CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
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Project Number
31725

Project Title
A Study of Lead Contamination in Areas Surrounding Shotgun Shooting Ranges

Abstract

Objectives/Goals
The objective of this study was to determine whether large deposits of lead found in shotgun shooting ranges escape into the surrounding soil and water.

Methods/Materials
Methods: 1. Collect 15 soil and 3 water samples per shooting range. 2. Plot & record location of each sample using a handheld GPS. 3. Test samples according to the Lead Inspector Test Method. 4. Compare the color of the treated samples with the Lead Inspector Color Guide to obtain lead concentrations in ppm. 5.Transfer the sample sites from the handheld GPS onto the Google Earth satellite maps.

Materials: power drill, Lead Inspector Lead Test Kit, white vinegar, measuring spoons, range maps, soil/water samples, glass vials, plastic bottles, plastic cups with tops, funnel, Coffee Filters, Handheld GPS unit, Pocket Fishing pole

Results
Twenty-eight out of the 30 soil samples from the perimeter of shooting ranges were below the EPA safety guidelines of 400 ppm. Thus, these 28 samples contained a safe level of lead. Five of the 6 water samples were found to be lead-free.

Conclusions/Discussion
The results of the study showed that lead does not escape from shotgun shooting ranges into the surrounding soil and water. This study confirms that lead pellets are inert and immobile once they are deposited into the soil and water.

Summary Statement
This study looks at lead deposits found in shooting ranges and its impact on surrounding soil and water.

Help Received
Father helped obtain samples and run lead testing. Teacher reviewed project proposal.