



Saving a Rare, Local ecosystem

Submitted by Tyler Arboretum

On a sunny autumn afternoon in late October, more than a dozen volunteers from non-profits Natural Lands and Tyler Arboretum joined forces to collect native plant seeds at Willisbrook Preserve, owned and managed by Natural Lands. The seeds will be propagated at Tyler Arboretum, and then planted at both Tyler's Pink Hill and Natural Lands' Willisbrook Preserve as part of a joint effort to re-introduce rare species of local genotypes to this serpentine barrens habitat.

The serpentine barrens at Willisbrook Preserve, located in Malvern, are among just a handful of remaining serpentine grasslands in the eastern United States. Serpentine barrens contain serpentinite, a type of rare greenish bedrock from which the soils are weathered. The soils' chemical characteristics—high in magnesium and nickel and low in calcium—make them inhospitable to most plants. In fact, the term “barrens” was coined by farmers who noticed crops would not grow there. However, a few tenacious plant species have adapted to these extreme soil conditions. Many of these plants are rare, threatened, or endangered as are some of the animals that make the grassy habitat their home. Without the barrens, these native plants and animals could be lost.

The three-acre meadow known as Pink Hill, located at Tyler Arboretum in Media, was named for the candy-colored *Phlox subulata* that blooms there every spring. Like those at Willisbrook Preserve, the soils at Pink Hill are also underlain with serpentinite. The horticulture staff at Tyler want to augment the existing plant species growing there. By collecting and propagating seeds from nearby Willisbrook Preserve, plants added to the barrens will have the same local genotype.

“The serpentine barrens ecosystem has much more in common with Midwest grasslands than with the forest vegetation that prevails here in the East,” said Dr. Roger Latham, ecologist and conservation biologist. “These two barrens are home to a fantastically diverse group of plants and animals, including several that are rare or endangered.”

Ironically, much of the loss of serpentine grasslands is due to inattention from humans. In our year-round moist climate, grasslands rely on periodic disturbance to prevent woodlands from overtaking them. For millions of years, this essential disturbance came from native animals: mastodons, mammoths, and herds of hungry elk kept trees at bay by browsing and trampling the ground beneath them. Grassland-sustaining disturbance was continued by indigenous peoples setting fires and later by livestock

grazing and mining. Today, in the absence of these activities, bordering woodlands quickly encroach, creating their own rich soil layer over the inhospitable serpentinite as their leaves drop and decompose.

“Restoring Pink Hill to its original state is a significant undertaking, but one that we believe is certainly worth the wait and investment,” said Mandy Santiago, executive director of Tyler Arboretum. “We are thrilled to partner with Natural Lands, Department of Conservation and Natural Resources, Middletown Township and the community at-large to preserve one of the region's most important and diverse ecosystems.”



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