



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Steven S. Higginbotham</b>	<b>Project Number</b> <b>J1298</b>
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**Project Title**  
**Carrying Capacity of the East Fork Winter Range**

**Abstract**

**Objectives/Goals**  
I began my project by selecting twenty-six areas to collect vegetation samples. In each of these areas I measured a square yard and cut the grass (elk are grazers and eat grass) within the square. I recorded details related to the area where these stratified random samples were taken. I let each sample cutting dry for two weeks then accurately weighed them to determine their dry weight. By studying and calculating my data, I discovered how many elk the East Fork Winter Range can sustain at a healthy condition. Through my research I discovered more about the diversity of the range and understand the carrying capacity based on vegetation amounts and the species of wildlife that rely on the vegetation on the East Fork Winter Range.

**Methods/Materials**  
**MATERIALS**  
Orange Tape, Stakes, Hammer, Measuring Tape, Clippers, Ziploc/Paper Bags, Field Notebook, Camera, Maps, Binoculars, Pocket Knife, Pack, Markers.

**PROCEDURES**  
1. Select a study area. 2. Mark off a square yard. 3. Clip grass in the square and place in a Ziploc bag. 4. Place cutting into brown paper lunch bag (label) and let dry for a two week period. 5. After two weeks weigh dried grass and record dry weight. 6. Photograph study area and sample areas. 7. Locate and mark clipped area on the topographical map. 8. Repeat steps one through seven at twenty-six different locations on the winter range. 9. Select areas and conduct the Vegetation Step Test at twenty-five different locations. 10. Locate and mark Vegetation Test areas on the topographical map. 11. Calculate the carrying capacity formula (see Carrying Capacity Formula page in Data.) 12. Meet with and/or contact resource persons.

**Results**  
My data resulted in finding the average amount of vegetation at 1,210 pounds per acre and demonstrated that the range can sustain a larger herd.

**Conclusions/Discussion**  
Through my studies, I discovered that the East Fork Winter Range can sustain a healthy elk herd of approximately 15,840. My hypothesis was partially correct. Currently 7,200 elk inhabit the range, with the capability of sustaining a larger herd. I collected data from grass cuttings in different areas of the range so my cuttings would be widespread and results accurate. My studies are very important to the balance of the

**Summary Statement**  
I studied the maximum amount of elk that the East Fork Winter Range can sustain in a healthy habitat.

**Help Received**  
Father helped type and tape materials on the board.