



California Science Center  
**CALIFORNIA STATE SCIENCE FAIR**  
**2001 PROJECT SUMMARY**

<b>Your Name</b> (List all student names if multiple authors.) <b>Daniel R. Lahr</b>	<b>Science Fair Use Only</b>  <b>S1608</b>
<b>Project Title</b> (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) <b>What Do Lichens Like? Part II</b>	<b>Division</b> _ Junior (6-8) <u>X</u> Senior (9-12)
<b>Preferred Category</b> (See page 5 for descriptions.) <b>16 - Plant Biology</b>	
<b>Abstract</b> (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.	
<p><b>Objective:</b> To see if lichen populations thrive more successfully on the deciduous, <i>Quercus douglasii</i>, than the evergreen, <i>Quercus wislizenii</i>.</p> <p><b>Materials and Methods:</b> I located pairs of <i>Quercus douglasii</i>, and <i>Quercus wislizenii</i> trees adjacent to each other. The study relies on pairs of trees growing in the same environments. I then collected lichens until I had a specimen of each species found on each of the trees. I keyed some lichens which in most cases needed a micro examination of the lichens upper and lower cortex. I searched to see if the cells in the cortex were either paraplectenchymatous or prosoplectenchymatous. To do so, I had to slice the smallest slice off the lichens# thallus and place it on a slide using LCB or Lactophenol-coton blue chemicals to stain the cells so I could easily identify their names. I then proceeded to check the pH levels of the trees. I had to take a sample of bark from same spot of every tree. (Used in this experiment and my previous one; the north side and 30 inches up on the trunk for every tree) I took a piece that is about 2 inches by 2 inches. Then I placed the samples in beakers of distilled water and let them soak for ten minutes. I took the first beaker and took out the sample with paper towel and placed the #Oakton pH Tester 3# in the beaker and recorded the pH level. I placed the sample back in the beaker and went to the next beaker and continued until I was through with all beakers. Then I waited until 20 minutes have gone by and then repeated it.</p> <p><b>Results:</b> My tests on the acidity concludes that the <i>Quercus douglasii</i> acidity range was 5.0 - 5.9 pH range as the <i>Quercus wislizenii</i> acidity range was aproximatly the same. There were more lichen species found on the evergreen tree.</p> <p><b>Conclusion:</b> My conclusion is that the acidity results do not comply with the results from last years results in which I concluded that acidity may be a determining factor in the lichen growth. Regarding the collection of lichens found on the trees, more lichens were on the evergreen tree which counts against my hypothesis of: Lichen populations thrive more successfully on the deciduous, <i>Quercus douglasii</i>, than the evergreen, <i>Quercus wislizenii</i>. My conclusion is that sun is not a determining factor with lichen growth and acidity is not a determining factor in lichen growth.</p>	
<b>Summary Statement</b> (In one sentence, state what your project is about.) To see if lichen populations thrive more successfully on the deciduous, <i>Quercus douglasii</i> , than the evergreen, <i>Quercus wislizenii</i> .	
<b>Help Received in Doing Project</b> (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. Cheri Bratt - Lichenologist, Santa Barabara Botanic Gardens(Helped classify lichen species); Dr. Robert Cummings, Santa Barabar City College(Helped with pH testing); Jeanette Sainz - Botanist (Helped with field collecting)	