Palmerton Zinc Pile Superfund Site Natural Resource Damage Assessment

Forest Investigations

Evaluation of Injury to Forest Habitat Resulting from Metals-Contaminated Soils

The Palmerton Zinc Pile Superfund Site in PA is the site of a former zinc smelting operation. For most of the 20th Century, the Palmerton, PA facility emitted large quantities of metals including arsenic, cadmium, lead, manganese and zinc, that were deposited in the Palmerton area including Blue Mountain and nearby watersheds. While the U.S. Environmental Protection Agency continues clean-up efforts, Federal and State trustee agencies are conducting a Natural Resource Damage Assessment (NRDA). Monies recovered through the NRDA process will be used to restore, replace, or acquire the equivalent of the injured public resources in order to compensate the public for lost services provided by those resources.

This Fact Sheet describes on-going NRDA studies of contaminated forest habitat on Blue Mountain. Historically, this area supported a mixed oak forest and associated biota, including migratory birds, mammals, amphibians, and reptiles. However, many acres, including State Game and National Park Service lands, have been deforested or otherwise adversely impacted by metals contamination.

Purpose

The results of previous studies indicated large areas of public lands are contaminated with metals. Vegetation changes in areas with high metals concentrations are consistent with toxic responses to metals-contaminated soils. The following studies are designed to further assess the level and extent of injury to the forest habitat resulting from soil metals contamination: Greenhouse Toxicity Study, Field Vegetation Survey, and Forest Inventory. Detailed study plans and results will be posted on the web at: www.fws.gov/contaminants/restorationplans/Palmerton/Palmerton.cfm

Greenhouse Toxicity Study

This study is designed to evaluate the toxicity of metals contaminated soils to tree seedlings. Tree seeds from tree species common in the area will be planted in pots containing soil collected from Blue Mountain. Metals contaminated soil will be mixed with clean soil to create soil treatments with a range of metal concentrations. Pots will be monitored to evaluate plant germination, growth, and survival in a controlled environment. Soil toxicity will be evaluated by correlating seedling measurements with soil metals.

Field Vegetation Survey

This study will characterize species composition, abundance, and community structure in small plots along the Blue Mountain ridgeline. Differences in the plant community among sites, including uncontaminated reference sites, will be assessed. The Trustees will evaluate the survey data relative to soil metal levels to determine whether variability may be related to soil contaminants.

Forest Inventory

This study is designed to evaluate large scale impacts to the forest resulting from metals contamination. Mature trees, saplings, and seedlings will be tallied by species and size-class. Multiple 20-acre stands along the ridge and lower slope of Blue Mountain will be inventoried and compared to uncontaminated reference sites.

Blue Mountain near Palmerton, PA

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