



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Alex L. Vasconcellos	Project Number J1731
Project Title What Smokey the Bear Didn't Say: A Flammability Study of 30 San Diego Plants	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals If 30 shrub, flower, parasite, and tree samples are collected from the San Diego County area, then a rating system for the flammability of these plants can be established based on combustibility, moisture percentage, consumability, and maximum temperature while burning.</p> <p>Methods/Materials 30 Samples were collected from canyons around San Diego, then labeled pictures of them were sent to botanist Carrie Schneider and she identified them as the correct species. Then the plants were taken to the USDA Burn Building in Riverside CA where testing was conducted using a moisture meter, thermocouple, and a scale feeding data to a computer. Then the samples were placed on the scale tared to zero after a paper towel with a fixed amount of alcohol was placed on it. Then the paper towel was ignited. The computer measured mass loss, and temperature from the scale and thermocouples, while at the same time the samples were put into a moisture meter and measured for moisture content. The entire procedure was filmed, and the film was reviewed to look at the flame height, as the tests were conducted in front of a large board with points in height marked on it. The data was analyzed based on combustibility measured by maximum flame height, consumability by mass loss during burning, maximum temperature while burning, and moisture percentage.</p> <p>Results A rating system was established for all of the plants, in each of the categories, giving them a 1, 2, or 3 rating, 1 being low, and 3 being high flammability. The plant with the lowest ratings, and least flammable was California Dodder with an overall 1. The plant with the highest ratings, and most flammable was the Cocklebur with an average rating of 3.</p> <p>Conclusions/Discussion The data and results did support the hypothesis. The results show that it is possible to establish a rating system by determining each plant's combustibility, moisture percentage, consumability, and maximum temperature while burning. Some other variables could be used, but the system used is substantial for determining the rating of 30 San Diego plants.</p>	
Summary Statement 30 different species from San Diego were collected, and tested for combustibility, moisture percentage, consumability, and maximum temperature, a rating system was created based on these factors.	
Help Received Parents helped gather specimen and transportation; Carrie Schneider identified the plants via email; Used lab equipment at U.S.D.A. burn building in Riverside under the supervision of Dr. David Weise.	