

## **PRAIRIE RESTORATION MAY SERVE AS AN INNOVATIVE POST MINING LAND USE SUPPORTING GREATER NATIVE BIODIVERSITY**

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### **Abstract:**

Once a vast landscape covering millions of hectares, prairie is one of the most endangered ecosystems in North America. Many coal-producing regions within Appalachia historically supported eastern deciduous hardwood forest prior to mining, but have since been reclaimed into non-native grass-legume pastures. This approach has resulted in compacted marginal soil conditions that are limited in terms of biodiversity and ecosystem function. Tolerance to such poor soils may facilitate prairie restoration as an alternative post-mining land use, while also supporting regionally native habitat that enhances ecosystem services such as pollination and soil function more than non-native cover alone. At a 3,700 hectare conservation center on reclaimed mine land in southeast Ohio known as *the Wilds*, researchers are evaluating the success of vegetation establishment within a 10 yr old prairie unit. This study measured species diversity, including presence of native, non-native and volunteer naturalized species within a 4 hectare site. A secondary objective of the study was to compare two vegetation survey methods (Daubenmire and Peet methods) to find the most efficient method for characterizing the system. Within the Daubenmire and Peet methods, 10 (0.1 m<sup>2</sup>) and 4 (100m<sup>2</sup>) plots were established along a fixed transect respectively. Methods evaluated vegetation diversity based on number of species detected. Preliminary results show that the Peet method captured an average of 26.1 total species; a mean of 21.3 native species and 3.5 invasive species, compared to Daubenmire which captured an average of 6.9 total species; a mean of 5.4 native species and 1.5 invasive species ( $p < 0.0001$ ). These results suggest that prairie is successfully establishing on this former coal mine site and may serve as a restoration strategy that fulfills re-vegetation objectives, while increasing native biodiversity and ecosystem function.

**Additional Key Words:** alternative land use, diversity, restoration success, reclamation

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1 Poster paper to be presented at the 36<sup>th</sup> Annual 2014 National Association of Abandoned Mine Land Programs, Columbus, OH September 21-24, 2014. Benny McCament (Ed.) Published by NAAML 2014 Conference Proceedings.

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