



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jennifer K. Benthale</b>	<b>Project Number</b> <b>S1001</b>
<b>Project Title</b> <b>The Effect of Commercial Ultrasonic Transmitters on Rats</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Rats inhabiting attics and garages bother many homeowners. There are commercial ultra sonic transmitters sold that "promise" to irritate the rats and cause them to flee. At issue is whether these devices cause the desired result. <b>Methods/Materials</b> Procedures 1) 30 trails, each 5 minutes in length were conducted under the following 3 conditions: - Ambient light and noise only, (10 trials). - Introduction of a single ultra sonic transmitter suspended overhead in the center of the enclosure providing non-directional noise, (10 trials). - Introduction of 3 ultra sonic transmitters into the enclosure. One on the back wall and centered. 1 on each of the side walls 1 foot off of the back wall providing directed noise, (10 trials). 2) Each trial was conducted with 3 rats placed centrally inside the enclosure for exactly 5 minutes. Their behavior and movements were recorded at 1minute intervals. The tests were conducted over 6 days. Materials 4 pieces of 4'x 2' heavy duty peg board, assembled into a 4'x 4'x 2' enclosure, simulating a garage. 6 common pet rats, mixed sex, 6-8 weeks of age. 3 ultra sonic transmitters rated above 27,000 KHZ. Shredded newspaper and shredded cotton, providing simulated materials found in garages. 1 shoebox, providing a safe harbor. Peanut butter as a food source. 1 blanket for flooring material. 3" high rubber barrier for extended room outside of the enclosure to contain the rats should they try to flee. <b>Results</b> The results did not support the advertising claims that the rats would flee. The data demonstrates that the ultra sonic noise had minimal impact on the rat's behavior or movements. Within minutes, the rats were demonstrating the same behavior and movement as under the ambient (control) conditions. <b>Conclusions/Discussion</b> The data indicates that the use of commercial ultra sonic transmitters alone do not meet the claims made by the advertising. As long as there was sufficient "hiding" areas, nesting areas, and food sources the rats overcame the nuisance factor of the transmitters. At best, they were made nervous until they became accustomed to the noise.	
<b>Summary Statement</b> This study measures the accuracy of the advertising claims that commercially sold Ultra Sonic Transmitters will drive rats out of one's home.	
<b>Help Received</b> My father helped me construct the simulated garage. He was my adult supervisor while I conducted the study.	