# The Heavy Metal Movement: Measuring the Phytoextraction and Bioaccumulation of Heavy Metals by Pancium virgatum and Schizachyrium scoparium when Grown in Soil Collected at the Tar Creek Superfund Site

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The purpose of this project was to test the effectiveness of Pancium virgatum (Switch grass) and Schizachyrium scoparium (Little Bluestem grass) in their abilities of phytoextraction and bioaccumulation of heavy metals after being grown in soil collected at Tar Creek Superfund Site. It was hypothesized that the grasses would be effective in phytoextraction of heavy metals and that some metals would be at higher concentrations in the roots of the plants as compared to the shoots. First, soil was gathered from Tar Creek. Then a composite mixture of the soil was placed in a growing pot. The plants were periodically watered and fertilized. After eleven, fifteen, and nineteen weeks of growth five pots were used to take soil, root, and shoot samples. These samples were dried in a ventilated oven and then prepared and tested in an ICP-OES machine. A total biomass of the plant material was taken after each collection. Both grasses were able to remove heavy metals from the soil, however not always down to acceptable levels, possibly because of the extremely high levels of metals in the Tar Creek soil. Also, the grasses seemed to do a better job at week fifteen as compared to week nineteen. However, both grasses successfully removed nickel. An interesting observation to mention is that the Little Bluestem grass seemed to grow heartier in the contaminated soil as compared to the Switchgrass. The results of this project could potentially be useful in the remediation of areas like Tar Creek or as a filter in places such as rain gardens to minimize nonpoint source pollution.

**Awards Won:**
Fourth Award of $500