environments with water. They found adult dragonflies can be commonly found in wide rivers. This relates to our experiment because we will be measuring the amount of dragonflies in three different areas, which one includes a wetland area.

4. Testable Hypothesis:

Adult dragonflies will congregate around open water sources because their main source of food is mosquitos so we expect to find a very large adult dragonfly population in a wetland area.

Adult dragonflies normally need to bask in intense sunny areas so we expect to find a large population of adult dragonflies in the old field.

5. Variables to measure to prove hypothesis:

-Number of dragonflies in an area that we can physically count, in each habitat

-Number of mosquitos in an area that are caught in a mosquito trap, in each habitat

6. My team will be going into NATL, in the University of Florida, and counting the dragonfly population in the three different landscapes: the old field, the forest, and the wetland. We will be comparing the amount of adult dragonflies and the amount of mosquitos these three environments.

Once we are in an area we will each section off a10 m^2 X10 m^2 area. These areas will be relatively far from each other so that we do not double count the amount of dragonflies. We will count adult dragonflies for 10 minutes. We will use a hand clicker to make sure we are counting the areas accurately. We will do this same procedure on the other environment types on the same day. To eliminate as much variables as we can we will conduct the experiment a total of three different times and on similar weathered days.

As well as counting the population of dragonflies in these areas, we will count the amount of mosquitos that are caught by a mosquito/fly catchers. We will set up 3 mosquito traps on the three days we count the dragonfly populations. Since we are not using attractants to manipulate our experiment we will leave the mosquito/fly traps from 8 am – 8 pm, a total of 12 hours for the day. Since we don’t want dragonflies or other insects to get stuck on the mosquito/fly trap we will add a custom netting that will only allow for small insects to fly through to get stuck in it.

Once we are done counting the dragonflies and counting the mosquitoes that are stuck on the trap, we will calculate averages and means. We will create double bar graphs with a standard error bar. On the bar graph we would have the X axis is the habitat and the y axis is how many dragonflies and mosquitos were counted.

Our experiment is uncontrolled so there is not a control variable. This is a natural experiment.

-The materials we will need are:

-A clicker/counter (to count the dragonflies)

-Measuring tape (to measure the distance of 10m^2x 10m^2)

-Flags to finalize the counting section

-Brightly colored rope, to rope around the 4 flags, to make a definite section

-A total of 3 mosquitos/ fly traps, normally the tape kind, long cylinder shaped ones

-Netting for mosquito/ fly traps so that only small insects can fly through to the trap