An Evaluation of the Economic Potential of Surface Mined Areas for Tree Production

Adam Michels¹, Tamara Cushing², Christopher Barton³, Jim Ringe⁴, Patrick Angel⁵, Rick Sweigard⁶, and Donald Graves⁷

Abstract: After the passage of The Surface Mining Control and Reclamation Act of 1977 (SMCRA), federal surface mine regulators focused primarily on the stability of reclaimed land rather than reforestation of that land. This has resulted in thousands of acres of compacted reclaimed land not hospitable to tree growth. Most surface mines are reclaimed for pasture or wildlife land uses and are graded smooth and planted in aggressive groundcover. Pre-law strip mines were not graded and compacted, but simply had the overburden dumped. These sites have been able to establish productive forest cover. In Appalachia, including Kentucky, methods of ripping the soil to ameliorate compaction on previously reclaimed mines have been used in order to create a more hospitable environment for tree growth. Four methods to reduce compaction on reclaimed surface mines were compared at the Bent Mountain research site in Pike County, Kentucky. The methods included: single shank ripped spoil, triple shank ripped spoil, excavated spoil, and rough graded spoil. Normally graded spoil was also examined as a control to represent a traditional reclamation practice. I calculated the land expectation value (LEV) for each reclamation method including the one time reclamation costs for the first rotation. The discount rate was varied in order to test the sensitivity of the LEV formula to different discount rates. The LEV can provide us with the economic potential of a reclaimed surface mine to produce timber, and show where subsidies for reforestation may be needed to reforest some surface mines.

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¹ Graduate Student, Department of Forestry, University of Kentucky, Lexington, KY 40506, acmich2@uky.edu.
² Assistant Professor, Department of Forestry, University of Kentucky, Lexington, KY 40506, Tamara.Cushing@uky.edu.
³ Assistant Professor, Department of Forestry, University of Kentucky, Lexington, KY 40506, barton@uky.edu.
⁴ Professor, Department of Forestry, University of Kentucky, Lexington, KY 40506, jringe@pop.uky.edu.
⁵ Forester/Soil Scientist, Office of Surface Mining Reclamation and Enforcement, U.S. Department of Interior, pangel@osmre.gov.
⁶ Chair and Professor, Department of Mining Engineering, University of Kentucky, Lexington, KY 40506, rsweigar@engr.uky.edu.
⁷ Extension Professor Emeritus and Retired Chair, Department of Forestry, University of Kentucky, Lexington, KY 40506, dgraves@uky.edu.