



**CALIFORNIA STATE SCIENCE FAIR  
2010 PROJECT SUMMARY**

<b>Name(s)</b> Avery L. Van Houten	<b>Project Number</b> <b>J2499</b>
<b>Project Title</b> <b>Preserving Coastal Marsh Habitat for the Belding's Savannah Sparrow</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The Belding's Savannah Sparrow (<i>Passerculus sandwichensis beldingi</i>) is an endemic and endangered species that lives year round in the salt marshes of Southern California and northern Baja California. This bird requires continuous stretches of Pickleweed, Salt Grass and Shoregrass habitat for its survival. The goal of my project was to test which watering schedule would best promote the growth of Salt Grass and Shoregrass. Another goal was to document the Belding's Savannah Sparrow's presence and to record other bird species observed at the lagoon.</p> <p><b>Methods/Materials</b> I planted 90 Salt Grass and Shoregrass plants in a 2:1 ratio in three plots at the San Elijo Lagoon. One plot was to be watered weekly, one biweekly, and the third plot was the control. I recorded over 500 measurements including plant heights, air and soil temperature, wind speed, relative humidity, soil pH, soil moisture and the tide levels.</p> <p><b>Results</b> The experiment was performed over 5 months. The first 6 weeks, the Shoregrass and Salt grass were watered weekly due to drought conditions and because animals uprooted the plants. I installed chicken wire. Rainfall came. Invasive weeds crowded out my native species. I documented plants heights and observed the Belding's Savannah Sparrows which were always near my plots. I recorded their numbers and noted their behaviors. I also observed more than 50 other bird species, including the Green-Winged Teal, the Blue-Winged Teal, the Northern Pintail, the Sora, the Bank Swallow, the Peregrine Falcon, and the Black-bellied Plover.</p> <p><b>Conclusions/Discussion</b> Due to rainfall, I was unable to conclude which watering schedules might support replanting efforts. I did make other discoveries. I found that newly planted Salt Grass and Shoregrass would need protection from animals. I would suggest installing chicken wire when planting these species. Invasive weeds, such as dwarf nettle, were so numerous that I plan to test a weeding schedule. Both Shoregrass and Salt Grass were overwhelmed by weeds. Approximately 98% of Salt Grass survived while only 40% of the Shoregrass remained. I would suggest planting a greater ratio of Shoregrass due to its high attrition rate. The success of both plants is critical to the reproduction of the Belding's Savannah Sparrow. These grasses are woven to form the outer layer of the nests. If the population is to increase, nesting resources must be available.</p>	
<b>Summary Statement</b> The goal of my project was to document the presence and activity of Belding's Savannah Sparrows and to monitor the growth of their native nesting materials which I planted.	
<b>Help Received</b> I would like to thank my mother who provided supervision at my test site and my science teacher who provided books and encouragement. Thanks to Doug Gibson who provided the plants I planted.	