

Lehigh Gap Wildlife Refuge

Size & Type of Project:

Wildlife Refuge; 750 acres

Location:

Lehigh Gap Area, Pennsylvania

Budget:

\$1,150,000

Project Phase:

Complete



Desolation of Kittatinny Ridge, 2002

Project Overview

In eastern Pennsylvania, sandwiched in between the Appalachian Trail and the Delaware & Lehigh trail, sits 2,000-3,000 acres of barren land along the Kittatinny Ridge. The former bleak condition of this land is a result of severe soil contamination. The former New Jersey Zinc Company was the responsible party for the pollution; their smoke stacks sent zinc, cadmium and lead through the air contaminating the soil for miles around. Because the area is so large, it is considered the largest land-based federal Superfund site east of the Mississippi River. The land was eventually bought by Viacom, a branch of CBS. With money and cooperation from CBS, Lehigh Gap Nature Center (LGNC), a non-profit conservation organization, was able to revitalize a decent portion of the contaminated land. The Nature Center bought 750 acres within the Lehigh Gap Area for \$900,000 on the Kittatinny Ridge along the Lehigh River; half of it being contaminated and the other half not. The nature center planned to rehabilitate the contaminated portion of the land. They hoped to use the other non-contaminated half as a nature center and eventually open it to the public. Before the project was started, the area had to be inspected by the Environmental Protection Agency. The removal of the pollutants was



Result of the Project, 2004

impossible because of the fact that most of the area was on the side of a mountain and very rocky. EPA agreed upon three goals for the land: the area was to be planted with only native vegetation; the planted vegetation could not be of a species that would take the contaminants from the soil and introduce these contaminants into the food chain; and the treatment had to prevent soil erosion. The LGNC accomplished these goals with a planting rehabilitation project, and in 2006 the final planting on the site was done. The importance of the project directly reflects the importance of Kittatinny Ridge to the communities surrounding it.

Site Context

Kittatinny Ridge is a vital area for the people living around it and the wildlife living upon it; it serves as a water supply, recreation area, migration route for many bird species, and a home for countless other animals. The ridge has been named a “globally significant” migration air highway in the seasons of spring and fall, along with a significant economic resource to the region. Kittatinny Ridge brings in over \$4.5 million a year for Hawk Mountain Sanctuary’s excellent bird watching. Lehigh Gap Nature Center hopes to reestablish all of this within the Lehigh Gap area.

Sustainable Practices

Habitat Restoration/ Soil Remediation

The goal of the habitat restoration was to restore the desolate mountain side back into a hospitable habitat for native wildlife. To do this, native warm season prairie grasses were planted at \$500/500 lbs. seed sack. Nine native species of wildflowers have more recently been planted. The species of prairie grasses and wildflowers were carefully chosen to insure control of the contaminants. It was crucial to choose plants that would not leach the metals from the ground and introduce them into the food chain.



Final result

Project Construction

The project was funded with money from CBS and grant funding from the PA Department of Conservation and Natural Resources totaling \$250,000.

- Planting test plots –
To ensure that money and time would not be wasted, it was necessary to conduct an experiment before the start of the project. The objective was to see how the chosen plant species would take to the particular harsh environment of the Kittatinny Ridge. The experiment involved one acre of test plots that were evaluated from 2003 to 2006. The experiment yielded positive results; therefore, full scale planting was started in 2006. After the mass prairie grass planting, experimental plots of oaks and wildflowers were set up. The oak plantings were not successful; LGNC discovered that the acorns were not able to germinate in the soil. However, three pairs of plots of wildflowers were constructed, each 30 ft. by 30 ft. Three plots were inside a fence and three were outside; the fence was used to test for deer disturbance. With careful observation, wildflowers were believed suitable for the area.
- Planting Process
Because of the rocky terrain and arid condition of the soil, a layer of topsoil was necessary. The topsoil was a mix of mushroom soil, lime, and commercial fertilizer. Mass planting process was done with the aid of a tractor on the gentler slopes and a plane on the steep slopes. The plane cost about \$720,000 a day, but commercial fertilizer could not be taken up into the plane because of the added weight; therefore, the topsoil deposited by the plane only contained mushroom soil and lime.

Maintenance

The maintenance on the site is focused on reseeding the areas that never germinated and removal of invasive species. The invasive species giving them the most trouble are the butterfly bush and tree of heaven. CBS has hired interns to manage the invasive species problem. The interns are armed with special backpack sprayers for spot treatments of herbicide on the site. Volunteers are also being used; however, they do not deal with invasive species removal, only reseeding. The reseeding process is done by hand, both by the interns and volunteers.

Issues/ Constraints of the Site

The major constraint of the site was the steep and rocky terrain. The terrain made it difficult to plant in some areas, leading to the extremely expensive use of planes.

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