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Type	oral presentation
Category	Innovative watershed and stream restoration approaches/methods
Title	Stream Restoration and Mitigation in Mined Watersheds: Opportunities and Obstacles
Abstract	<p>Managing impacts of large scale surface mines (mountain top removal; aka MTR mining) in southern WV is a highly contentious issue. MTR mining results in a complete rearrangement of headwater catchments; in some cases 50-80% of a watershed's headwater streams are impacted. Recent court cases have questioned the effectiveness of off-site mitigation in replacing headwater functions lost during the mining and reclamation process. I will present results of recent studies designed to address three questions. 1-What specific ecological functions are lost as a result of MTR mining?; 2- What, if any, ecological functions are retained following surface mine reclamation?; and 3-To what extent can remaining functional liabilities be met through improved on-site reclamation and strategic off-site restoration? Our results indicate that reclaimed headwaters are highly altered but retain numerous important functions, including retention, processing, and downstream transport of organic matter. Nevertheless, negative impacts to water quality and aquatic communities are prevalent, and elevated total dissolved solid (TDS) concentrations may be the most difficult to manage. In many watersheds, mining interacts with other forms of human disturbance, especially residential development, to produce highly impaired conditions. Finally, impacts from mining follow a threshold response; therefore, it should be possible to identify levels of mining below which downstream impacts can be avoided. Effectively managing impacts from surface mining will require an approach that recognizes important ecosystem functions that are retained on reclaimed mines, avoids cumulative impacts from elevated TDS at the watershed scale, and uses strategic off-site mitigation to address complex sources of impairment.</p>