



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>James A. Cook</b>	<b>Project Number</b> <b>J1999</b>
<b>Project Title</b> <b>Eisenia fetida, "Redworms," and California's Soil Ecology</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The purpose of this project is to determine if earthworms, represented by <i>Eisenia fetida</i> , can live and reproduce in distressed California ecosystems, such as soil from tilled farmland or heat damaged soil from our Southern California forests recently ravaged by wildfires. If so, this might be a method of rehabilitating distressed soil ecosystems. <b>Methods/Materials</b> Five wooden plantars divided into five sections each were filled with one of five soil types: Pristine Oak Forest, Tilled Farmland, Pristine Pine Forest, Burnt Pine Forest, and Commercial Worm Bedding (as control). 25 healthy, mature <i>Eisenia fetida</i> were randomly assigned to each section. Saturation, absorption and pH of the soils were measured. The soils were moistened to 75% saturation, and observed for one reproduction cycle (31 days). Each section was then examined for mature, immature and cocoons. <b>Results</b> The numbers of worms and cocoons were tallied for each section of each soil. Mature worms were found in approximately the same numbers as were originally introduced. Very few immature worms were found. Cocoons were found in all soils, but in markedly greater numbers in the Pristine soils and the Control than in the Disturbed soils. <b>Conclusions/Discussion</b> Earthworms can survive in distressed soils but reproduce very poorly. If earthworms were to be used to rehabilitate distressed soils, other ingredients, such as organic matter, would be needed.	
<b>Summary Statement</b> The purpose of this project is to determine if earthworms can reproduce in distressed California soil ecosystems.	
<b>Help Received</b> Parents helped obtain soils and gave typing and grammar suggestions. Ms. Benoy gave worm care recommendations. Mr. Hobbs, my science teacher, gave helpful suggestions.	