EVALUATING MINE RECLAMATION HABITATS AT THE LANDSCAPE LEVEL FOLLOWING MOUNTAIN-TOP REMOVAL

by

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Abstract. Present-day regulations of the Surface Mining Control and Reclamation Act were based largely on the technologies and mining methods of the late 1970's. Thus reclamation management practices today may not fully address the landscape changes that are possible now from mountain-top removal and associated contour mining operations. This study has sought to evaluate the changes in human and natural resource systems associated with large-scale mining in the Coal River Valley region of south-central West Virginia. The Coal River Valley region was studied at a local to a landscape-scale using ground-level sampling, aerial photomaps and constructed GIS maps, starting from a site-specific-scale of natural and restored habitat types. Six watershed-drainage areas were selected for study. Three of these represented contour mining primarily and three other drainage areas encompassed mountain-top removal mining. Landscape components were characterized by overlaying slope, elevation and contour data from maps onto aerial photomaps. On-the-ground sampling was used to distinguish restoration habitat types. The site-specific measurements were obtained using transects placed across the man-made landforms (i.e. backfill, valleyfill, field, pond and drainage ditch) of the reclamation sites in each of the six watershed drainage areas. All of the measured sites had been revegetated with a seed mixture for a wildlife management plan and ranged in age from 2 to 12 years of vegetative growth at the time of the study. Percentage cover by herbaceous and woody species was determined in two-meter square quadrats placed mechanically along all transect lines to quantify the various site-specific vegetation types. Based on the site-specific evaluation, distinguishable habitats were found on each of the man-made landforms. The percentage of mountaintop removal habitats with non-native species has increased over the last decade. Percentages of total area mined in the region over thirty years were calculated, yielding a determination of changes in traditional land-uses.

Additional Key Words: mine reclamation, mountain-top removal, land restoration

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