

Cultural Sites and Biodiversity

Biodiversity inventories and the advent of a volunteer-based natural resource management program at Wolf Trap

The “Flight of the Bumblebee,” birds, butterflies, and more



NPS PHOTO/WOLF TRAP NATIONAL PARK FOR THE PERFORMING ARTS

By Christopher Schuster

LONG REGARDED FOR ITS outdoor performing arts venue, Wolf Trap now incorporates a focus on natural resources. Wolf Trap was established in 1966 as the first, and still only, national park devoted to the performing arts. The complex is the direct result of the energy and philanthropy of Catherine Filene Shouse, who donated the land, partially funded a theater building, and spearheaded the legislative effort to establish the park. The Filene Center, which seats approximately 3,500 people under cover and 3,500 more outdoors on a sloping lawn, is the centerpiece of the park and

Figure 1. For tens of thousands of visitors annually, the performance at Wolf Trap is all they are exposed to. However, surrounding this venue is approximately 60 acres of naturalized landscape complete with two streams, a pond, and a newly implemented hiking trail.

has been hosting performances every summer since 1971 (fig. 1). An 800-seat outdoor amphitheater, the Children’s Theatre-in-the-Woods, is also tucked away next to the stream that runs through the park.

An integral part of Ms. Shouse’s vision, and the primary mission of the park, is the experience of live performances in an outdoor setting. The 117 acres (47 ha) donated by Ms. Shouse had been a working farm for several hundred years, and was and still is split roughly evenly between open grass/developed area and woodland. The iconic Wolf Trap visitor experience was

established early in the park’s history as dining al fresco under shade trees around the old farmhouse and picnicking inside the performance area seated on the grassy lawn while listening to the symphony.

Natural resources?

Though picturesque and beautiful to behold, this controlled image of the outdoors relied on intense human maintenance. The parkland in the main visitor and theater area was treated as a landscape setting and heavily maintained for turf, ornamental

trees, and shrubs; the natural resources in other portions of the park were ignored almost completely. The only walking trail in the park was a small, informal trail linking to neighborhood paths; many areas in the park were not accessible and therefore went unmanaged and unobserved. Interpretation of natural resources, including climate change and other NPS priorities, was neglected, even though the park has received more than 400,000 visitors each year. Still, park files and species lists from the 1970s and early 1980s attest to early efforts to address natural resource management policies of the National Park Service, but these endeavors never gained much traction.

Despite the presence of 60 forested acres (24 ha), two streams, several wetlands, and severe problems with exotic-invasive plant species and overabundant white-tailed deer, Wolf Trap had virtually no natural resource program. Vascular plant and vertebrate inventories were carried out by the National Capital Region's (NCR) Inventory and Monitoring Program and other resource needs were addressed by the NCR Office of Natural Resource Science with minimal involvement by park personnel. Although it is recognized as having significant natural resources, the park has never established a resource management position. Also, the general management plan completed in 1996 did not result in any new research or additional inventories of natural resources.

Start of a natural resource-minded program

In 2007, Philip Goetkin began working in the park as a gardener (fig. 2). He readily admits that he was guilty of many of the unsustainable landscaping practices performed there at the time. In 2009 he enrolled in a course for which Doug Tal-

lamy's book, *Bringing Nature Home*, was the required text, and he was inspired.

Mr. Goetkin recognized the utter lack of science-based natural resource management in the park and decided that something needed to be done. He also understood that gaining support would be difficult in an environment that was so heavily focused on the maintained landscape. He would make it his mission to prove that ecological value and aesthetic quality could coincide and enhance the park experience and park purposes.

He saw the visitor area of the park in and around the Filene Center, parking lots, and picnic grounds as an opportunity to educate the public about environmentally friendly landscaping practices. In 2009 the park staff and a group of volunteer Girl Scouts removed turf grass in a small area near the main entry to the Filene Center and replaced it with native plants. The idea was to showcase how native species could be used instead of cultivars to create a decorative garden area that would pass aesthetic muster in the Washington, D.C., suburbs. This was the beginning of a paradigm shift at Wolf Trap National Park for the Performing Arts.

In 2010, Mr. Goetkin became the park's head gardener and a maintenance supervisor and began implementing a number of forward-looking projects. For the first time in park history, funding was obtained through youth program sources to hire natural resource interns, who dedicated themselves to carrying out the innovative projects. This was a turning point in convincing park staff, visitors, and partners of the value of developing an active natural resource program at Wolf Trap. That year, a cooperative agreement was signed with the Potomac Appalachian Trail Club to construct a 2.5-mile-long trail in the park's wooded areas. Not only does this trail enhance outdoor recreation at the park, another of the park's legislated purposes,



Figure 2. Head gardener and grounds supervisor Philip Goetkin coordinates with Claudia West, ecological sales manager at North Creek Nurseries, and Catherine Zimmerman, author of *Urban and Suburban Meadows*, to plant native plugs in the meadow.



Figure 3. Located directly in front of the Filene Center main gate and box office is the area commonly referred to as the "Dimple." This 1-acre site, used primarily as a stormwater holding area and for parking, was once monoculture lawn and cost approximately \$2,000 annually to maintain.

but it also provides accessibility through many of the wooded portions of the park. This access, which did not exist before, has proven invaluable in subsequent natural resource inventory work. In 2011 the park decided to convert a 1-acre (0.4 ha) site of manicured lawn that is encircled by the Filene Center's entry into a meadow of native grasses and forbs (figs. 3–5, above and on pages 96–97). A \$30,000 grant provided by the Wallace Genetic Foundation (a private foundation) was used to purchase native plants.



Figure 4. In April 2012 more than 100 volunteers helped transform the Dimple into a native meadow when they planted 21,000 vegetative plugs.

The native garden, wildflower meadow, and Wolf Trap Trail attracted attention and interest almost immediately. Park visitors and area residents quickly volunteered to help with manual labor, and several highly skilled natural resource professionals also volunteered their services. Rather than defining research projects and then looking for professional scientists to carry them out, the park attracted the scientists and volunteers first and then used their expertise to address park needs. Since then, the park has added a cadre of trained volunteers, and the network of contacts the park has made with local and national partners has continued to grow.

Inventories take shape

Sheryl Pollock is a retired field biologist from the U.S. Geological Survey who be-

gan visiting the park to photograph insects in the native meadow. Her interest quickly evolved into a more ambitious project to photograph and identify all insects and native flora in the park. Ms. Pollock has taken thousands of photographs at Wolf Trap and uploads her pictures to an online photo-sharing service along with notes on species identifications. Her work provides a photographic record of particular species on specific dates in the park. Her efforts, in conjunction with other surveys, will help to update the park's official NPSpecies list, which documents the occurrence and status of species on National Park Service lands.

What started as a hobby for Ms. Pollock developed into the launching of an All-Taxa Biodiversity Inventory at Wolf Trap in 2013. Teaming up with USGS wildlife

biologist Sam Droege, Ms. Pollock now aids park staff in collection and processing of bee species. Mr. Droege graciously volunteers his time to identify the bees as we work to generate a baseline of pollinator species in the park. The work also informs Mr. Droege's larger study of native bees in the Maryland, Virginia, and Delaware region. The survey, which started in July 2013, resulted in identification of 37 pollinating bee species, and we expect to tally many more with a full field season of work in 2014.

Since beginning the bee survey, staff from the NCR Office of Natural Resource Science have suggested that we expand our work to include Lepidoptera and have recommended that we team up with entomologist and private contractor Nathan Erwin, former curator of the Smithsonian

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Figure 5. After its second growing season in fall 2013, the native meadow shows its colors.

Insect Zoo. Mr. Erwin conducted multiple training sessions to teach volunteers how to identify various species of butterflies and to prepare them to carry out a butterfly inventory of the park. We identified 32 species in 2013 and, although 2014 surveys have gotten off to a slow start as a result of poor weather conditions, we hope to exceed last year's species count with the longer survey season. Volunteers meet every other week to document butterfly sightings.

The Audubon Society of Northern Virginia also has taken an interest in the park. Learning that Wolf Trap had no comprehensive bird list, they have been working with park staff for more than a year to document park birds. Nearly 30 Audubon volunteers divided the park into quadrants and, thanks to the new trail, are able to access the entire park, identifying birds and monitoring their densities. They regularly upload their findings to the online eBird.org database and have identified more than 100 bird species in the park.

An amazing transformation

In just five years since park staff exchanged a small area of lawn for native plants, Wolf Trap National Park for the Performing Arts has instituted a vibrant, public participation-oriented natural resource

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program. Although the park still does not have a natural resource manager, an energized grounds crew and other workers enthusiastically tell visitors about park biodiversity and the volunteer program of biodiversity inventories. In addition to the bird and butterfly surveys, bee and other pollinator bioblitzes, and photo documentation of park flora and fauna, the park has added four forest monitoring plots, begun to monitor water quality in Wolf Trap Creek, and established “no-mow” zones and native plant areas. The Inventory and Monitoring network is now engaged in population monitoring of deer and control of destructive infestations of oriental bittersweet and English ivy in highly visible park areas. We also have developed relationships with several organizations for obtaining free or reduced-price supplies for incorporating native plants into the park scene.

Interpretive projects have also blossomed, so to speak. We are developing scientifically accurate interpretive signage about the park's natural resources and now provide tours of the native gardens and meadow areas. The park's Web site and Facebook page feature a “plant of the week” along with information about its natural history. Finally, we have developed a Web-based climate change-monitoring station online where citizen scientists can post photos and related observations of changes in seasonal timing of periodic biological events. Thus citizen science at Wolf

Trap is contributing to a larger understanding of phenology at the landscape level.

All the natural resource projects and related achievements have been accomplished without a dedicated natural resource management position or a natural resource management budget. The program owes its existence to the ideas, energy, support, and work of maintenance and interpretive staffs, the park's superintendent and volunteer coordinator, summer interns, college students, the Youth Conservation Corps, volunteer groups and individual volunteers, private foundations and local businesses, and the NPS National Capital Region. As a result, natural resource management has established a strong foothold at Wolf Trap, and the park now has an expanded audience, not just for the traditional theater and music offerings but also for the natural resources and recreational values of this special suburban park.

About the author

Christopher Schuster (*christopher_schuster@nps.gov*) is a gardener with Wolf Trap National Park for the Performing Arts in Vienna, Virginia. He has a bachelor's degree in landscape architecture and coordinates many of the resource management activities at the park.