



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Matthew P. Hamilton	Project Number S0210
Project Title Humane Hunting: Patterning a Shotgun	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals In 1991 the federal government prohibited the use of lead shot because it was poisoning waterfowl. Changing from lead shot to steel shot has a large impact on hunters because steel shot reacts differently when fired. My project was to determine the best combination of choke tube, shot size, and velocity to have the most effective results when hunting waterfowl. I believe that using a combination of an improved cylinder choke tube with low velocity #2 shotshells will produce the best pattern results and be least likely to superficially wound waterfowl.</p> <p>Methods/Materials Data was collected by firing the shotgun at a 30 in. circle on a 35" x 35" piece of butcher paper at a measured 30 and 40 yards with various combinations of choke tube, shot size and velocity. At a later time, I counted each individual target and divided the number of pellets inside the 30 in. circle by the total number in the shotshell, which were also individually counted. 224 test shots were fired using high and low velocity BB, #2, #3, and #4.</p> <p>Results Low velocity shotshells consistently had higher pattern percentages compared to high velocity shotshells. Larger shot sizes consistently produced higher pattern percentages.</p> <p>Conclusions/Discussion My conclusion is that using a modified choke tube with low velocity BB will produce the best pattern at 40 yards or more. At less than 40 yards, the best pattern was produced using a modified choke tube with low velocity #2. This information is not readily available to hunters and is critical in the effort to conserve our wildlife.</p>	
Summary Statement Effective use of variables to improve waterfowl conservation and hunting outcomes.	
Help Received Mother proofread report; Dad helped assemble target support and assisted with some test shots.	