



**CALIFORNIA STATE SCIENCE FAIR  
2010 PROJECT SUMMARY**

<b>Name(s)</b> <b>Christian Jacobe</b>	<b>Project Number</b> <b>S2011</b>
<b>Project Title</b> <b>Fire: Germination of Chaparral Seeds</b>	
<b>Objectives/Goals</b> The purpose of my science project is to determine if chaparral seeds can germinate after a fire. Chaparral consists of bushes and shrubs adapted to arid Mediterranean Climates which is hot and dry (about 15 inches per year). Chaparral plants are susceptible to fire because they are oily and have dry branches and leaves. As I researched, I was very interested in finding out if chaparral seeds can germinate after a fire. I tested different chaparral seeds including: Poppy seeds, Catanache Blue, and different kinds of Rhamnaceae seeds (Buckthorn Family) and Ceanothus seeds (Ceanothus Spinosus, Ceanothus Crassifolius, Ceanothus Megacarpus, Rhamnus Ilicifolia, and Rhamnus Californica).	
<b>Abstract</b>	
<b>Methods/Materials</b> 1. Mass out 5 grams of crushed dry leaves. 2. Put 30 seeds and the crushed dry leaves in a medium-sized inflammable container. 3. Use matches to light the fire and burn the leaves and seeds. 4. Take out only the scarred seeds and place them in 3 small containers with a soaked paper towel and 10 in each container. 5. Place the containers where there is no light, particularly inside a drawer. 6. Examine and measure the seed's radicle and root hairs during the week. 7. Record data every day.	
<b>Results</b> Name of seed    Germinated control    Fire Scarred(without soil)    Fire Scarred(soil) Poppy seeds    8/10    9/10    9/10 Catanache Blue seeds    4/10    7/10    8/10 Ceanothus Spinosus    2/10    5/10    7/10 Ceanothus Crassifolius    3/10    6/10    5/10 Ceanothus Megacarpus    1/10    5/10    6/10 Rhamnus Ilicifolia    2/10    3/10    5/10 Rhamnus Californica    3/10    4/10    3/10	
<b>Conclusions/Discussion</b> My hypothesis was correct because the obligate seeders (Ceanothus and Rhamnus seeds) germinated more effectively after fire scarring of their seeds compared to the control groups.	
<b>Summary Statement</b> My project is about fire increasing the rate of seed germination on chaparral seeds.	
<b>Help Received</b> Parents bought display board; My Biology teacher, Mr. Callaway for guiding me on my project.	