

Delaware River Watershed Initiative

Land Protection

STRATEGY BRIEF

A summary of the William Penn Foundation's funding of land protection 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 create a complex patchwork 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. In fact, 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.

Securing sufficient clean water for healthy aquatic ecosystems, recreation, and drinking water for more than 13 million people by addressing nonpoint source pollution requires highly strategic efforts because it is such a widely distributed problem. It 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.

Without an overarching federal program promoting large-scale strategies aimed at restoration of impaired waterways, such as those found in the Great Lakes and Chesapeake Bay, this jurisdictional patchwork complicates efforts to protect clean water in the Delaware River basin.

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.

Why Land Protection Matters

The best way to deal with water pollutants—including those from nonpoint sources—is to prevent them from entering the water at all. Intact forests and riparian corridors, particularly in headwaters and groundwater recharge areas, offer natural filtration and some of the most durable, resilient forms of water protection available.

The Delaware River watershed still has significant intact forest acreage, particularly in its headwaters. These forests, however, are being lost to development town by town because local jurisdictions manage most development without considering broader implications for the watershed. In fact, the watershed is losing, on average, more than 1,500 acres of forest cover per year.¹

In the face of increasing development pressure and with relatively limited resources, a focused approach to protecting the most critical forested watershed lands is essential. And despite all of the lands that have been protected to date, there's still more work to do:

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PROTECTING HEADWATERS

The Lehigh River—the Delaware River's second largest tributary—supplies drinking water to hundreds of thousands of people and provides excellent fishing areas and popular whitewater rapids. Forests and wetlands remain relatively abundant, but deforestation is a major concern. Poorly planned development has become a significant stressor. This is one example of an issue that is playing out across the watershed.

Our most recent estimates suggest that securing clean water throughout the basin will require permanent protection of a minimum of 350,000 more acres of forest, primarily in headwaters and riparian corridors, at a cost of about \$1.75 billion.

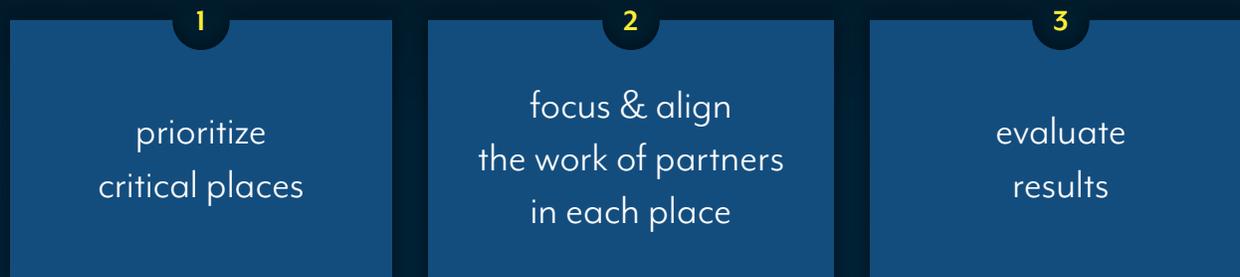
1. Five-year average calculated from the 2016 National Land Cover Dataset, including deciduous, evergreen, and mixed forest classes. Photo: Ben Ferenchak. "From the Falls - Jim Thorpe, PA." 17 Oct 2010. Online image. Flickr. 17 Sep 2014.



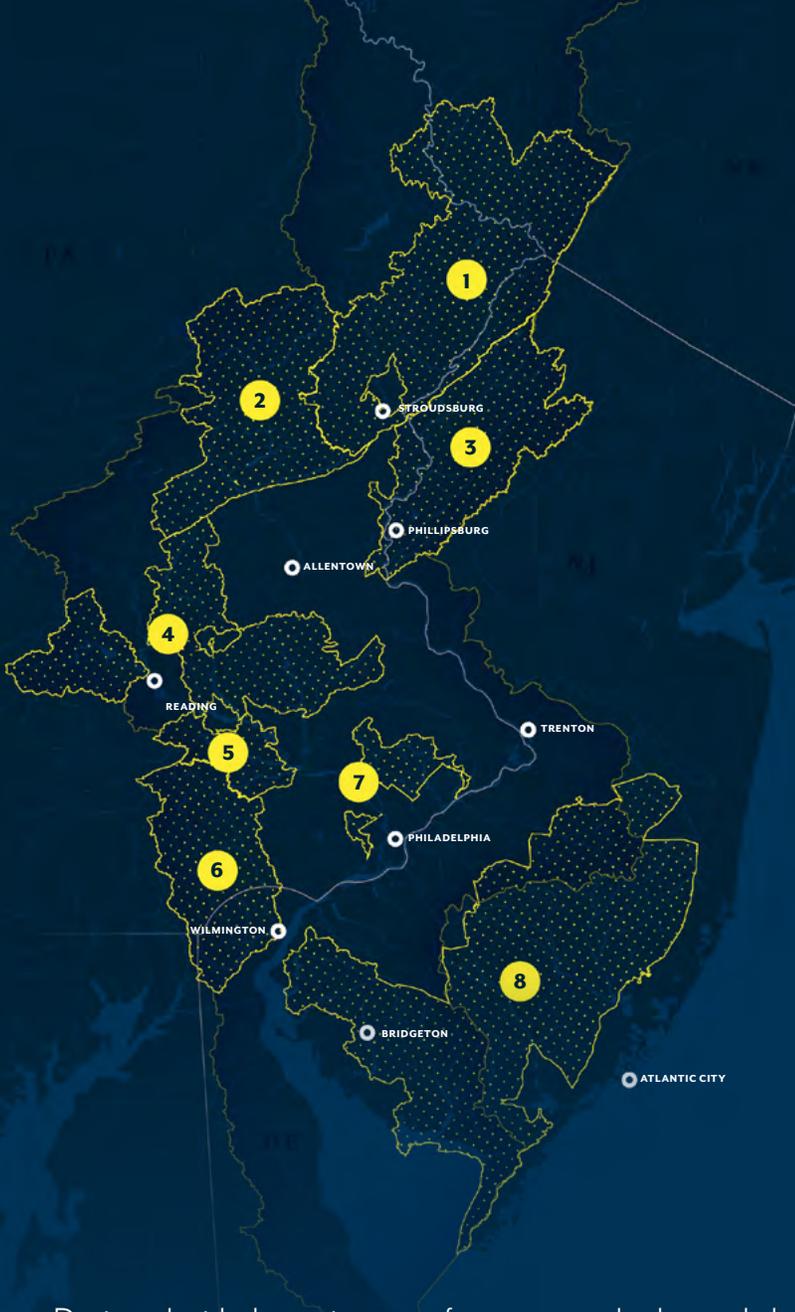
The Schuylkill River

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:



As part of this approach and focusing on land protection specifically, our goal was to demonstrate an effective way for land trusts and watershed associations – which often have an array of interests when it comes to protecting land – to strategically preserve natural lands 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

Designed with the assistance of grantees and other stakeholders, we 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 protection is at the heart of the Initiative—along with restoration, 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 one or more of the nonpoint source threats to water quality we prioritized, all of which are based on land use: 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 Watershed Protection Fund

The Open Space Institute (OSI) administers the [Delaware River Watershed Protection Fund](#), which is a competitive re-grant process that distributes capital for all land protection projects within the Initiative. Separately, direct grants from the Foundation support outreach and related work associated with protecting these acres.

Through the fund, OSI provides three types of grants:

- 1 Capital Grants** for the purchase of land and easements to permanently protect important watershed lands;
- 2 Transaction Grants** to jump-start land conservation efforts; and,
- 3 Catalyst Grants** to integrate water quality science into open space and other regional plans to accelerate watershed protection by state, county, and municipal governments.

The Fund also makes short-term **Low-Interest Loans** to bridge gaps in public or private funding for land protection projects.

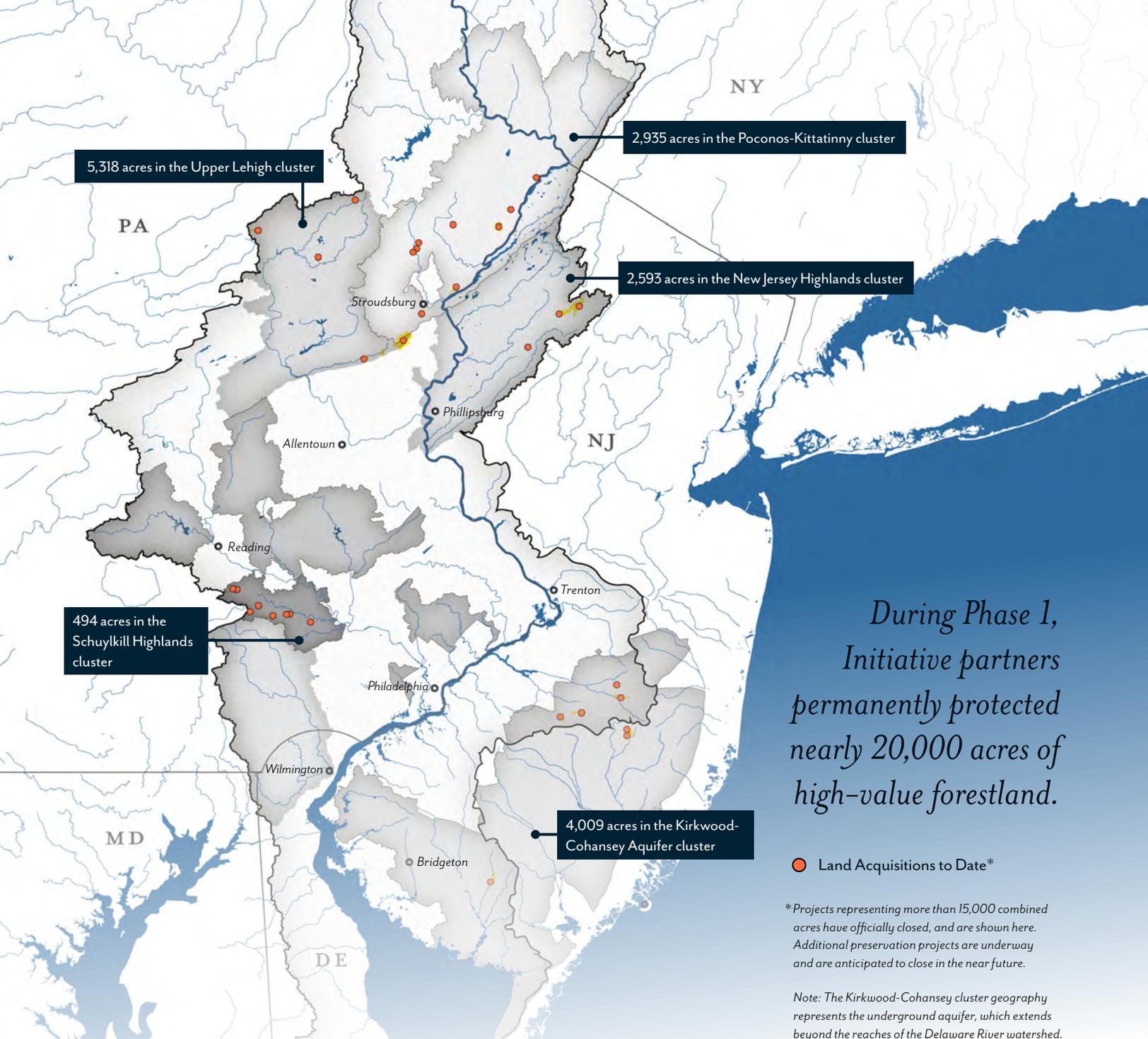
\$21 MILLION

in capital invested by the William Penn Foundation through the fund to date



Every dollar has leveraged almost \$7 in additional matching funds.

Capital is provided by the William Penn Foundation and re-granted by OSI to specific land protection projects in the clusters with action plans focused on preserving critical lands for water quality. OSI accepts funding applications on a rolling basis and assesses them according to a variety of criteria, including the location of the land, how much of it is in a natural forest state, and proximity to the basin's headwaters.



During Phase 1, Initiative partners permanently protected nearly 20,000 acres of high-value forestland.

● Land Acquisitions to Date*

** Projects representing more than 15,000 combined acres have officially closed, and are shown here. Additional preservation projects are underway and are anticipated to close in the near future.*

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

Initiative Achievements

During the first phase, from 2014–2017, Initiative partners permanently protected nearly 20,000 acres of high-value forestland. Since 2018, Phase 2 of the Initiative has been underway, and our grantees are making progress toward the goal of reaching an additional 30,000 protected acres by 2021.

In addition to strategic protection of thousands of acres in prioritized sub-watersheds, Initiative partners, led by the Academy of Natural Sciences, Stroud Water Research Center, and others, developed mapping and modeling tools that are used to identify lands most capable of protecting clean and abundant water.



*Protecting forestlands
is critical—but not all
forestland is created equal.*

What We're Learning

During a formative evaluation at the end of Phase 1, we identified the need to better define and quantify the implicit value of protecting land to preserve water quality. We made a \$1.5 million grant to OSI for land protection “impact assessment” research – the funding helped to develop modeling tools that would allow us to quantify the amount of pollution avoided by protected lands, taking into consideration the likelihood that those lands would have been developed in the near future. We are currently using these tools to understand which lands are most threatened by development and which can contribute most benefit to protecting water quality. These and other insights inform the prioritization process for future acquisitions supported by OSI’s fund.

We also learned that protecting forestlands is critical – but not all forestland is created equal in terms of impacting nearby stream health. In order to understand the impact of these protections, we have established monitoring sites and protocols on each parcel of protected land. We expect to see little to no change in water quality over time in those places, as protected forested acres prevent future pollution from entering the water.

Finally, in order to put the land protection work of the DRWI in full context, we need to understand what the need is across the entire basin for protecting forests to safeguard water. We are taking steps to support more comprehensive research to this end.

Looking Ahead

Our grantmaking acknowledges that efforts to address loss of headwater and streamside forests must focus limited capacity and funding on areas most critical to protect to assure clean water. By developing an approach based on prioritization of lands within targeted sub-watersheds, the Initiative aims to make incremental progress over time, modeling effective strategies in focused locations to demonstrate impact. Looking ahead, our goal is to encourage Initiative participants, including NGOs and public agencies, to use the methodologies and tools that we are helping to develop as a foundational part of all of their conservation work, including beyond the Initiative. 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.

“We are continually developing, refining, and improving the way we prioritize land acquisitions. 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

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