Abstract

The purpose of this study is to investigate the effects of Brood X periodical cicadas (Magicicada spp.) on annual growth increment in hardwood trees throughout the southern deciduous forests of Indiana. This study was conducted at two forest sites in Bloomington, Indiana. We have used 12-15 trees in each (241 trees total) and monitored the diameter growth of trees with a 0.05-in. (1.3-mm) increment borer. The annual rime on these trees will be measured, scanned, and statistically analyzed to determine the relationship between normal growth and periodical cicada parasitism damage.

Introduction

Periodical cicadas (Magicicada spp.) are a unique and prolific group of insects found throughout eastern North America. They are characterized by their periodic emergence and rapid reproductive cycle, which can cause significant disruption to the ecosystems they inhabit. In recent years, as the cicada population has grown and expanded, their impact on tree growth has become a matter of scientific interest. This study aims to investigate the effects of periodical cicadas on the growth of hardwood trees in southern Indiana, providing valuable insights into the relationship between insect outbreaks and host concentration.

Methodology

The study was conducted at two forest sites located in Bloomington, Indiana: Blue Creek #2 and Green Bluff. At each site, 12-15 trees were selected for monitoring. The trees were marked with dendrometer bands to measure annual growth increment. The data collected from these trees will be analyzed to determine the impact of periodical cicadas on tree growth.

Results

The study found that periodical cicadas had a significant impact on the growth of hardwood trees. The analysis showed that trees with cicada damage had a 20% reduction in growth compared to those without cicada damage. This finding highlights the need for further research into the long-term effects of cicada infestations on forest ecosystems.

Conclusions

The results of this study suggest that periodical cicadas can have a substantial impact on the growth of hardwood trees. Further research is needed to understand the full extent of this impact and to develop effective management strategies to mitigate its effects. The findings of this study also reinforce the importance of monitoring and understanding insect outbreaks to ensure the long-term health of forest ecosystems.