

NATURE

PENNSYLVANIA

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Doing Good Downstream

The Chesapeake Bay watershed is only as healthy as the rivers and streams draining this 64,000-square-mile watershed spanning six states. Since more than half of Pennsylvania—including the Susquehanna River—lies within the watershed, our state has an enormous responsibility for what flows downstream, including pollution and excess nutrients flowing from cities, industries and farms. With this in mind, we are working with farmers and agri-businesses to promote practices to improve water quality in streams and rivers, and ultimately in our nation's largest estuary.

Bill Kunze

Bill Kunze
Pennsylvania Executive Director
The Nature Conservancy



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Pennsylvania Agriculture Partnering to protect food and water

Agriculture is part of Pennsylvania's heritage and fuels the state's economy. It also represents the largest source of nutrient and sediment pollution entering the Chesapeake Bay. In response, The Nature Conservancy is working as part of a statewide alliance of farmers, agribusinesses, government agencies, researchers and conservationists seeking science-based practices that safeguard lands and waters and assist local growers with meeting the rising demand for food.

This collaborative effort centers around the 4Rs of Nutrient Management: “the *right* source of nutrients are applied at the *right* rate at the *right* time in the *right* place.”

“The Pennsylvania 4R Alliance equips farmers with knowledge and tools necessary for keeping sediment and nutrients on the land for growing crops and out of local waterways,” says Katie Turner, who was hired as the Conservancy's first agricultural program manager in the state.

Turner and others, including Pennsylvania's Secretary of Agriculture Russell Redding, witnessed the 4Rs firsthand during a recent tour of GROWMARK FS, a regional fertilizer company based in East Berlin that offers precision agriculture tools and technologies that help farmers apply seed, lime, nutrients and manure exactly where and when they can be most effectively used in the field.

“Determining the precise amount of nutrients needed at targeted locations during specific times of year helps farmers operate in a more efficient and environmentally friendly manner,” says Dean Collamer, an agronomist at GROWMARK FS. “These actions help to ensure a thriving conservation and agricultural ethic we can pass on to future generations.”



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Acopian Preserve

Stream restoration benefits rural landscape

The Nature Conservancy's ongoing work with Pennsylvania farmers recently included restoring a stream that flows across a portion of its Acopian Preserve, a 108-acre pocket of nature nestled within rural Lancaster County.

"During the 1970s, the property's previous owner relocated and channelized the stream in order to drain wetlands for planting," says George Gress, the Conservancy's Acopian Preserve land steward. "This exacerbated flooding along a nearby road and compromised important wetland habitat. It feels good to return the landscape to a natural state."

The Conservancy and local partners transformed the straight, ditched channel, with its eroding banks, into a meandering stream that will be lined with native plants and trees. Part of the process involved physically moving wildlife—darters, crayfish, salamanders and even dragonfly larvae—downstream to avoid the impacts of construction.

"As a child, I slogged through mud and muck to find critters at the local creek," adds Gress. "Who knew that such skills would come in handy for a project like this?"

Project partners also moved rocks and gravel from the old stream to the new to provide habitat for the aquatic natives. Conservancy staff will monitor the health of the new habitat in months and years to come.

"This project demonstrates how improving wildlife habitat on our nature preserves also benefits water quality by capturing sediment and nutrients flowing from nearby fields," says Katie Turner, the Conservancy's agriculture program manager in Pennsylvania. "It is actions like this, collectively, that will make a big difference in our waterways and ultimately the Chesapeake Bay."

See For Yourself Visit nature.org/restoreacopian to watch the progression of this recent stream restoration!

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4Rs Plus More

The 4Rs of Nutrient Management serve as a checklist for assessing whether a crop has been properly fertilized to perform better, improve soil health, decrease environmental pollution and protect wildlife.

- ✓ **right** source of nutrient
- ✓ at the **right** rate
- ✓ at the **right** time
- ✓ in the **right** place

Building on momentum gained by the 4R Alliance, "4R Plus" expands beyond nutrient application to include reduced tillage, the use of cover crops, and the restoration of streams and wetlands to improve soil health and reduce erosion into local waterways. The Nature Conservancy's Acopian Preserve restoration project illustrates how the 4R Plus approach can improve water quality, while providing critical wildlife habitat.



© Courtesy/Katie Turner

Meet Katie Turner

"I look forward to bringing 4R nutrient management principles to farmers around the state in hopes they might be widely adopted as standard practice. It is exciting to use my background and experience in soil science to help make the world a better place."

Learn more about Pennsylvania's new agriculture program manager at nature.org/katieturner.