



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Gary J. Lent	Project Number J1913
Project Title How a Sowbug Relies on Its Sense of Smell: Common Scents about Sowbugs	
Abstract Objectives/Goals Sowbugs (<i>Oniscus asellus</i>) have a sense of smell and can find each other in darkness. I predicted that a sowbug would seek and be able to find the source of scents of other sowbugs, and of mint, lemon, and almond, without being able to see or touch the source of those scents. Methods/Materials I constructed a circular "track" inside a 90mm Petri dish. Outside the track, a 60mm "corral" contained either no scent (control), or 10-30 sowbugs, or 0.5-1.5ml of mint, lemon, or almond extract. I divided the track into forty regions, assigned scores from -10 (farthest from corral) to +10 (nearest). I placed a sowbug "runner" in a 0-point region, 90° from the corral side. For twenty 15-second intervals, I recorded the runner's location at the end of the interval, and changes of direction during the interval. A visual barrier blocked the runner's view of the corral. Results Average scores increased from the control (-0.91) to the largest scent concentrations: up 0.79 (sowbugs), 0.17 (mint), 1.19 (lemon), and 0.67 (almond), but less dramatically than expected. Changing direction could be an attempt to locate scents. From 0.43 changes of direction per minute (control), the changes increased 32.6% for sowbugs, 9.3% for mint, and 32.6% for almond, but decreased 14.0% for lemon. Conclusions/Discussion My hypothesis was correct although not overwhelmingly so. Runners seemed to notice the presence of each scent, but their scores show that on average they moved only slightly closer to scented corrals than they did to the unscented (control) corral, suggesting that sowbugs have difficulty locating a scent if other senses do not back up their sense of smell. In a follow-up experiment in which runners were able to see and touch each other, my preliminary data indicate that some extra scents in the environment can actually make it harder for sowbugs to find each other. Sowbugs have a dual role as agricultural pests and as recyclers. Understanding how various scents affect sowbugs could provide ideas for controlling their population.	
Summary Statement When sowbugs can smell something without seeing or touching it, they try to locate the source of the smell, but they have difficulty actually finding the source unless their other senses verify it.	
Help Received This project was my idea, based on my interest in sowbugs, my earlier investigations showing their attraction to each other, and research showing their sense of smell. My father helped me design my experiment, drilled holes, and helped me analyze my data. My mother helped me paste up my poster.	