

Plants and Climate Change

Lesson Title: Grasslands and Climate Change

Page 1 of 1



EurekaAlert Article, Parts A and B: What does an ecologist study?

Ecologists study interactions between organisms and interactions between organisms and the environment.

By looking at the picture of the grassland plots, how can you determine which plots received extra water?

Your students should be able to pick out the "green" circular plots, which received additional water and the brown circular plots, which served as controls.

How were the animals affected by the change in plant growth?

Initially as plants increased growth due to increased water, the insects and spiders also increased in numbers. However, over time, as grasses became more dominant in the plots, insects, and therefore the spiders that fed on them, declined in numbers.

Climate Change Research in California, Parts A and B

The Angelo Coastal Range Reserve in Northern California is predicted to get more rainfall. How did the scientists add more water to their research plots?

The plots were watered through an irrigation system with sprinklers. The sprinklers can be seen in both the EurekaAlert article and at the end of part A of the video.

How did adding extra water affect plant growth in the plots?

Over the first two years of the field experiment, the changed conditions increased production and diversity. In the first two years the plants, insects, and spiders loved the extra water and thrived. In the second year the grasses began to thrive. Then, annual grass production soared and its litter suppressed regrowth of flowering plants. By the five year mark, plant species richness had fallen to half that of the control plots and the production of plants insects could eat plummeted. As grasses took over, food for grasshoppers disappeared, then as grasshoppers died, the spiders soon followed.

How were the plants collected from the plots?

In the middle of part B of the video, plant harvesting is shown and explained. Plants were harvested with scissors. Your students will use scissors to cut only the fruits and seeds from the plants in your experiments.

Prediction: Do you think the amount of plant fruits and seeds will increase or decrease with added watering?

Students will probably predict that the amounts of fruits and seeds (reproduction) will increase with more water and more plant growth. The real answer, however, depends more on the species. Some plant species will produce more vegetation with increasing water but not always more reproductive parts. Some species produce more flowers, fruits, and seeds when they are stressed (for example, stressed by lack of water).