

## SOIL AND VEGETATION DEVELOPMENT ON ABANDONED IRON FURNACE SLAG PILES IN CONNECTICUT<sup>1</sup>

Francie C. Smith, Brian D. Lee, Michael Szura, and Arthur H. Johnson<sup>2</sup>

**Abstract:** Iron smelting furnaces dotted the landscape of Connecticut from the 18th century to the early 20th century. These furnaces were an integral part of the first industrial revolution in the United States. The furnaces produced pig iron that was used to make ship anchors, farm implements, tools, etc. The purpose of this poster is to document soil and vegetation development on iron furnace slag deposit areas that were abandoned at least 70 years ago. The slag, which is the parent material for the soil, consists primarily of silicate glass with residues of charcoal and lime. Organic matter accumulation combined with relatively rapid weathering of the slag has formed a soil capable of supporting a native forest association in less than 70 years. Older sites or those in closest proximity to the native forest edge have a closed canopy of pine-birch-popular forests equal in basal area typically found in second growth native forests of Connecticut. After basal areas of about 40 m<sup>2</sup>/ha is exceeded, the soils become mesic enough to support seedlings of the surrounding native hardwood forest. Our data suggests that the above and below ground nutrient pools typical of native forests are regenerated in 50-70 years, while species composition may take a longer period of time to recover to mature forest conditions.

**Additional Key Words:** Secondary uses, primary succession, species amelioration

---

<sup>1</sup>Poster presented at the 1995 National Meeting of the American Society for Surface Mining and Reclamation, Gillette, WY, June 5-8, 1995.

<sup>2</sup>Francie C. Smith, Field Naturalist, University of Vermont, Department of Botany, Marsh Life Science Building, Burlington, Vermont 05405-0086; Brian D. Lee and Michael Szura, Landscape Designers, Philadelphia, PA.; Arthur H. Johnson, Professor, Geology, University of Pennsylvania, Philadelphia, PA.