

## CASE STUDY: BAIRD WETLAND MITIGATION 3rd YEAR UPDATE<sup>1</sup>

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**Abstract:** The Baird Mine is an active quarry in the Vanport limestone located in western Pennsylvania (PA). The mine permit was originally issued in 1997; however, permitting efforts were later expanded due to the presence of 6.7 acres of wetlands and to potential conflicts with the *Sistrurus catenatus* (Eastern Massasauga Rattlesnake). Of the wetlands to be affected, 5.9 acres were created by drainage from abandoned bituminous coal mining activities. Because of the proximity of the *Sistrurus catenatus*, the PA Department of Environmental Protection required a 2:1 (area-based) wetland mitigation. The mine is currently owned and operated by Allegheny Mineral Corporation, and three onsite wetlands, totaling 13.6 acres, have been constructed. The wetlands were created to maximize potential use by the *Sistrurus catenatus* and to establish a wetland community with diverse flora and fauna. Several reclamation techniques were used to construct the wetlands including the use of microtopography, deep pools, seeding, live stakes, snags, woody debris, and the creation of snake hibernacula. In the fall of 2015, as a small-scale experiment to compare the effectiveness of seeding, a native, obligate wetland seed mixture was used to vegetate one wetland while another was not seeded to allow vegetation by volunteer species. The initial monitoring was completed in 2016 and was presented at the 2016 National Meeting of the American Society of Mining and Reclamation in Spokane, Washington. Aerial photographs and videos were taken with an unmanned aerial vehicle (UAV) to aid in monitoring efforts. After three years of growth, the seeded and unseeded wetlands had a similar species richness, although the vegetative cover was lower in some sections of the unseeded wetland. A state endangered species, *Schoenoplectus acutus*, was planted and successfully established within the seeded wetland. Several non-native species were found in both wetlands; however, several aggressive invasive species were found growing within the unseeded wetland.

**Additional Key Words:** Wetland Mitigation, Wetland Monitoring, Endangered Species, Invasive Species, Eastern Massasauga Rattlesnake, Revegetation, Mine Land Reclamation, Live Stakes, Unmanned Aerial Vehicle.

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