

# Transforming Abandoned Mine Lands into a Botanic Garden<sup>1</sup>

G. R. Watzlaf\*, R. S. Hedin, B. C. Hedin, K. Kaiser and R. L. Beam<sup>2</sup>

**Abstract:** The Pittsburgh Botanic Garden (PBG) is being developed on 186 ha of abandoned mine land. Underground mining occurred on the property in the early 1900s and surface mining occurred along the outcrop in the 1930s and 40s. Reclamation and remediation of this property is ongoing in four major project areas: the Woodlands Lotus Pond passive treatment system, a passive treatment system in the Kentucky Hollow area, the Abandoned Mine Land Economic Revitalization (AMLER) Pilot Program, and Remining/Reclamation. A drainable limestone bed (DLB) has been constructed in the Woodlands area that has very effectively treated mine drainage (40 L min<sup>-1</sup>, pH 3.3, 16 mg L<sup>-1</sup> aluminum) for the past 3.5 years. The treated water is of such good quality (pH 6.7, 200 mg L<sup>-1</sup> alkalinity, < 1 mg L<sup>-1</sup> of aluminum) that it discharges into what is now called the Lotus Pond which has become a focal point in the developing PBG and is stocked with fish. A newly funded project will treat two mine discharges in the Kentucky Hollow area using DLBs to treat this low pH, high aluminum water. The PBG received a grant from the Abandoned Mine Land Economic Revitalization (AMLER) Pilot Program to address many abandoned mine land issues on the site: over 3 km of unreclaimed highwalls, subsidence prone areas, vertical openings up to 3 m deep, additional mine drainage discharges and refuse piles. In an effort to clean up water and reclaim the land on another part of the site, over 10 ha are being remined. Some of the remining area (1.3 ha) has been reclaimed using the ARRI tree planting method, which is consistent with the vision of the PBG. These reclamation and remediation projects will be discussed and the challenges to proceed in a manner consistent with the development of a botanic garden.

Additional Key Words: Mine drainage, passive treatment, drainable limestone bed, mine reclamation, highwalls, subsidence, remining, Pittsburgh Botanic Garden.

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<sup>2</sup> George R. Watzlaf, Environmental Engineer; Robert S. Hedin, Ecologist; and Benjamin C. Hedin, Environmental Scientist, Hedin Environmental, Pittsburgh, PA 15228. Keith Kaiser, Executive Director, Pittsburgh Botanic Garden, Oakdale, PA 15071. Richard L. Beam, Geologist, PA Department of Environmental Protection, Ebensburg, PA 15931.