

The Effects of Dwarf Mistletoe on California Red Fir Trees

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Introduction

- Dwarf Mistletoe is invading Red Fir Trees especially in the western United States.
- We are looking at how the parasites spread across many trees.
- Parasites are killing and destroying mother nature and we want to investigate how this is occurring.
- With this experiment were hoping to understand more about this parasite and how it spreads to other healthy trees.

Hypothesis

We think that parasites in a concentrated area will spread greatly.

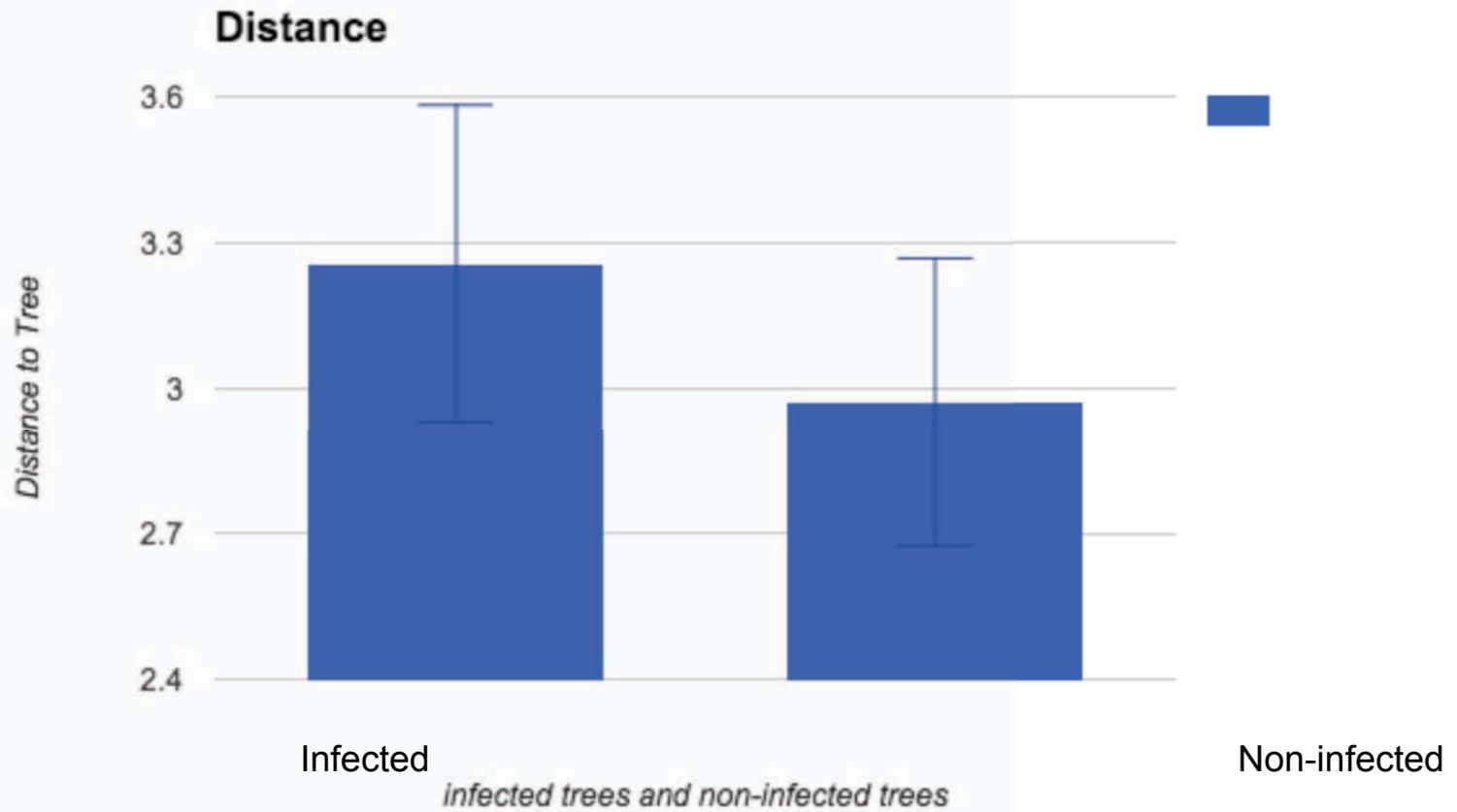
If the area inside a specific area has more parasites then they will spread greatly, but if there is less parasites, they will spread with less ease.

We think that if you find a tree with a lot of parasites, then there will be more infected trees around it. Then we think that if you go further away from the main tree, the parasites on each tree will decrease.

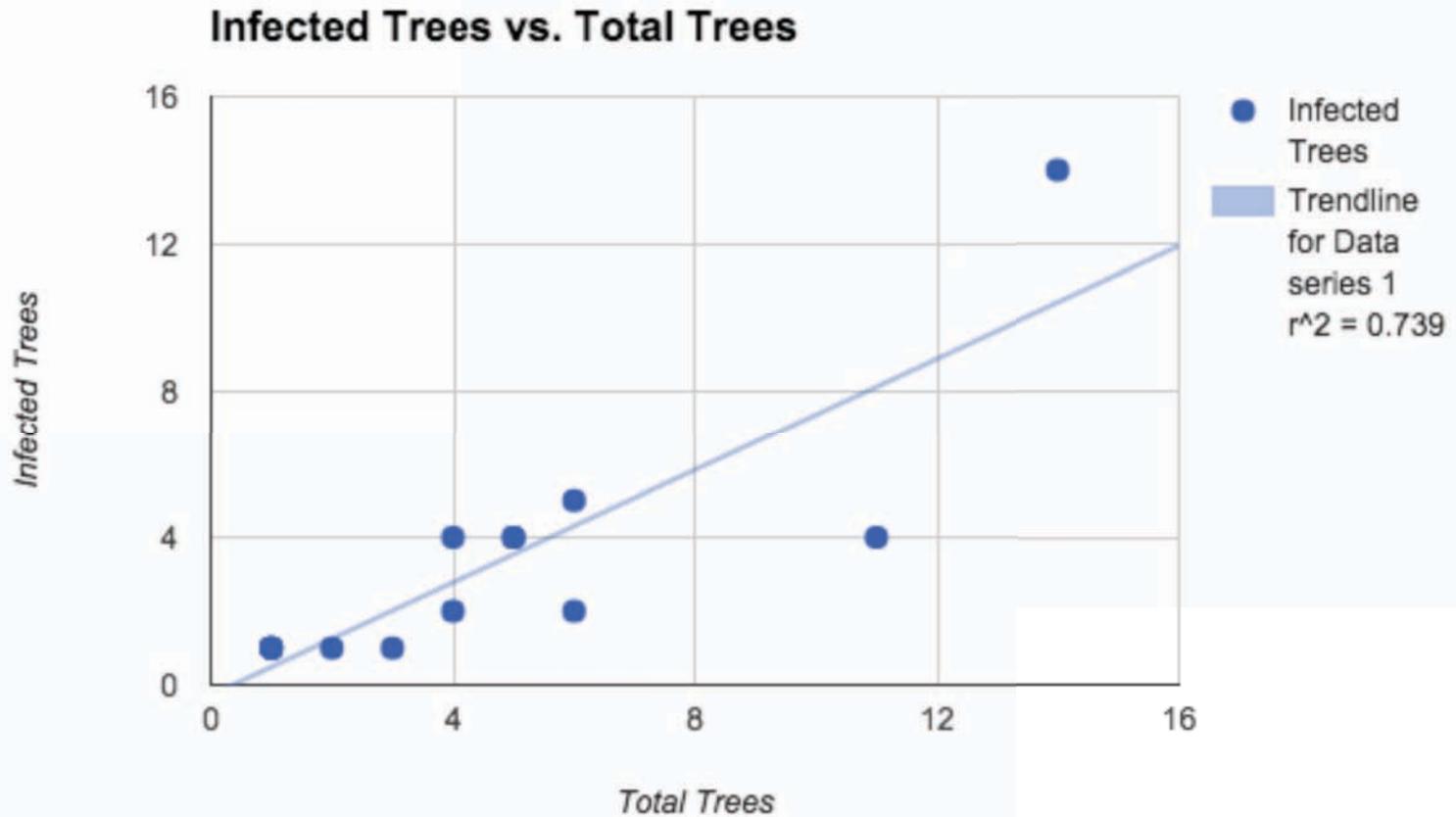
Methods

- We located a tree that was infected with the Dwarf Mistletoe.
- Then we made a measurement of 5 meters and walked in a circle, until we found Red Firs that were infected.
- Once doing this we counted the clusters of infections and found all the trees that were infected in the circumference of the 5 meters.
- After we found the infected trees, we moved on to finding the trees in the perimeter that were Red Firs, but that weren't infected with Dwarf Mistletoe.
- Next we moved to the next closest infected tree.

Results

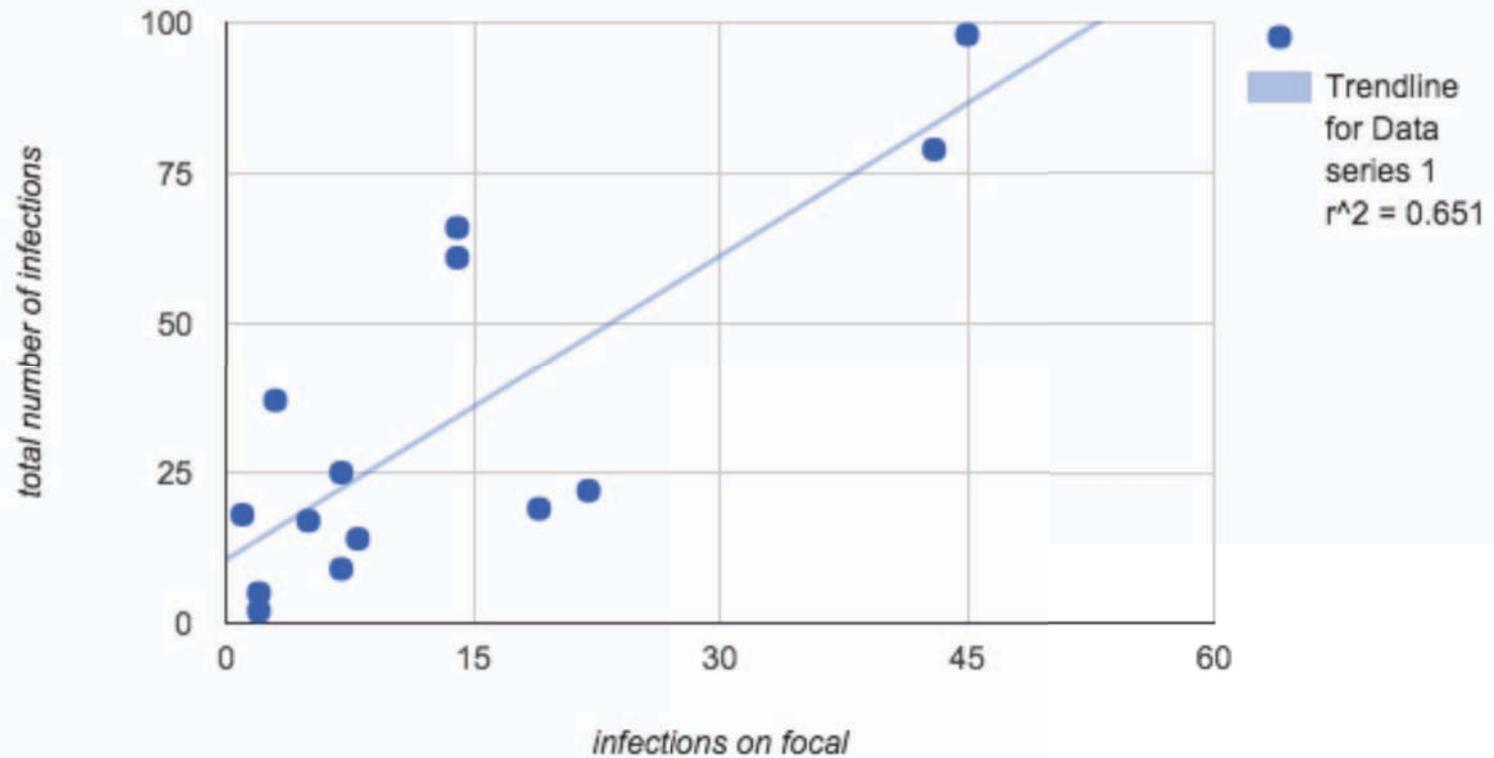


Results



Results

correlation between infections on focal and total number of infections



Discussion

- After doing research, we found out that the more trees there were in the study area, the more infections we found. When measuring the distance, most of the trees were within a short distance if a lot of trees surrounded the area.
- When comparing the data to our hypotheses, the information we collected showed that when the trees were closer together, the dwarf mistletoe spreads more.

Discussion

- After collecting data by going into the forests, we found out that our group's data supports our hypothesis.
- When we got the data for the five meter range distance from a focal tree, we saw how the parasites decreased most of the time while going further away. Also, in the study area where there were more trees, there was a higher rate of infection. The focal trees that had more infections caused more infections to spread in the study area.

Discussion

- After doing our research, we found out that there were some things we could improve on. One thing was to fix how we sometimes estimated how many groups of dwarf mistletoe were on the tree since the trees were too tall to see the branches up high.
- To build off of our project, we can collect more information on dwarf mistletoe that are on the red fir trees so that the data is more accurate.