



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Kyle P. Burdick	Project Number J1604
Project Title The Effect of Salinity on the Growth of Ice Plant at the Ballona Wetlands	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project is to determine why the ice plant grows over the salt grass but stops at the pickleweed near the edge of the channels in the Ballona Wetlands. The pattern of growth, in which the salinity of the soil does not let certain plants grow, will be the main idea of my research. My hypothesis is that ice plant has a low salinity tolerance; therefore it does not grow near the waters edge. Because there is a lot of salt in the water, the farther away from the ocean tidal gates, the more ice plant there will be.</p> <p>Methods/Materials I selected 8 sites based upon the distance from the tidal gates. I constructed a quadrat sampling frame to put around the site. I then took a sample at high and low tides of the soil and water over a five week period. I then tested the soil and water samples for salinity levels. I performed three different types of tests. First, the water salinity tests showed that the water has a higher salinity concentration on average near the tidal gates compared to the water near the end of the water channels. Second, the patterns of salinity in the soil show that the soil has higher salinity concentrations the closer it is to the tidal gates. Also, the soil salinity is more concentrated the closer it is to the high tide water line in the channel. Third, I made observations and took measurements that showed the ice plant grows more and closer to the water where the soil and water have lower salinity levels.</p> <p>Results The farther from the tidal gates, which bring in salt water, the more ice plant there is. My water and soil tests prove there is more salinity closer to the gates than farther away from the gates. At the Ballona Wetlands, Pickleweed can tolerate high levels of salinity so it grows closest to the water where it will usually be submerged at the high tide. Salt grass is less tolerant to salinity and the tidal flow so it grows higher on the wetland banks. Ice plant is the least tolerant of salinity and grows farthest from the water and the high tide line.</p> <p>Conclusions/Discussion The patterns show that salinity is higher at points closer to the ocean, while the ice plant growth is greater at points farther from the ocean where water and soil salinity is lower. In conclusion, my data proves my hypothesis to be correct because ice plant does not grow as much in areas with higher salinity.</p>	
Summary Statement My project is about why ice plant grows where it does based on the salinity levels in the soil and water at the Ballona Wetlands.	
Help Received My dad helped buy supplies and drove me to the Ballona Wetlands. Dr. Pippa Drennan (Proffesor at LMU) helped to develop my hypothesis and allowed me to use her refractometer and flame photometer.	