

**2009 Mid-Atlantic Stream Restoration
Abstract**

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Presentation Type	oral presentation
Category	4. Innovative watershed and stream restoration approaches/methods
Title	The Guy Cove Project: Recreating a Headwater Stream on a Head-of-Hollow Fill
Abstract	<p>Head-of-hollow fills or valley fills have gained national attention due to increasing environmental concerns, particularly with regards to headwater stream loss. Researchers at the University of Kentucky in conjunction with outside scientists and consultants in the fields of stream restoration, wetland restoration, and mined land reclamation have developed new design methodologies for creating a headwater stream system for a head-of-hollow fill in eastern Kentucky. The design was largely built on the Forestry Reclamation Approach (FRA), which encourages a non-compacted spoil medium to promote tree growth, in an effort to address concerns related to water quantity and quality as well as habitat development. The major components of the design included 1) modifications to the crown geometry, 2) compaction of the crown to control infiltration, 3) utilization of natural channel design techniques, 4) use of the FRA to promote tree growth, 5) creation of ephemeral channels and vernal ponds, and 6) implementation of a novel bioreactor-wetland treatment system to improve water quality. A total of approximately one-mile of streams (intermittent and ephemeral) and nearly an acre of vernal ponds were created in the fall and winter of 2008. Vegetation was planted early 2009. Within a few months of project completion, a 75% reduction in EC has been observed from pre-restoration conditions along the crown. Also, numerous salamanders and macroinvertebrates have been observed on-site. Intensive on-going monitoring efforts are focused on assessing long-term hydrologic, water quality, and habitat changes.</p>