

LAMBERT PARK ECOSYSTEM INVESTIGATION

INTRODUCTION

For this project, we were given a task to see if there was a difference in ecosystems by the top of Lambert Park; on the hill, and the bottom where a rivulet flows through. An ecosystem is an area that has living things interacting with each other in it such as plants, animals and organisms. (N.A 2015). Many people don't know anything about ecosystems and why they are important but without a healthy ecosystem our drinking water would be filthy and even our air would be unhealthy (2015 Toni Anderson).

AIM

To determine whether there is a difference in plants, invertebrates and the ecosystem as a whole by the rivulet compared to on top of the hill in Lambert Park.



RESULTS

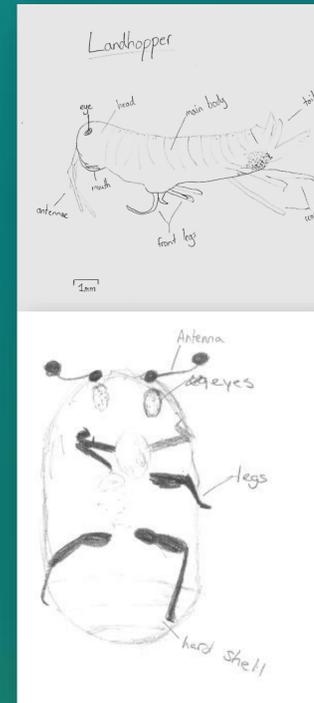
NUMBER AND TYPES OF INVERTEBRATES CAUGHT - RIVULET



NUMBER AND TYPES OF INVERTEBRATES CAUGHT - HILL



These graphs show which invertebrates were trapped in the pit-fall traps and how many of each type were caught.



DISCUSSION

The results from this study show that there is a clear difference between the invertebrates found on the hill compared to by the rivulet but the difference in tree size and density is a lot tighter.

9 more invertebrates were caught by the pit-fall traps by the rivulet than up on the hill and there was a much wider variety in the species caught. Many invertebrates live in water at some stage of their life cycle (Science Clarified, 2016) so it would make sense that more of them are found near a stream than in a drier habitat like up on the hill. The height of trees and tree density in the two different sections of Lambert Park is quite similar. There were outliers in both sets of data that skewed the box and whisker graphs a little but the median was always quite similar between the two. Two of the types of trees that were prominent in Lambert Park are she oaks and eucalypts. Both of these trees are capable of surviving in a whole range of climates and conditions so this would contribute to keeping the difference in tree height and density small (Sheppard et al, 2015), (Burke's Backyard, 2016). These results lead my group to think that there isn't much of a perceptible difference between the hill and the rivulet by looking at tree height and density.

We think that the results our group obtained in this investigation were quite accurate and so if the other groups followed the instructions like we did, the data should all be fair. One thing we couldn't control about our research though was the weather and this could have an impact on our results. We conducted our investigation over the course of a few weeks and during this time the air temperature ranged from 3.6 degrees Celsius to 16.2 degrees. We did this in winter and if we were to do the investigation in summer, we may find completely different results where the invertebrates are concerned.

METHODS + MATERIALS

Our group found invertebrates by:

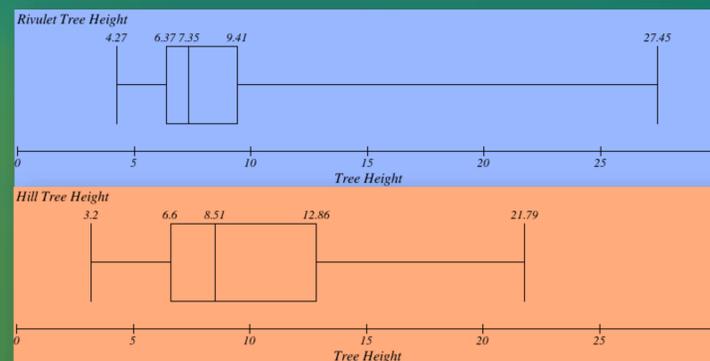
- Peeling back the bark of the trees
 - Looking under rocks
- Putting a tarp underneath a tree and shaking the tree
- Sweeping a net through the air to catch flying insects
- Setting up pit-fall traps by digging a small hole which we sat a cup in with its rim level with the ground. We poured two centimetres of methylated spirits into the cup and used a plate supported by wooden skewers to shelter the cup from rain.
- Once we had caught the invertebrates we used tweezers to place them into small containers with secure lids.

We measured tree density, circumference, height and leaves by:

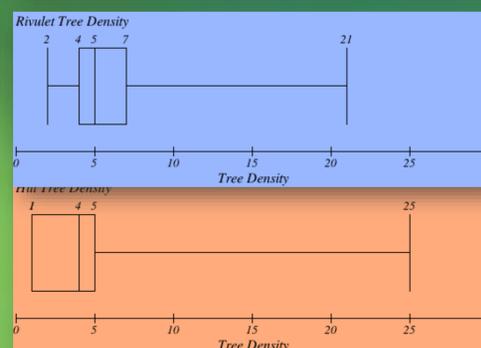
- Making a 5x5 meter square using string and counting the trees in the area. We measured the tree circumference by wrapping a tape measure around the trees at chest height.
 - We used a clinometer to measure the height of the trees.
- We used a ruler to measure the length and width of leaves on plants

Materials:

- Tape measure
- Ruler
- String
- Tweezers
- Containers
- Clinometer
- Cup
- Plates
- Skewers
- Methylated spirits
- Tarp
- Fine mesh net



These two box and whisker graphs show the height of trees measured randomly in the rivulet site compared to up on the hill. The rivulet site had the tallest tree but the majority of the trees there were smaller than the ones on the hill.



These two box and whisker graphs illustrate our findings when we measured tree density within a 5x5 metre square. The hill site had a larger variance in tree density in its squares but most of the rivulet squares had more trees in them than the hill squares.

CONCLUSION

To sum it up, this investigation into Lambert Park has shown us that there is a difference in ecosystems by the rivulet compared to on top of the hill. More invertebrates can be found by the rivulet even though tree height and density stays roughly the same. It would be interesting to do this same investigation in summer to see if the results are similar or if the invertebrate ecosystems are extremely weather and climate dependant. It has been interesting learning about the different invertebrates we found and figuring out how to capture them.