

Celebrating Success: Ryeland Road Arsenic Site Heidelberg Township, Pennsylvania



Superfund
Redevelopment
Initiative



Before: The stream at the Ryeland Road site prior to fern planting. Source: EPA

“The innovative techniques being used at the Ryeland Road site demonstrate that contaminated areas can be cleaned without destroying habitat. This site is a model of how interagency cooperation can solve cleanup/habitat conflicts to benefit both humans and wildlife.”

– United States Fish and Wildlife Service, Pennsylvania Field Office project fact sheet



After: The stream and wet meadow wetland at the Ryeland Road site in 2010. Source: EPA

For more information, please contact Melissa Friedland at friedland.melissa@epa.gov or (703) 603-8864; or Frank Avvisato at avvisato.frank@epa.gov or (703) 603-8949.

At the Ryeland Road Arsenic site in Heidelberg Township, Pennsylvania, EPA tested an innovative phytoremediation method for reducing arsenic in shallow soils and wetlands saturated by springs. Arsenic contamination originating from a former pesticides manufacturing facility contaminated several residential properties, as well as a forested wetland area and plant nursery, located downgradient from the facility’s waste disposal area.

The site was added to the Superfund National Priorities List in 2004. Conventional methods for remediating this area would have likely included clear-cutting of the forested area, soil excavation and construction of an extensive riprap drainage system. Instead, EPA chose to preserve the existing habitat. In February 2009, EPA vacuum dredged the spring-fed creek on the site to minimize the impact on both the stream and the adjacent woods and wetlands. A pond that was adjacent to the headwater area of the spring-fed creek was fed by a large spring contaminated with arsenic. The water from the pond then flowed into the spring-fed creek. Arsenic-contaminated ground water seeps also drain into the spring-fed creek (most of which are downstream of the pond’s original location). Region 3 chose to use Chinese brake ferns to remediate the residual arsenic contamination adjacent to (and resulting from) the seeps. The pond was filled in and diverted via braided channels throughout the new meadow wetland.

At the site, ferns have been shown to effectively reduce arsenic concentrations in shallow soils and in saturated soils such as the wet meadow wetland area. With arsenic concentrations in soil continuing to decline, EPA has continued fern plantings and harvests at the site and an additional three to five growing seasons are planned.

Today, the ferns are capturing arsenic and preventing contamination from moving downstream. Their effectiveness has eliminated the need for more invasive approaches, protected adjacent forested wetlands and improving habitat through the creation of a new wet meadow wetland.