

ABSTRACT

Characterizing the Age Distribution of an Oak Savanna at Fermi National Accelerator Laboratory

Anna Ryszkiewicz (University of Illinois at Chicago, Chicago, IL 60607), Rod Walton (Fermi National Accelerator Laboratory, Batavia, IL 60510).

The preservation of plant and animal species is extremely important in maintaining a balanced and healthy ecosystem. Fermilab's Ecological Land Management (ELM) Committee has undertaken several ecosystem restoration projects in order to preserve habitats and restore biodiversity of a wide array of species. One such project is the oak savanna restoration and preservation located by the bison field. The purpose of this study is to characterize the savanna to ensure that we can continue to restore and preserve it. Firstly, we found out the population distribution of the trees inside the savanna by manually identifying each tree. Secondly, we calculated the age of each tree by measuring its circumference. Lastly, we calculated the canopy cover because of its significance in affecting diversity in the understory. We calculated the canopy cover of the trees in the savanna by using a spherical densiometer. Data was collected along three transects, which were 50 meters apart and spanned the width of the fenced savanna area. The canopy cover in the bison savanna was an estimated 28.56%, well within the healthy canopy cover range of 10-50%. The age distribution of the trees in the savanna should ideally be equitable and dominated by oak species between 80 and 250 years old, but the results of the study show that the savanna houses mostly older trees that will likely die within the next 100 years and not enough young trees to sustain the ecosystem afterwards. Tree plantings must continue in order for the savanna to reach a balance between new trees, thriving trees, and dying trees. Land managers at Fermilab have already started to balance out this distribution by transplanting oaks in the savanna to inter-canopy gaps. This practice is helping the savanna, ensuring that it sustains itself and that canopy cover stays balanced. The next step in research of the bison savanna is to characterize the species of the understory. This will give the ELM Committee an idea of how to manage what grows there and what can be done to further restore the understory of the savanna.