WILLIAM PENN FOUNDATION

Photo: Stroud Water Research Center

Delaware River Watershed Initiative

Land Restoration

STRATEGY BRIEF

A summary of the William Penn Foundation's funding of land restoration through the Delaware River Watershed Initiative.

March 2020

The William Penn Foundation launched the Delaware River Watershed Initiative (DRWI) in 2014 to address the fundamental connection between land use and water quality – specifically, to protect water quality benefits attributable to healthy forests and other natural areas as well as the restoration of damages from urban and agricultural uses. Our grantmaking in support of the DRWI aligns the work of over 50 organizations to demonstrate how strategic, science-informed land preservation and restoration in targeted sub-watersheds can have a significant, durable impact on water quality and serve as a model for replication elsewhere in the watershed and beyond. We have committed more than $100 million to date to support this effort.

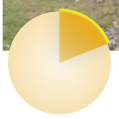
The Challenge

The Delaware River watershed covers 13,500 square miles in New York, New Jersey, Pennsylvania, and Delaware. Myriad state agencies and local jurisdictions within this watershed create a complex set of laws and regulations governing the land use activities of thousands of landowners, developers, and farmers. Those activities, in turn, often have an impact on water quality, typically referred to as nonpoint source pollution. About half of the pollution in the watershed today is the result of nonpoint sources, including development in headwater forests, runoff from agricultural fields, and stormwater.

Increasing levels of nonpoint source pollution across the watershed pose a growing threat to aquatic ecosystems, recreation, and drinking water for more than 13 million people. Effectively addressing such sources of pollution across the system is a challenging and expensive undertaking, one that will require broad and ongoing collaboration across the public, private, and NGO sectors, as well as across political jurisdictions. The jurisdictional fragmentation of the watershed, however, makes it difficult for public agencies and NGOs to be strategic in the context of the larger system. The lack of a federal program promoting large-scale strategies aimed at restoration of impaired waterways, such as those found in the Great Lakes and Chesapeake Bay, exacerbates the problem.

Piecemeal efforts to address the causes of nonpoint source pollution typically are not effective, and protection and restoration projects in the wrong places may not have the desired impact on water quality over the long term. This is a particularly significant challenge for restoration projects, which can be expensive and technically challenging to implement and maintain.

Photo: Garth Lenz



19% developed land

Above: stormwater runoff from suburban development.

18% farms and pasture

Above: erosion and unsecured manure storage.

Why Land Restoration Matters

A large body of scientific research shows that preserving intact, healthy forestlands is the most efficient way to protect clean water. Yet for the many waterways that are already impaired, we must address existing pollution problems, particularly nutrient runoff from farmland and stormwater runoff from roads, roofs, and other impervious surfaces.

Nineteen percent of the Delaware Basin's land is developed, and another 18 percent is comprised of farms and pasture. Thus, a significant portion (more than a third) of the Basin's land likely contributes to nonpoint source pollution in our waterways, and as development increases this problem will only become more acute.

More than a third of the Delaware Basin's land likely contributes to nonpoint source pollution in our waterways.

RESTORING HEADWATERS

Reducing stream bank erosion and scouring, improving floodplain storage and filtering capacity, and restoring stream function to provide clean water and fish habitat are chief among land restoration goals. Improvements here will lead to cleaner water in the watershed.

Photo: Floodplain restoration on the Paulins Kill River. Photo by Rachel Dawson.

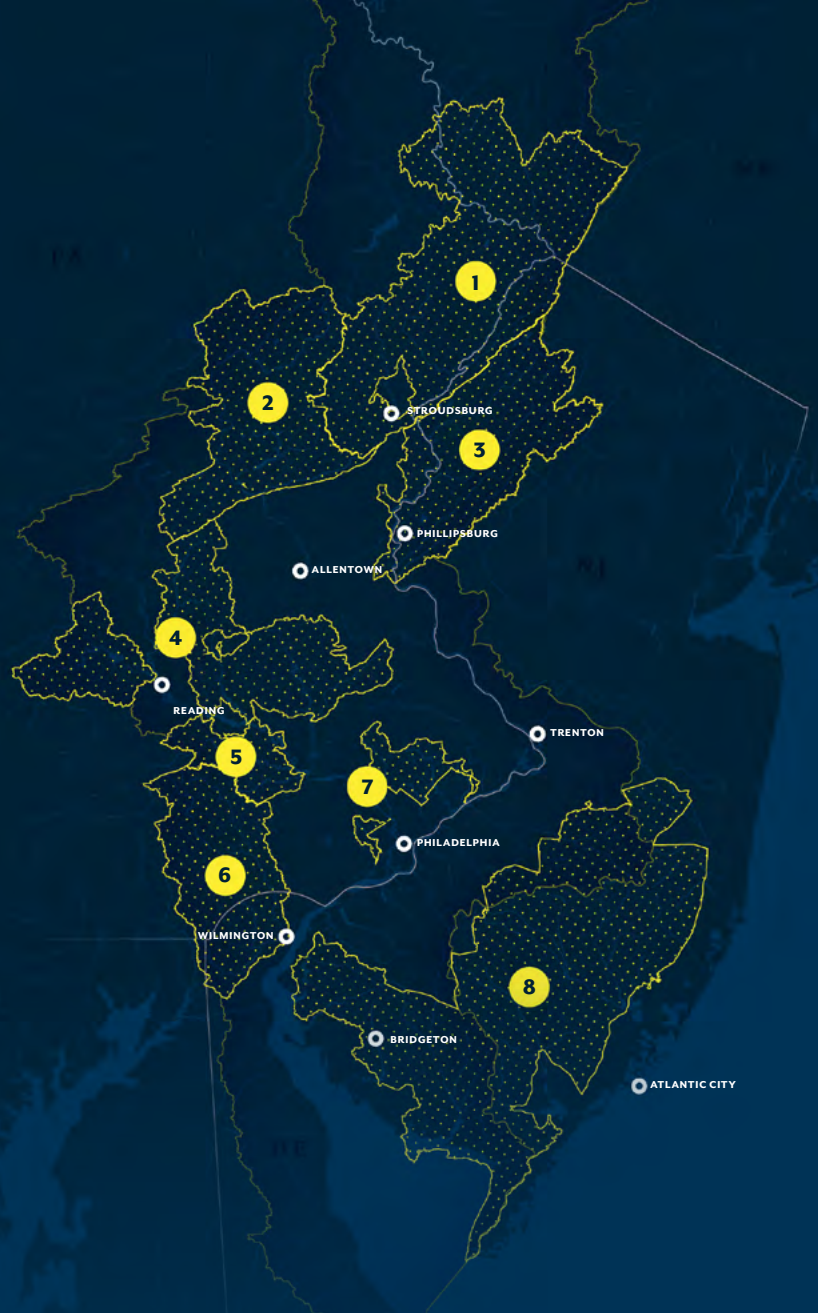
Volunteers plant trees along White Clay Creek in the Brandywine Christina cluster.

Our Approach

In the face of the complexity and the scale of the threats posed by nonpoint source pollution, we have adopted an approach that maximizes the impact of our grants:

1. prioritize critical places
2. focus & align the work of partners in each place
3. evaluate results

As part of this approach, we seek to demonstrate an effective way for land trusts and watershed associations to prioritize water quality benefits in their restoration project planning—strategically designing and locating restoration projects that are also most critical to long-term protection of clean water.



THE SUB-WATERSHED CLUSTERS

1. Poconos-Kittatinny
2. Upper Lehigh
3. New Jersey Highlands
4. Middle Schuylkill
5. Schuylkill Highlands
6. Brandywine-Christina
7. Upstream Suburban Philadelphia
8. Kirkwood-Cohansey Aquifer

With the assistance of grantees and other stakeholders, we designed and launched the Delaware River Watershed Initiative in 2014 as a strategy to align our grantmaking for on-the-ground work done by more than 50 land trusts, watershed associations, and research institutions. Land restoration is at the heart of the Initiative—along with protection, science-based modeling and monitoring, and collaboration among networks of conservation organizations. Through the Initiative, teams of organizations implement shared action plans in eight targeted **sub-watershed clusters***. Each project laid out in the shared action plans is built around the hydrological system in the clusters, which comprise priority HUC 12s; a goal of the Initiative is to secure clean water in prioritized tributaries in the clusters.

WHAT IS A SUB-WATERSHED CLUSTER?

In the DRWI, the term refers to a group, or "cluster," of smaller sub-watersheds within the Delaware Basin where DRWI partners are focusing their work. The DRWI's eight clusters were selected based on the U.S. Geological Survey's system of HUC 12s—small headwater streams in a watershed— with the objective of targeting conservation efforts on priority headwater streams, in effect aiming to lock down clean water at the entry points to the watershed, which will benefit areas downstream as well. In these eight clusters, teams of up to a dozen local organizations are doing land protection and restoration in concentrated areas to measurably improve water quality.

The Foundation supported the development of an initial set of action plans in 2013, with implementation grants made in 2014. Plan updates were developed in 2017, with further implementation grants made in 2018. Each action plan addresses a combination of the following nonpoint sources of pollution: loss of forests, runoff from agricultural fields, and stormwater.

The Initiative's clusters provide opportunities for us to concentrate our grantmaking, promote alignment among the many organizations we support, and evaluate impact over time. In addition, the clusters have become laboratories for innovation and incubators for new relationships among conservation organizations and other stakeholders.

Delaware River Restoration Fund

The Delaware River Restoration Fund, capitalized by the William Penn Foundation and administered by the National Fish and Wildlife Foundation (NFWF), supports the restoration of strategically-selected working lands, wetlands, floodplains, and stream corridors in the DRWI clusters. The fund also promotes the adoption and development of green stormwater infrastructure in urban and suburban landscapes in the clusters. Organizations working in these clusters are eligible to apply for funding (matching grants of $50,000 to $500,000). NFWF accepts applications on a rolling basis and awards at least $2 million per year.

$10.72 MILLION

in capital awarded to **68** projects since 2014

$18.69 MILLION

in additional matching funds

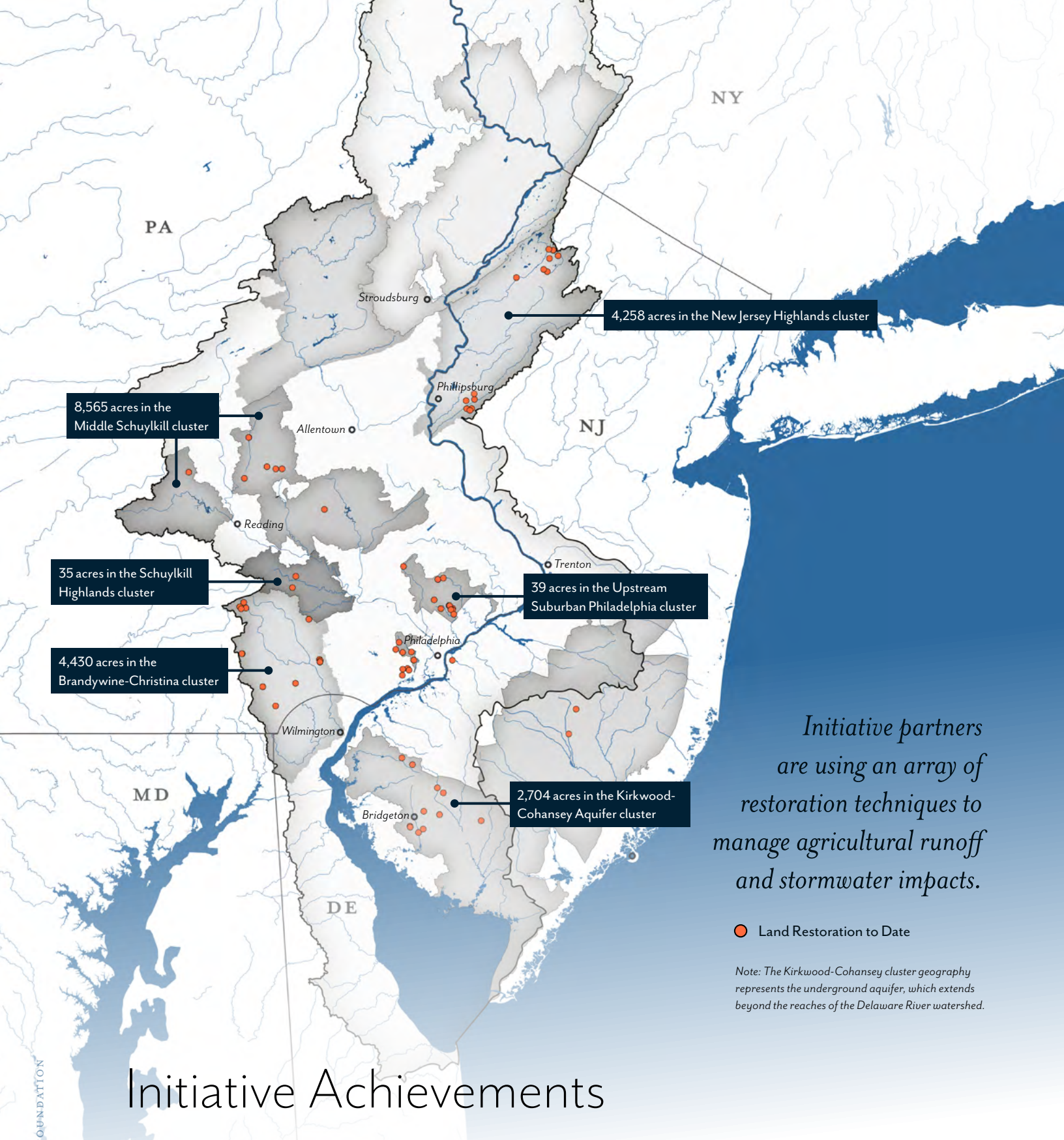
Conservation Strategies Supported by the Delaware River Restoration Fund:

Farmland

- Baseline assessments
- Conservation planning and technical assistance to farmers, farm services, and municipalities
- Delivery of Best Management Practices: erosion control, floodplain restoration, livestock fencing, nutrient/sediment reduction, riparian/wetland restoration, fish passage improvements
- Water conservation

Stormwater

- Baseline assessments
- Stormwater planning outreach and technical assistance for landowners, municipalities, and counties
- Green stormwater infrastructure installations
- Volunteer engagement
- Water conservation



Initiative partners are using an array of restoration techniques to manage agricultural runoff and stormwater impacts.

Note: The Kirkwood-Cohansey cluster geography represents the underground aquifer, which extends beyond the reaches of the Delaware River watershed.

Initiative Achievements

To date, projects funded by the Delaware River Restoration Fund have collectively restored more than 50 miles of riparian habitat, conserved and enhanced over 150 acres of wetlands, improved 4,575 acres of forest habitat, and delivered conservation Best Management Practices on over 16,600 acres of working farmland in the priority clusters. This work has kept over 860,000 pounds of phosphorus and nearly 25 million gallons of stormwater out of the watershed.

What We're Learning

Under the Initiative, partners are constantly monitoring, collecting data, and assessing individual restoration practices and projects to better understand their effectiveness in improving water quality. This ongoing evaluation informs the location and type of restoration projects implemented, ensuring that limited resources deliver maximum water quality benefits.

During a formative evaluation of the DRWI in 2016, we identified the need to better define and quantify the value of restoring land to improve water quality. We made a $1.5 million grant to NFWF for land restoration "impact assessment" research. This evaluation also helped us refine the focus areas within each cluster, improving our ability to monitor and measure results going forward.

Aggregating and focusing the work we fund allows us to more deeply evaluate and understand the impact that our work has on a particular place.

In a more qualitative sense, the DRWI work to date has shown that collaborative, interdisciplinary teams of nonprofits can create synergies that deliver watershed benefits that exceed what the organizations can achieve working independently. In addition, the approach to conservation that results from the DRWI structure may be a model for the ways that conservation nonprofits can work together to improve efficiency and effectiveness.

In addition to the benefits of collaboration, aggregating and focusing the work we fund allows us to more deeply evaluate and understand the impact that the work has on a particular place. Whereas it would be nearly impossible to detect water quality improvements from scattered projects across an 8-million-acre geography, aggregation of conservation work can effectively create a laboratory in which we can more easily demonstrate successful solutions and research the outcomes of the work we fund.

Looking Ahead

Our grantmaking acknowledges that efforts to minimize pollution resulting from stormwater and agricultural runoff must focus limited capacity and funding within places most critical to assure clean water. By developing an approach that prioritizes protection and restoration of small headwater streams in specific focus areas within targeted sub-watersheds, the DRWI aims to model effective strategies with demonstrable impact that can be applied over time to additional headwater sub-watersheds.

Looking ahead, our goal is to encourage DRWI participants, including NGOs and public agencies, to use the methodologies and tools that we are helping to develop as a foundational part of their conservation work. In addition, it is essential that we bring new resources to the table — resources that will allow us to broaden and accelerate the pace of this work. This includes exploring innovative approaches to conservation finance.

"We are continually developing, refining, and improving our approach to land restoration, and prioritizing locations to benefit clean water. Ultimately, that's what this is all about: maximizing the impact of our investments."

–Clare Billett, Senior Program Officer

For more information, visit williampennfoundation.org