

Sara Vial

SOL's BIO.2-d

Title: The Shade a Tree Casts

## I. Introduction

- i. Who am I
- ii. Summer Research
  - tree rings and the affects drought has on growth
- iii. What PINEMAP is and its purpose

## II. Basics of tree growth

- i. Photosynthesis and the production of sugars
  - the basics of where photosynthesis occurs and why trees produce sugar and where they are transported and how they are used
- ii. Light compensation point and respiration needs
  - explain what the light compensation point is and what do trees use the energy from respiration for,
- iii. How leaf area impacts photosynthesis
  - more leaf area more means more opportunities to intercept sunlight and produce more sugars

## III. Live crown and leaf area influences growth rate

- i. What is live crown?
- ii. Difference between forest grown and open grown crowns
  - forest grown trees taller with fewer branches and less live crown, due to shading of understory limbs, open grown trees have more live branches and don't grow as tall or straight
- iii. Sun leaves vs shade leaves and simple anatomy of leaves
  - bring in black oak leaves as example on why shade leaves are larger and thinner or why sun leaves are smaller and thicker
- iv. Measuring leaf area index:
  - LiCore demonstration? Or using homemade clinometer to measure tree height and crown height, dot grid with aerial photos, fish eye photos

## IV. Conclusion

- recap that there are many different factor that contribute to a trees growth
- Ask students what are these factors and how do we measure them
- what different attributes do trees use to fully utilize incoming sunlight