Berlese funnel lab report essay sample

In our Berlese Funnel lab we sampled two different types of forest, deciduous and coniferous, both on our school campus. We set up multiple funnels in our classrooms with heat directly above them. After collecting leaf litter from our designated forest we placed them in a funnels above beakers of alcohol. We let them sit for two nights in a row and while in class checked for different organisms under microscopes. We calculated the different amount of species and how many there were of each. Introduction:

Antonio Berlese was an Italian entomologist. He worked on pest insects (arthropods), usually those of fruit trees. Arthropods are the most successful animals on the planet. They make up over three-fourths of all currently known living and fossil organisms. But, many still remained undocumented. Berlese funnels are used for extracting arthropods from soil and litter samples such as our leaf litter. They are supposed to prove that insects that normally live in soil or litter will respond negatively to light. That is why we place the gooseneck lamp above the funnels. There are many different ways to make a Berlese funnel and you can also purchase them according to how big you would like them. An alternative to the Berlese funnel is a Winkler Sack. It is usually made of fabric and can be folded to take up even less space when not in use. They do not require a powered light source because without it the arthropods will still move downwards through the samples and eventually fall into a container of ethanol.

Make Berlese funnel out of poster board and tape with small bottom opening to trap leaf litter but allow arthropods to drop out

Place in ring stand

Set up a gooseneck lamp that shines directly on leaf litter

Place beaker underneath funnel and ring stand

Walked out to designated forest area on campus

Measure out a 10X10 meter square and mark each edge with a flag Go within your 10X10 meter square and measure out a 1X1 meter square

Gather your leaf litter with your hands and place it in the one-gallon ziplock bag (get as close as you can to the soil) Take soil sample and place in plastic bag to carry back to the classroom Identify different life forms of vegetation within 10 meter square Record weather on data collection sheet

Once inside pour leaf litter inside of Berlese funnel

Pour alcohol in beaker placed below funnel to " catch" the organisms Day 2 and 3

Retrieve organisms from alcohol with pipet

Place on depression slides under microscope

Use arthropod identification guide to identify organisms, count, and record.

Calculate biodiversity with Shannon-Weiner Diversity index

Data:

Weather: Site #1 Group #1 Coniferous ForestPlant Life:

Relative Humidity: 48%Wild grape, sweet gum,

Wind: NW 5mphwild strawberry, loblolly pine

Temperature: 80˚ F

Weather: Site #1 Group #2 Coniferous ForestPlant Life:

Relative Humidity: 40%Wild strawberry, loblolly pine, Wind: NW 5mph sweet gum, honey suckle,

Temperature: 80˚ Fsopling

Weather: Site #2 Group #1 Coniferous ForestPlant Life:

Relative Humidity: 63%Maple, wild grape, sugar maple, Wind: N/NW

1mphsweet gum

Temperature: 74˚ F

Weather: Site #2 Group #2 Coniferous ForestPlant Life:

Relative Humidity: 63%Maple, wild grape, sugar maple, Wind: N/NW

1mphsweet gum

Temperature: 77˚ F

Analysis:

Shannon-Weiner Diversity Index: Site #1 Coniferous Forest

Organism nipilnpipi X lnpi

Lepidoptera 2 2/136 -4. 2195-0. 0620 Hymenoptera 3 3/136 -3. 814-0. 0841

Chiggers125 125/136 -0. 0843-0. 0778

Ipiliones 1 1/136 -4. 9127-0. 0361 Chiolopoda 1 1/136 -4. 9127-0. 0361

Canpodeletae 1 1/136 -4. 9127-0. 0361 Coleopteran 1 1/136 -4. 9127-0.

0361

N= 136 H1 = . 2961

Shannon-Weiner Diversity Index: Site #2 Deciduous Forest

Organism nipilnpipi X lnpi

Acarina 16 16/56 -1. 2527-0. 3579 Collembola 3 3/56 -2. 9267-0. 1568 Veluel

Mite 1 1/56 -4. 0254-0. 0719 Chiggers 17 17/56 -1. 1921-0. 3619

Spider Mite 11 11/56 -1. 6275-0. 3198 Neuroptra 1 1/56 -4. 0254-0. 0719

Tick 1 1/56 -4. 0254-0. 0719

hemiptera 1 1/56 -4. 0254-0. 0719 Beetle Mites 3 3/56 -2. 9267-0. 1568

Queen Termites 1 1/56 -4. 0254-0. 0719 Sminthuridae 1 1/56 -4. 0254-0. 0719

N= 55 H1 = 1. 3156

Errors

I think that one error my group made was not getting close enough to the soil when collecting our leaf litter. Another error would be how we extracted and looked for bugs. On the first day we claimed to have only found one organism, a Hymernoptera, because it was the only on visible to the naked eye. But on the second day we decided to take samples from the alcohol, place them in a depression slide, and look for the organisms underneath the microscope, where we then found hundreds of chiggers. Because we waited until the second day to do this we didn’t get anywhere near the actual amount collected in our beaker so, our calculations are more than likely wrong. Conclusion:

In this lab we used The Berlese funnel to see just how much biodiversity was in a single environment. The Berlese funnel was a very effective way of doing so. Although my group did not search for the organisms properly, by comparing our data to other groups I realized how many different organisms could live in one given area. The Berlese funnel is used by people all over the world and help to bring the realization of how much biodiversity can be in one isolated are, not always visible to the naked eye.