



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Michael T. Seversky	Project Number S1918
Project Title Determining the Habitat Selection (Moist vs. Dry) of Armadillidium vulgare through Taxis or Kinesis	
Objectives/Goals The purpose of this experiment is to determine if the Armadillidium vulgare (pill bug) shows taxis (movement due to stimulus) or kinesis (random movement) when given the option between a wet or dry environment as well as which environment is preferred. If a positive taxi is shown towards either environment, we can learn about their favorable conditions, which provide insight into habitat selection.	
Abstract Methods/Materials To conduct the experiment 100 pill bugs were collected. An environment was created by connecting two petry dishes and one side was made moist. Five pill bugs were introduced into each side. Every 30 seconds for 10 minutes the number in each side was recorded. After each trial 10 new bugs were used for a total of 10 trials and 100 minutes. At each measurement interval of 30 seconds, observations were made. Materials: 100 Armadillidium vulgare (pill bugs); 2 petry dishes; 1 exacto knife; lined paper; paper towels; 1 scissors; water/H2O (just enough to wet paper towel); 1 pencil; 1 timer (with seconds display); 1 small plastic container (with lid).	
Results On average, over time the amount of pill bugs in the dry decreased while the amount in the moist side increased. At the first minute, there was an almost even split with an average of 5.2 pill bugs in the moist side and 4.8 in the dry. At 5 seconds, half way through the experiment one can observe the sharp increase in the number of bugs in the moist with an average of 6.7 bugs in the moist and 3.3 bugs in the dry. At the end of the 10-minute period, an average of 7.7 pill bugs existed in the moist side and only 2.3 in the dry. By the end of the 10 minutes the majority (77%) chose moist over dry.	
Conclusions/Discussion The results obtained through this experiment proved the original hypothesis, that the pill bugs would demonstrate positive taxis towards the moist environment, correct. The Armadillidium vulgare is a Crustacea and therefore has gill like lungs that require water for breathing. Pill bugs lack a waxy cuticle layer and are therefore susceptible to desiccation (drying out). As the pill bugs become more situated with their environment, the tended to choose the moist side as a long-term habitat. This is because they have an exoskeleton that is permeable to water vapor. They usually stay in places with higher humidity and cooler temperatures so their body remains hydrated	
Summary Statement The habitat selection (moist vs. dry) of Armadillidium vulgare was determined through examining movement in response to a stimulus or random movement.	
Help Received Teacher helped answer questions	