



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> Christine Haas	<b>Project Number</b> <b>S1407</b>
----------------------------------	---------------------------------------

**Project Title**  
**Buckeye Battles On: Effects of a Natural Toxin on Mosquito Larvae**

**Abstract**

**Objectives/Goals**  
The purpose of this experiment was to determine the effects of a natural toxin derived from buckeye seeds on mosquito larvae. I live in Wonder Valley where mosquitoes are a health threat (West Nile Virus, Canine Heartworm, etc.) and there is no mosquito abatement. The residents don't like using chemicals to eliminate the mosquitoes because of the livestock roaming the open range. I wanted to find a "natural" solution to our problem.  
My hypothesis was that each of strength of the buckeye toxin would have some effect on mosquito larvae, even the 6.25%. It also stated that the LC50 will be between the range of 25% and 12.5%.

**Methods/Materials**  
I used buckeye seeds because it's native to Wonder Valley. The livestock tends to leave them alone.  
After creating the buckeye toxin, I measured different strengths for two experiments. I used four containers for each strength and the control. I placed ten mosquito larvae in each container.

**Results**  
Experiment #1  
The 50%, 75%, 100% toxin had the same effects. I reached total kill on day one.  
The 25% toxin was less effective. It took four days to reach total kill.  
By day four, 12.5% of the larvae in the control had died.  
Experiment #2  
It took two days for the 50% to reach total kill.  
It took five days for the 25% to reach total kill.  
The 12.5% reached total kill on day five.  
The 6.25% was the least effective. By day seven, it had killed 92.5%.  
By day seven, 17.5% of the larvae had died in the control.  
My LC50 as of day one was 18.9%, day two 10.1% and day three 6.9%.

**Conclusions/Discussion**  
I believe the use of buckeye seeds in vernal pools could be helpful to Wonder Valley residents by eliminating or reducing the population of disease carrying mosquitoes.

**Summary Statement**  
My project was on the effects of a natural toxin derived from buckeye seeds on mosquito larvae.

**Help Received**  
Used lab equipment at Bio Research under the supervision of Dr. Reed Kirkland, and Mother helped assemble board.