

# Restoring Wildlife Habitat at Great Swamp National Wildlife Refuge

## *Natural Resource Damage Assessment and Restoration Program*



### The Problem

In 1984, six acres within the National Wilderness Area of the Great Swamp National Wildlife Refuge (Refuge) were designated as Operable Unit 3 (OU3) of the Asbestos Dump Superfund site. The site was formerly a privately-held tract of forested and emergent wetlands where open dumping, landfilling, and burning of household, industrial, and asbestos-containing waste was conducted for many years prior to the U.S. Fish and Wildlife Service (Service) acquiring the land in 1968. In addition to asbestos-containing waste, elevated levels of heavy metals and organic waste were found in site soils and sediments, along with numerous drums of chlorinated solvents and other organic wastes.

### Natural Resource Damage Assessment and Restoration Program

When hazardous substances enter the environment, fish, wildlife, and other natural resources can be injured. The Department of the Interior, along with State, Tribal and other Federal partners, acts as “trustee” for these resources. Trustees seek to identify the natural resources injured and determine the extent of the injuries. Trustees work with the responsible parties to carry out restoration activities, or recover funds from responsible parties to carry out the restoration activities. These efforts are possible under the Natural Resource Damage Assessment and Restoration Program (NRDAR), the goal of which is to restore natural resources injured by oil spills or the release of hazardous substances.

### Restoring the Resources

In 1993 the Service was awarded \$3.4 million in a bankruptcy settlement with National Gypsum Corporation as damages for natural resources injuries associated with the release of hazardous substances at and near OU3. Once remedial actions at OU3 were completed

### Highlights

- Acquired 169 acres of important wildlife habitats;
- Constructed over 1/2 mile of new ADA accessible boardwalks at the Refuge; and
- Controlled over 110 acres of invasive species.



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*Restored vernal pool at the Great Swamp National Wildlife Refuge*

in 1999, the staff from the Service’s New Jersey Ecological Services Field Office and the Great Swamp National Wildlife Refuge began the restoration planning process, and in November 2001 began implementation of a comprehensive restoration plan. Using a programmatic approach, the restoration plan called several unique yet interconnected actions to restore injured natural resources. Those actions included land acquisition, habitat enhancement, funding for water quality improvement projects conducted by non-government organizations within the Great Swamp watershed, and improving public access within the Refuge.

### Restoration Highlights

#### *Restoring Injured Habitat and Ecological Services*

More than 160 acres, most containing forested and emergent wetlands were acquired as part of the Refuge. These wetlands contain desirable natural resources that protect or otherwise support the ecological development,

maturation, function, and sustainability of desirable wetlands and the surrounding watershed. Moreover, those natural resources also serve to buffer the environmental impacts associated with suburban development within the watershed and adjacent the current Refuge boundaries.

#### *Habitat Restoration through Invasive Species Management*

Restoration efforts including biological control methods, mechanical harvesters, and pesticide applications aided in the control and management of more than 110 acres of invasive plant species throughout the Refuge. As a result, desirable and sustainable vegetative communities have recolonized the restored areas and are providing improved foraging, resting, and nesting habitats for a variety of wildlife.

### *Habitat Restoration through Impervious Cover Removal*

Approximately 17 acres of impervious cover (asphalt, concrete, buildings) and the resultant 1,600 tons of demolition debris were removed from the Refuge. The 17 acres were replanted with desirable and sustainable vegetative communities. A major portion of that 1,600 tons of demolition debris, over 425 tons of concrete and 275 tons of asphalt, were recycled rather than disposed of in a landfill. The remaining debris was screened for metals and other recyclable materials prior to disposal.

### *Vernal Pool Enhancement*

More than 100 vernal pools were identified and geo-referenced; 25 were physically and/or vegetatively enhanced in order to maintain this unique but fragile habitat type on the Refuge. Vernal pools provide important habitat for brooding waterfowl and other wetland species such as the State-listed blue-spotted salamander.

### *Restoring Lost Public Use*

Over a half-mile of new boardwalks, constructed with recycled materials, have been added to the Refuge's Wildlife Observation Center, located just 26 miles west of New York City, bringing wildlife closer to public view. Over 100,000 visits per year are now made to the Wildlife Observation Center boardwalk and trail system.

### *Restoring water quality and enhancing wetlands*

Funding and technical assistance was made available to empowered Refuge partners (e.g., the Ten Towns Great Swamp Watershed Management Committee and its member municipalities, the Great Swamp Watershed Association, the Somerset County Park Commission, the New Jersey Conservation Foundation, and the Harding Land Trust) to implement and complete a variety of restoration projects adjacent to or upgradient of the Refuge that would have otherwise gone undone. These restoration projects included, but were not limited to: stream bank stabilization, improvements in storm water conveyance infrastructure, vernal pool enhancement, invasive species control, improved public access through trail enhancement, and planting desirable native vegetation. Collectively, these off-Refuge projects served to improve water quality entering the Refuge, promoted community involvement and volunteerism, provided educational opportunities, and enhanced wildlife habitat to benefit of the Refuge and local communities.

### **Thanks to Our Partners**

Without the help of the numerous partners restoration at the Great Swamp National Wildlife Refuge would not have been possible.



Vernal Pool Association

*Restoring vernal pool habitat benefits many wetland dependent species including the blue spotted salamanders.*



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*Land acquisition, restoration, and invasive plant removal benefit many species including Wood Duck.*



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*Over 1/2 mile of boardwalk was built to replace lost public use.*

### **For additional information or questions contact:**

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