

## Connectivity: A Step Beyond Partnerships

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Throughout the United States, lands administered by the National Park Service (NPS) are being subjected to increasing pressure from housing and commercial development and the concomitant infrastructure needed to support these new population centers. Roads, powerlines, sewage treatment plants, and discharge sites are all necessary to support growing populations as they extend further into traditionally rural areas. The geographic areas nearby parks, forests, and other preserved areas are attractive to homeowners, resulting in the rapid and sometimes haphazard development of gateway communities.

In many areas the lands and waters in these communities are protected not only by the NPS, but by states, counties, municipalities, other federal agencies and non-governmental organizations, including land trusts. Many protected areas were designated at different times and for different reasons and rarely with a comprehensive strategic approach in mind.

The Delaware Water Gap National Recreation Area (DWG) is a prime example of federally administered lands facing increasing pressures from expanding urban areas. DWG is located within 90 miles of the greater New York/New Jersey metropolitan area, and over 56 million people in the large urban areas within 250 miles of the park boundary. The park manages over 40 miles of the Delaware River and nearly 70,000 acres in New Jersey and Pennsylvania. DWG is surrounded by 3 states, 6 counties, and 21 municipalities. According to US Census Bureau data all six of the counties bordering DWG are within the top 10 of their respective states for the percent per capita increase in population between 2000 and 2007. Pike County, Pennsylvania, has been the fastest growing county per capita in Pennsylvania since the 1990s until 2006, when it was bumped down to number two. Pike County also has the highest average commuting time of 46.2 minutes (state average is 25 minutes) for the state of Pennsylvania, and 70% of the working population over 16 works outside of the county.

As a linear park, DWG is faced with the challenge of managing land and water at the bottom of the watersheds where the majority of the tributary watersheds are outside of the park boundaries. In areas surrounding the park there are other public lands with a total of 97,000 acres of state lands in Sussex and Warren counties, New Jersey, and 166,000 acres of state lands in Pike, Monroe, and Northampton counties, Pennsylvania. On the New Jersey side of the park there is direct connectivity to public land, however the Pennsylvania side is separated from public land by a development corridor. Residential developments directly bordering the park boundaries, particularly on the Pennsylvania side, have been growing since the formation of the recreation area in the mid-1960s.

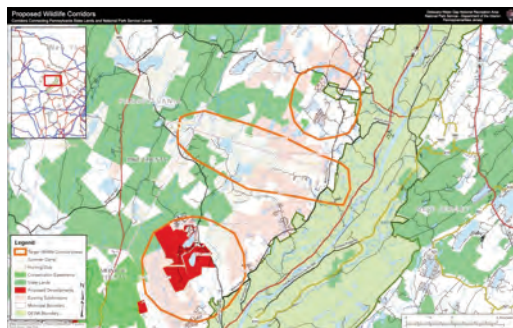
In 2006, the superintendent directed park staff to begin looking at the possibility for connections between the state game and forest lands in Pennsylvania that could potentially serve as wildlife corridors. The first steps were to identify the primary riparian corridors,

current land use, the proximity to NPS lands, and identify large undeveloped parcels. The goals were focused on areas where fee simple land acquisition, easements, and/or other open space options could maintain and improve the current connectivity of public lands. Through a simple Geographic Information System (GIS) exercise park staff members were able to identify three primary areas where connectivity was still feasible. These corridors within Pike County, Pennsylvania, could potentially connect the large Pennsylvania State Forest and Game Lands to the New Jersey State Forest and Park Lands with DWG, and the Delaware River at the center. Since Pike County is still a relatively rural area for the region, there still remain areas of large undeveloped parcels, many of which are being used as hunting clubs, summer camps, or agriculture. In recent years the financial benefits of developing agricultural lands has outweighed the back taxes penalties resulting from removing parcels from Act 319 lands (a Pennsylvania law that provides tax relief for agricultural uses, including forested plots).

The superintendent began promoting this concept to the Pennsylvania Department of Conservation and Natural Resources (DCNR) secretary and others through letters, meetings, and sharing the maps created by the Park. Simultaneously, several other local efforts were researching many of the same issues of preserving open space, and the rural character of the region. These efforts included, but are not limited to, the DCNR's Conservation Landscape Initiative and the Pike County open space, greenways, and recreation plan. After the superintendent shared the corridor map with the Pike County planning director, the park's GIS staff was contacted by the Pike County planning office to share GIS information regarding these priority areas, identified by the park, to help with the development of the their open space plan development. When comparing the areas identified by the NPS and those being looked at by the county, state, and others, many of the potential open space areas were located in the same vicinity. As a result, workgroups, such as the Pike County priority parcels committee, were formed with county, state, non-profit and NPS personnel to streamline efforts for identifying and prioritizing preservation. Over consecutive years, several other local groups have formed such as the Pike County rural preservation board, which manages a 10 million dollar bond to preserve open space in the county. Other efforts include two grassroots organizations, Common Waters, and the Upper Delaware River Roundtable, which were formed as a direct result of Park Service's regional planning initiatives.

Efforts by the park also began to engage local developers and resorts to facilitate discussions regarding the park assets, open space, sustainable development, and the mutual benefits provided by the park lands. Other federal efforts in the region include the newly authorized Cherry Valley Wildlife Refuge (February 2009) which abuts the southern end of the park. The Fish and Wild-

**Figure 1.** Map identifying potential corridors connecting Pennsylvania state and federal lands in Pike County, Pennsylvania.



life Service has also been working on authorization to expand the Walkkill Wildlife Refuge in New Jersey to the west, to connect to High Point State Park and Stokes State Forest, which ultimately borders DWG.

Across the country similar connectivity projects have been focusing on these same issues and goals of protecting the ecological benefits of a landscape, such as Mojave Complex in the California desert, the Yellowstone to Yukon Project, and the Everglades Complex in Florida. Research programs, such as NASA's PALMS program, looking at land use change surrounding NPS lands on a more landscape scale, have become more prevalent throughout the country. A national effort is underway through the Natural Resource Advisory Group to bring landscape scale connectivity actions to the forefront of NPS programs. The advisory group has developed recommended action items, program elements, and products to meet NPS needs regarding landscape-scale connectivity.

The NPS needs to address three gaps:

- First, the need for greater focus on the role of work beyond park boundaries.
- Second, to train personnel for a new era of public land management; to staff certain positions with landscape ecologists, conservation partnership specialists, and conservation real estate specialists.
- Third, to find the resources necessary to procure title or easements on properties, and to initiate appropriate management actions on these parcels.

Through establishing short and long term goals the NPS can help communities surrounding the parks to protect and enhance the landscape ecology that helped establish the public lands initially. Possible next steps for the NPS would be to conduct initial scoping of a landscape conservation program, continue and increase efforts to promote landscape conservation efforts near parks, develop formal ties to work with other organizations to identify areas of collaboration and leveraging, and prioritize acquisitions of current inholding and boundary properties that decrease edge-to-area ratios of parks.