

“What is going on in our native plant area,”

Exploring and Observing

What did we notice?

We noticed that our native garden area was full of our native plants that we planted the previous year as well as invasive weeds that seemed to have crept their way in. During the summer months there were flowers appearing on the weeds and the native plants.

The first thing we could tell is that we had a large range of plants and weeds spread out around the garden.

What did we observe when we looked more closely?

When we looked more closely we could tell that as well as invasive species of weeds we also had a lot of Native plants. We also noticed the parts of the leaves and what a leaf consisted of. We also observed the environment that the native plants were living in and noticed the weeds and insects.

What questions did we have?

- What plants are problematic?
- What can we do to help the plants?
- What can we do to improve the environment of the plants?

Classifying and Identifying

How did you identify plants and/or invertebrates?

We first Started identifying using an app on our phones called seek by Inatralist. The App allowed us to identify the plants in the Native area, and get an idea of what they are and what other plants they relate to.

After using the App we did some further investigating by using a random sampling technique which we achieved by myself throwing a square piece of nylon netting in sections A - J.

We then documented on a quadrant map by drawing the plants on the quadrant square on the sheet and ticking off the species in the area, the number and the dominant species in the quadrant.

What plants did you identify? invertebrates? - what was their common name and scientific name?

- Black Nightshade - Solanum nigrum
- Bramble - Rubus fruticosus
- Broadleaf dock - Rumex obtusifolius
- Bristly oxtongue - Helminthotheca echioides
- Creeping Buttercup - Ranunculus repens
- Fennel - Foeniculum vulgare
- Grey Field Speedwell - Veronica polita
- Hedgebinweed - Calystegia Sepium
- Henbit Deadnettle - Amplexicaule
- Mothplant - Araujia sericifera
- Thistle - Cirsium
- Daisy - Bellis perennis

What are some of the classifications we made?

We made several classifications on the plants, the general ones were Native plants and weeds. We also made other classifications such as prickly plants and invasive weeds, as well as plants that were not such a problem.

How did identifying and classifying help us work out how to help our native planted area?

Classifying and Identifying allowed us to work out which weeds were the ones that were most invasive and what needs to be removed in order for our planted area to thrive.

Pattern Seeking

After using the App we did some further investigating by using a random sampling technique which we achieved by myself throwing a square piece of nylon netting in sections A - J.

We then documented on a quadrant map by drawing the plants on the quadrant square on the sheet and ticking off the species in the area, the number and the dominant species in the quadrant.

Our Data

Are there any patterns?

We noticed that all of our sampled areas were thoroughly spread out and that we didn't have a large amount of plants concentrated in one area.

How many different plants are there?

Overall there were 25 different plants in our planted area that we were looking out for when doing our random sampling.

How many plants total did we sample?

We sampled 13 different plants in our sections which three of the species were invasive weeds.

How many areas did we sample?

We sampled 10 different sections of the planted area.

Which plants appeared the most?

We found out that the most common species in our sampled areas was Hedgebindweed, with a tied second between Broadleaf dock and Black Nightshade.

Which ones seemed to be the most widely distributed?

The distribution of hedge bindweed seemed to be the most well spread across 6 different sections.

This allowed us to come to the conclusion that Hedge Bindweed is a very invasive species of weed as it was found spread throughout the planted area which showed us how invasive they were.

Class data

Are there any patterns?

Yes, there is a large variety of plants that are concentrated and some that are widely distributed.

Fennel was found 5 times in section g and was largely concentrated in one area, whereas broadleaf dock was found 17 times across almost all the sections so it was largely dispersed.

How many different plants are there?

All together we sampled 41 different plants in the planted area.

How many plants total did we sample?

In our class data we managed to sample all 41 plants.

How many areas did we sample?

We sampled all section through A – J.

Which plants appeared the most?

The plant that appeared the most in our random sampling was broadleaf dock. It was found 17 different times throughout section A - J but not in section G.

Which ones seemed to be the most widely distributed?

The plant that seemed to be most distributed was broadleaf Dock because it was found 17 times in almost all of the sections.

Assessing the usefulness of each investigation.

Exploring and Observing.

(Question: What is going on in our native planted area?).

Describe the type of investigation.

Exploring and observing is when you use your senses to make observations about objects. To observe is to look closely at the features/characteristics of that object. We achieved this by exploring our planted area and looking at the different parts of leaves and creating drawings. We also looked into the details of the plants, on the surface as well as under the microscope. Exploring and observing helped us get our first close look at the plants and understand the differences.

Give an evidence based reason to explain whether this type of investigation was useful to answer our question.

Exploring and observing was a good investigation type to start with as it allowed us to have a first look at what was in the planted area and help us find where the plants were and what was in and surrounding the planted area. This investigation type did not allow us to find out a whole lot more information about the planted area as we were limited to exploring and observing which was good to start with but did not allow us to investigate further and find out more about the plants until we got to the classifying and identifying.

Identifying and Classifying.

(Question: What are the new plants that are in here and which ones might be a problem?).

Describe the type of investigation.

Classifying and identifying is when you group objects and categorise them. This allows us to identify the objects/things. We achieved this by using an app on our phone called Seek by a naturalist which allowed us to identify the plants.

Give an evidence based reason to explain whether this type of investigation was useful to answer our question.

Classifying and Identifying was a good investigation type for us to learn more about the plants that we have in the planted area. The timing of this investigation allowed us to get further knowledge with the help of exploring and observing. We were able to find out the classification of the plants and their scientific names, we were also able to find what plants they were related to. This investigation type was useful in a way that allowed us to investigate deeper and to find the plants that were invasive and native. Due to this investigation type, we would now be able to tell which of the plants are invasive and what would need to be removed for us to protect our native species.

Pattern Seeking.

(Question: How are the plants distributed in the planted area?).

Describe the type of investigation.

Pattern seeking is when you look for patterns when you can't control all variables. You can use the random sampling technique to collect data. The data is to be collected in the same way each time. The data also gets collected over time. We did this by throwing a square nylon net in a set quadrant for random sampling and creating a plot map and seeing what we had in those areas.

Give an evidence based reason to explain whether this type of investigation was useful to answer our question.

Pattern seeking allowed us to explore the distribution of the plants and insects and if they were concentrated or dispersed. The timing of this investigation allowed us to use a more systematic way of finding out the distribution of these plants and weeks to see how far they have spread. We were also able to find which plants were dominant in different places, for example, Fennel was found 13 times, and 5 of those times it was found in section G showing that it was most dominant there. We can tell that the broadleaf dock was the most dispersed, being found 17 times across all sections. This investigation type was useful to narrow down where the invasive species were and what plants needed protection. For example, Scotch thistle and bristly ox-tongue were found in the same area as Manuka which means it may need some protection. Due to the pattern seeking we would be able to narrow down what needs to be removed in each area and what plants need removing first.

Validation of our investigation types.

Pattern seeking.

When we started using the pattern-seeking investigation type we were able to make a table to input the distribution of the plants. From our individual data we could tell fennel was only found in 3 different sections which were sections E, G, and H. Once we had put all of our class data together we were able to validate that Fennel was concentrated in a single area.

Classifying and identifying.

We were able to validate our findings by classifying and identifying using the Seek app by I-naturalist. This allowed us to make early assumptions and then validate our answer using the app which assisted us with additional research.

Exploring and observing.

When we started classifying and identifying we were able to get a first look into what plants were weeds and what were native. Using prior knowledge we could predict what some plants were and could validate it once we moved on to our classification and identification investigation process.