Case Studies of Ecosystem-Based Approaches To Remediation. K. Trimble.  
Abstract: Applications of the ecological sciences to site remediation have 
becoming increasingly common, as objectives have expanded from surface 
stabilization and aesthetic improvement to actual ecosystem reconstruction. In 
the fields of surface mining reclamation, specific techniques are often applied to 
common problems such as slope instability and erosion. The influence of larger 
scale physical and biological pressures on a site from the surrounding 
ecosystem, such as vegetation succession, is usually ignored. These processes 
affect the success of reclamation techniques, the management effort required to 
achieve success, the appropriateness of choices where alternative techniques 
exist, and the long term ecosystem sustainability. We stress a need for design 
approaches that examine the broad ecological context of site specific projects. 
Using cases study examples, we discuss cost-effective considerations including 
successional trajectory, bioregional wildlife and vegetation management criteria, 
and large scale biodiversity targets. Such considerations are used in 
establishing goals for site specific projects, and as tools in choosing appropriate 
techniques. In one example, the rehabilitation design for a limestone quarry in 
southern Ontario addressed regional aquatic habitat requirements, wildlife and 
forest community targets, and bioregional populations of internationally significant 
species, while at the same time minimizing approval and maintenance issues. 
Additional Key Words: ecosystem restoration, biodiversity.