



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Maren S. Le Va	Project Number S1414
Project Title Tardigrades and Lichen and Their Relationship to Vehicle/Industrial Emissions	
Abstract Objectives/Goals Because lichen and tardigrades are believed to detect the amount of pollutants in the air, I took lichen samples from trees in areas known to be heavily polluted and in areas known to be especially pollution free in order to test this theory. My hypothesis was that (1) there would be a direct correlation between the number of tardigrades per lichen sample and the percent of lichen cover on each tree, and (2) that there would be less lichen found with fewer tardigrades in polluted areas than in nonpolluted areas. Methods/Materials Lichen samples were collected from trees in known polluted and nonpolluted areas, using 100-circle grid to measure lichen cover on North-, East-, South- and West-facing surfaces. Of each sample, .1 oz of lichen was hydrated in 1 oz distilled water for 3 hours. Each lichen sample was then removed and excess water carefully squeezed back into bowl. Heavy materials sank to bottom. Water from top was removed with pipette, remainder pipetted into small petri dishes and observed under microscope, and number of tardigrades from each sample recorded. Results From my previous experiment, I determined that there was a 67-77% chance that the samples from the nonpolluted and polluted areas were not from the same population. However, as a result of my relatively small sample size, this was not a high enough percentage to completely support my hypothesis. Therefore I am in the process of repeating the experiment using a greater number of samples, and at this point do not have all of my results. Conclusions/Discussion From the information I have gathered thus far, I have determined that air pollution does have an effect on lichen and tardigrades.	
Summary Statement My project is about proving or disproving that vehicle and industrial emissions have a direct effect on the numbers of tardigrades found in lichen.	
Help Received Mother drove me to various collection sites.	