



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Samuel M. Woodman	Project Number J1634
Project Title Extra Carbon Dioxide and Locoweed Growth: Is It Global Warming in a Soda Bottle?	
Abstract Objectives/Goals The main goal of this experiment was to find out how extra carbon dioxide affects growing locoweed (<i>Astragalus laynae</i>). This experiment was designed to see how plants might be affected as global warming continues. Methods/Materials The main materials for this experiment were six locoweeds, vinegar, baking soda, baby food jars, saran wrap, and soda bottles with the tops cut off. Each locoweed was placed under a soda bottle and closed off by a piece of taped saran wrap. Three of the plants had 10g of baking soda mixed with 20ml of vinegar in a baby food jar to create extra carbon dioxide. The other three plants had normal air. The plants were left under the soda bottles for six days. To test the hypothesis two measurements were taken on day one and on day six; the volume of each plant was calculated by finding the height, width, and length and the leaves on each plant were counted. Results Every plant increased in volume, but the plants with the extra CO ₂ grew an average of 175% while the plant in the normal air grew 88%. Also the plants with the extra CO ₂ grew a total of 15 new leaves while the plants with normal air only grew a total of 6 new leaves. Note: two control plants were unexpectedly excluded due to growth problems. Conclusions/Discussion Based on the results, the plants with the extra CO ₂ grew more compared to the plants with the normal air. This experiment mimics what might happen to plants on Earth if global warming continues. As more and more CO ₂ is put into the air, plants will be affected, probably in this way, by the CO ₂ alone.	
Summary Statement This experiment tests how extra carbon dioxide affects the growth of a desert perennial plant called locoweed (<i>Astragalus laynae</i>).	
Help Received Mother helped write & proof report, take photos, and helped set up the display board; Science teacher helped proof.	