



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>John M. Horn</b>	<b>Project Number</b> <b>S0806</b>
<b>Project Title</b> <b>Destructive Nature of the Urban Jungle</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my study was to do determine preventative measures to urban trees destroying nearby sidewalk via root growth. I believe that a combination of large trees, small space to proliferate, and inherit traits of certain species all contribute to uplifted sidewalks. <b>Methods/Materials</b> One Hundred fifty trees were measured half consisting of a non-destructive control and the other half were experimental trees that significantly raised the sidewalk. A broad area of San Diego County was surveyed and four different measures were taken for each tree. The point of the tree trunk containing the largest circumference was measured. The angles and lengths of the sidewalk protruding were measured and the volume of displaced soil was calculated. The distance from the tree to the sidewalk was taken as well as pictures of the tree so as to identify its species with the help of the San Diego Forester. After I obtained the species of tree I then looked up its known root potential to damage sidewalk and lastly did a comparative analysis with all my data. <b>Results</b> The first hypothesis that tree size affected how much soil was displaced proved minimally correct, and more soil was displaced as circumference widened. The distance from the tree to the sidewalk did not prove to reasonably affect how much soil was displaced. The species of tree planted proved significant as a large number of the same species were found to be detrimental. Also the majority of trees that did break sidewalk were already previously classified as having a high risk and the majority of passive trees were classified as having only a moderate risk. <b>Conclusions/Discussion</b> My conclusions are that trees with a larger circumference are more likely to have roots causing sidewalk damage. Trees that are planted nearby sidewalk do not play as much a significant role in determining the extent of damage. However a conclusive average was taken of the experimental group and trees should not be planted under three feet from neighboring sidewalk. The species of tree plays a vital role in damage prevention, and a list of the best and worst trees to plant in an urban environment was established.	
<b>Summary Statement</b> My study focuses on the conditions and trends of trees destroying sidewalks.	
<b>Help Received</b> San Diego Forester Drew Potocki helped identify trees	