ALLEGHENY WINs

"WATERSHED IMPROVEMENT NEEDS"

COALITION

ANNUAL REPORT 2012

WINs COALITION MISSION:

To promote protection, restoration, and habitat improvement activities in watersheds that lie entirely or partially in the Allegheny National Forest to achieve Forest Service and community needs through collaboration and partnership

Table of Contents

Cover photograph: Minister Creek by Alex Vallejo. Five miles of this stream located in Forest and Warren counties, are managed under the Wild Brook Trout Enhancement program. Fishing is open all year round; there are no tackle restrictions, but no brook trout may be killed or had in possession.

What is Allegheny WINs?

Northwestern Pennsylvania is fortunate to have many miles of high quality streams and rivers. The Allegheny River, a federally designated Wild and Scenic River, is the centerpiece of the half-million acre Allegheny National Forest. The Allegheny and its major tributaries, Tionesta Creek and the Clarion River, are well known for their recreational value and high quality fisheries. Healthy populations of sport fish such as trout, bass, walleye, muskellunge, and pike share these waters with rare and endangered species of turtles, mussels, amphibians, invertebrates, and fish. Rich riparian zones provide feeding areas, nesting sites, and travel corridors for waterfowl, birds of prey, and other wildlife. Thousands of miles of smaller streams are home to our state fish, the Eastern Brook Trout.

The scenic waters of the Allegheny region appear to run clean and pure, and, in fact, some are now in better condition than they were decades ago. The Allegheny River, Clarion River, and Tionesta Creek each support healthy fisheries, which was not always the case. From the late 1800's through the mid-1900's, the rivers were spoiled by pollution from pulp mills, tanneries, mines, intense oil and gas exploration, and timber harvests. As these industries faded, conservation measures were implemented, and the waters began to heal and recover.

Unfortunately, new threats have arisen to, again, threaten our waters. Impacted by decades of acid rain and industrial pollution, the region's aquatic ecosystems are now being stressed by booms in oil and gas development and outdoor recreational activities. The number of miles of impaired streams is steadily increasing in the region, with some of the most vulnerable being our smaller headwater tributaries. These first and second order streams provide important habitat for fish and wildlife, and ensure that clean water flows to downstream communities by controlling sediment and nutrient loads. They also stabilize flows by retaining water during storm events and releasing it slowly over time and maintain a base flow during drier periods.

Because their natural buffering capacity is weak, the region's freestone streams are vulnerable to acid deposition. An acid rain event can immediately lower the pH in streams and virtually eliminate aquatic invertebrates and fish in large sections of streams.

Streams affected by acid deposition often suffer from increased sedimentation as well. An extensive network of dirt and gravel roads overlays the entire WINs area. Over 2,000 miles of oil and gas access roads and 1,200 miles of Forest Service roads penetrate even the most remote corners of the National Forest. The native sandstone material used to construct these roads is comparatively soft, breaks down easily under traffic, and readily erodes into adjacent streams. As a result gravel stream bottoms, which are vital for fish reproduction, become embedded with mud and sand. Aquatic invertebrates, a primary source of food for fish, are also unable to survive under these conditions. The result is a loss of critical habitat for coldwater species and a reduction in overall productivity of the stream. Sensitive species like trout have to migrate up into smaller tributaries or downstream into larger waters to survive.

Other issues related to dirt and gravel roads include elevated stream temperatures and poorly placed culverts and road crossings that act as barriers to fish passage. Several of the region's remote streams that once held healthy populations of brook trout have become degraded because of these problems.

Most of the streams across the region lack habitat complexity normally associated with large wood. Because historic logging activities tended to remove debris from stream channels the current habitat is largely defined by high frequencies of riffle and glide features with few pools. Since pool habitat is important for aquatic organism survival and propagation, streams in the region may not fully meet Pennsylvania designated protected water uses due to the lack of adequate aquatic habitat in the form of pools.

Best management practices now encourage the protection of riparian areas by leaving stream buffers and limiting activity. In response to these policies, riparian areas are reaching an age where they are beginning to contribute large wood (e.g. small trees, limbs, and trees affected by mortality and wind throw) to stream channels. Large wood will help recover the ecological processes and instream functions such as storage of sediment and coarse organic matter in small tributary streams and the creation of larger, deeper pools. It will take several more decades of careful riparian area stewardship before these ecological processes are fully affecting larger fish-bearing streams.

Normally, healthy aquatic systems will adjust to stress caused by changes in the environment. However, when those changes occur too quickly a system becomes unstable and results in degradation. This has been the case in and around the Allegheny National Forest. The situation demands greater protection of healthy and pristine watersheds and the restoration of others.

In summary, the main environmental problems affecting Allegheny watersheds include:

- Atmospheric deposition
- Sedimentation, erosion, and in-stream habitat degradation from sandstone based roads used for timber and oil and gas well access
- Fish barriers and habitat degradation around culverts, crossings, and dams
- Lack of in-stream habitat for fish

In an economically active and large geographic area like the Allegheny, these problems can be overwhelming for any single government agency or organization. To address the issues and find solutions, a group of like-minded non-profit organizations, private individuals, and government agencies decided to join forces and build a coalition. The common thread that binds the partners of this coalition is an interest in developing and promoting watershed restoration activities.

The Allegheny Watershed Improvement Needs Coalition (WINs) was formed in April 2007; its mission **"to promote protection, restoration, and habitat improvement activities in watersheds that lie entirely or partially in the Allegheny National Forest to achieve Forest Service and community needs through collaboration and partnerships."** The group's main focus is developing and implementing projects to protect and restore watersheds and aquatic ecosystems. This includes outreach and educational activities targeting rural communities and youth as a means of preventing problems from occurring in the future. Since its inception, the Coalition has demonstrated a high degree of success; this report documents those accomplishments.

Allegheny WINs is governed by a steering committee made up of representatives of municipal, county, state and federal government agencies, and leaders of various non-profit organizations such as the Western Pennsylvania Conservancy, Trout Unlimited, and local watershed organizations. The group meets bi-monthly at locations throughout the forest.

Where is Allegheny WINs?

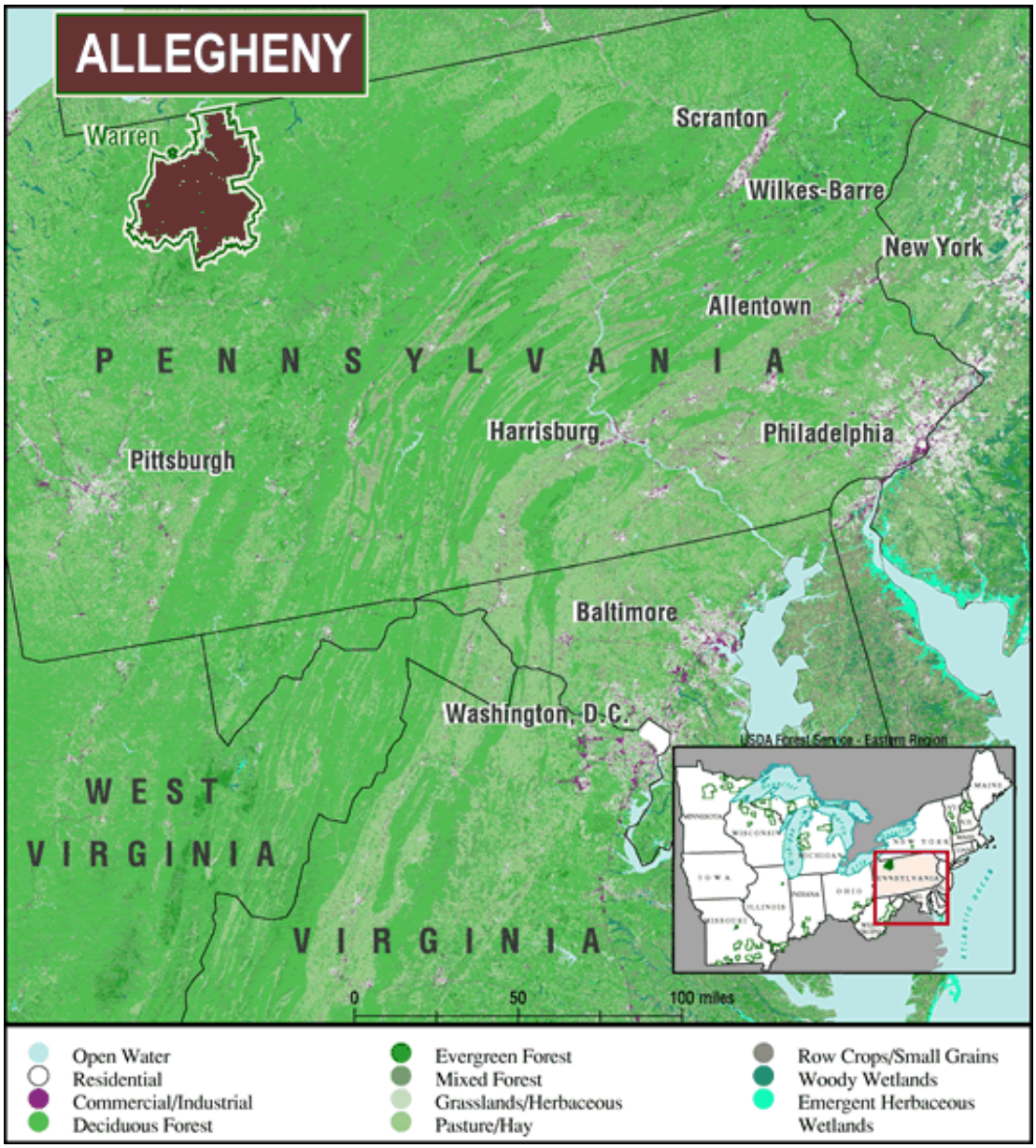
2500 Square miles

Over 600,000 Acres of public land

2000+ River and stream miles

14 Major watersheds

3500+ Miles of dirt and gravel roads



Map courtesy of US Forest Service

Allegheny WINs projects can be found on the half-million acre Allegheny National Forest, on neighboring State Forests, on State Game Lands, and on private lands in Northwestern Pennsylvania.

The Allegheny National Forest is within a day's drive of 1/3 of the nation's population.

Upper and Middle Allegheny River Watershed Projects

Allegheny Reservoir Fish Habitat Improvement Projects

Partner/Sponsor: Kinzua Fish and Wildlife Association

For nearly thirty years, the Kinzua Fish and Wildlife Association, along with its partners, the US Forest Service, and the US Army Corps of Engineers have worked cooperatively to improve fish habitat in the Allegheny Reservoir.

To date over 30,000 items have been placed in the reservoir to improve fish habitat:

- 10,120 tires
- 26, 994 Christmas trees
- 1,271 porcupine crib seniors
- 755 porcupine crib juniors
- 64 bass nesting boxes
- 76 catfish nesting boxes
- 30 stone reefs and
- 6 ambush cribs

595 Christmas trees and 44 porcupine cribs were placed in the reservoir in 2012

Allegheny Reservoir Cleanup - Eighth Annual

Partner/Sponsor: US Forest Service

The eighth annual Allegheny Reservoir Cleanup took place on Saturday, May 12, and was a cooperative effort involving the US Forest Service (USFS), Pennsylvania Fish & Boat Commission, US Army Corps of Engineers, Warren County Adult Probation and Parole, Cornplanter Chapter of Trout Unlimited, and six other community organizations.

In total, 88 volunteers and employees donated 704 hours collecting trash from:

- 26+ miles of shoreline from SR59 south to Red Bridge
- Longhouse Scenic Drive (11.3 miles) and SR321 (4.6 miles)
- (5) campgrounds and (5) boat launches: Dew Drop, Elijah, Kiasutha, Morrison, Red Bridge, and Dunkles Corners
- Kinzua Wolf Run Marina, Kinzua Beach, Kinzua Point Information Center, and USACE Kinzua Dam Visitors Center

Ken Anderson keeps a close eye on volunteers sorting trash.

Five cubic yards of trash, (8) 30-gallon bags of plastics, (20) 5-gallon buckets of glass, 14 tires, and >2,000 lbs. of metal were collected from public lands and recycled.

Now in its eighth year, the positive effects of the annual Reservoir Cleanup have become very apparent. As a result of this annual community conservation "event" the shorelines and waters of the Allegheny Reservoir are much safer and cleaner places for the wildlife and recreationalists who use them.

Allegheny River and Conewango Creek Cleanups - Fourth Annual

Partner/Sponsor: US Forest Service and the Conewango Creek Watershed Association

The fourth annual Allegheny River and Conewango Creek Cleanups was a huge success resulting in tons of trash being dragged from our beautiful Wild and Scenic River.

Muddy volunteers pull a 15 ft. boat trailer from the Allegheny River

In total, 372 volunteers donated 3,056 hours removing trash from 39 miles of the Allegheny River, 18 miles of Conewango Creek, and 5 miles of Brokenstraw Creek. For the first time, this year's cleanup included the 8-mile section of river between Tidioute and West Hickory.

The cleanup yielded over 36 cubic yards of trash, plus 12,600 pounds of metal, and 132 tires. In addition (37) 5-gallon buckets glass and (23) 13-gallon bags of plastic were sorted and recycled. Items of interest included a 340 lb. train car knuckle, 50 ft. of guard rail, 15 ft. boat trailer, 8 ft. rubber raft, 25 ft. radio tower, 10 ft. wooden picnic table, 24 ft. oil boom ……and the list goes on and on!!

Tires and metal gathered from the river, sorted, and recycled

Planning for the fifth installment of this annual community conservation event has already begun. New volunteers and new ideas are welcome. Visit www.alleghenyrivercleanup.com to get involved.

Anders Run Natural Area Trail Improvement Project

Partner/Sponsor: United States Forest Service, DCNR, Student Conservation Crew

During the summer of 2012, in a cooperative inter-agency effort, the Allegheny National Forest offered the services of their Student Conservation Crew (SCS) to the Cornplanter Forest District to complete trail re-routing and improvement work at the Anders Run Natural Area. This state forest natural area, located in Brokenstraw Township, Warren County, covers approximately 100 acres and contains Anders Run, a high quality stream that is home to several species of special concern. The area is also known for the large white pine specimens that are among the largest in Pennsylvania and the eastern US. The site exhibits characteristics that are consistent with old growth forests.

The original trail system at Anders Run was laid out along the hillsides as the area lies within a steep valley. As a result of the steep hillsides, the original trail system, which was not designed with environmentally sensitive features, frequently experienced erosion and was difficult for hikers to traverse. With Anders Run in close proximity to the trail, the stream often collected excessive soil coming off of the trail system. A thorough review of the trail system revealed that enhancements, in the form of re-routing and trail surface improvements, were needed.

Newly reconstructed trail in the Anders Run Natural Area.

The Forest District removed obstacles and brush where the new trail system was to be located and the four-person Student Conservation Crew began work during the last week of July. The SCS "cut" new portions of the trail along the hillsides using switchbacks to ease the grade and eliminate the trail's original mostly vertical design. Switchbacks significantly reduce erosion, allow for easier hiking, and reduce maintenance. The SCS also placed gravel on portions of the trail needing additional stability and re-marked the trail system according to the Bureau's updated marking guidelines. The portions of the trail system that were decommissioned were stabilized and blocked with brush and logs to discourage future use.

This project could not have been completed without the efforts of the Student Conservation Crew and the Forest District appreciates the inter-agency support of the Forest Service for the services of their crew.

Big Bend Recreation Area

Partner/Sponsor: US Army Corps of Engineers and Allegheny Outdoor Club

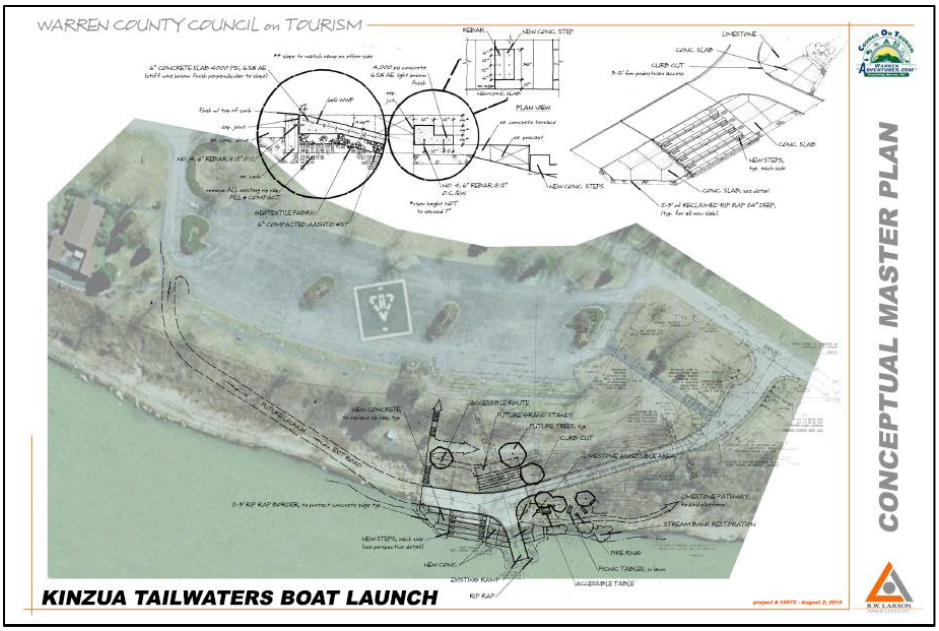
The goal of this project is to make continuous improvements to the Big Bend Recreation Area (BBRA) for the purpose of making the site a premier tourist attraction in the Commonwealth. It already draws tourists from across the United States, Canada, and around the world with its wide, sweeping views of the Kinzua Dam whitewater outflow and the northern terminus of the Wild and Scenic Allegheny River.

Project partners include the US Army Corps of Engineers, US Forest Service, Allegheny Outdoor Club, WINs Coalition, Warren County Chamber of Business and Industry, Warren County Council of Tourism, Penn Soil Resource Conservation and Development Council, and Allegheny Outfitters.

In 2009 the partners completed construction of a bird-viewing platform and Riverside Watchable Wildlife Trail at the BBRA. Visitors enjoy an enhanced view of many different birds including bald eagles, ospreys, mallard ducks, mergansers, and blue herons.

Downstream view from Big Bend Recreation Area bird-viewing platform

In 2011 improvements to the existing boat launch were begun with the addition of four new concrete steps to make access to the water safer and more efficient. The construction of concrete slabs, to replace the existing riprap, is planned for spring 2013.



McKean County Fish Habitat Improvement Projects

Partner/Sponsor: McKean County Conservation District

Since 2007 the McKean County Conservation District (MCCD) has completed 66 stream bank restoration projects throughout McKean County by utilizing multi-log deflectors, single-log deflectors, modified mud sills, bank fill benches, rock cross vanes, log cross vanes, rock vane deflectors, bank cover cribbing, root wad deflectors, and 180 tons of rip-rap through a partnership with the Division of Habitat Management of the PA Fish and Boat Commission (PFBC) and the Allegheny National Forest (ANF).

Before and after the installation of a 100 ft. mudsill and root wad deflectors on Kinzua Creek

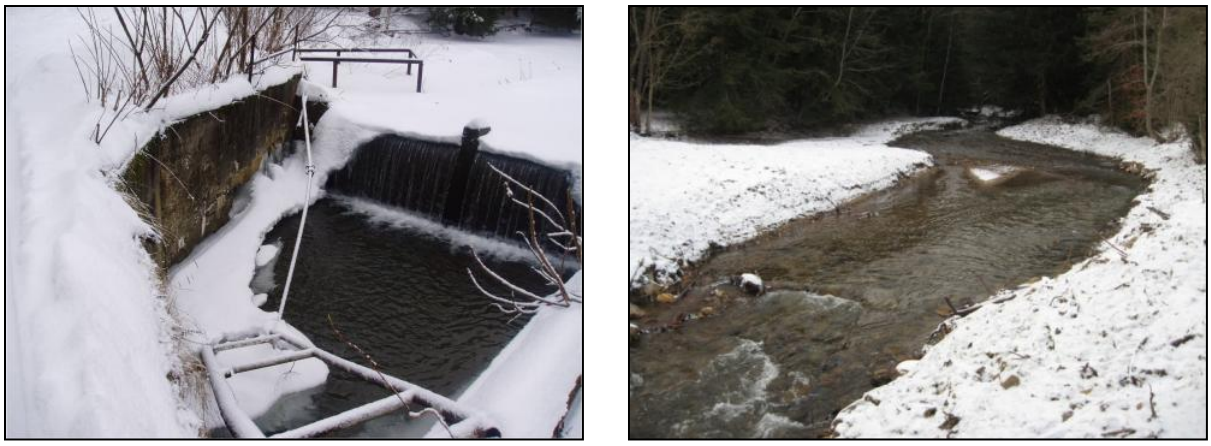
These projects have stabilized approximately 11,200 feet of stream bank, creating two miles of riparian area by planting 900 shrubs and preventing an estimated 825 tons of sediment from entering the waters of the commonwealth. Funding for this initiative was secured from the following sources: Pennsylvania Department of Environmental Protection (DEP) Growing Greener II County Environmental Initiative Grant, $150,000, DEP Stream Improvement Program, $117,020.48, PFBC Sinnemahoning Watershed Grant Program, $255,000, D Sinnemahoning Grant, $38,674, and Casella, $52,300, to satisfy a DEP permit condition.

In 2012, MCCD completed 21 stream bank stabilization and habitat improvement projects. These projects were implemented through the MCCD's Stream Bank Stabilization Initiative and funded through the PFBC Sinnemahoning Watershed Grant Program and Two Mile Watershed Renaissance Growing Greener Grant. Partnering with PFBC Division of Habitat Management, MCCD staff worked with multiple contractors to install numerous structures. Project locations spanned much of the county including Kinzua Creek, Lillibridge Creek, Marvin Creek, Sugar Run, Willow Creek, Potato Creek, and the Allegheny River.

Morrison Run Watershed Restoration Project

Partner/Sponsor: Cornplanter Chapter of Trout Unlimited, Western Pennsylvania Conservancy, Warren County Conservation District, PA Fish and Boat Commission, US Forest Service, and private landowners

Morrison Run is classified as an Exceptional Value stream by the Pennsylvania Department of Environmental Protection and holds a good population of native brook trout. It is also a major tributary to Browns Run and ultimately the Allegheny River, which is a federally designated Wild and Scenic River. The forests and waters of the drainage are recovering from decades of past exploitation from unsustainable timber harvest and industrial development. Today the watershed is prized by the local community for its recreational resources, timber base, and native brook trout fishery.



Morrison Run before and after removal of a low-head

The goal of the Project is to restore and improve riparian and in-stream habitat along Morrison Run through the reduction of sedimentation, rehabilitation of riparian areas, and removal of fish passage barriers from the main stem.

Specific objectives of this project include:

1) Expanding the range and numbers of the native brook trout populations, currently confined to isolated pockets throughout the drainage
2) Eliminating four fish passage barriers from the main stem
3) Decommissioning or hardening two fords on the main stem
4) Reconstructing portions of FR156 to improve drainage and reduce sedimentation
5) Improving and promoting recreational opportunities (e.g., fishing) in the drainage.

In fall 2011, the lower dam on Morrison Run was removed to restore fish passage and reconnect isolated populations of native brook trout that are naturally reproducing in the watershed. In October 2012, the PA Fish and Boat Commission drafted a design for fish habitat improvements and stream bank stabilization structures to be installed in the stream within the former impoundment area behind the dam. Those restoration efforts have been funded and will be implemented in the summer of 2013.

In June 2012, a rock ramp was installed below the railroad trestle just downstream of the former lower dam, to further improve passage from the mouth of Morrison Run upstream to the last remaining passage barriers - the upper dam and FR 156 crossing.

Morrison Run before and after construction of an engineered rock ramp designed to facilitate aquatic organism passage through a historic railroad viaduct

Several funding applications were submitted to address those two barriers in 2013. Once complete, fish passage will be restored throughout the entire Morrison Run watershed.

Partners in the project include the Cornplanter Chapter of Trout Unlimited, Western Pennsylvania Conservancy, Warren County Conservation District, PA Fish and Boat Commission, US Forest Service, and four private landowners.

South Branch Kinzua Creek Acid Remediation Project

Partner/Sponsor: Pennsylvania Fish and Boat Commission and US Forest Service

Acid precipitation is negatively affecting streams throughout the Allegheny National Forest (ANF). Over time, chronic acidification leaches base ***cations*** (positively charged ions) from soils and decreases a watershed's natural buffering capacity. Eventually, changes in the watershed's soils are manifested in stream water quality degradation: pH and alkalinity levels decrease and dissolved aluminum levels often rise to a point where a stream can no longer support a healthy aquatic community.

In 2005 a study comparing soil samples from 1967 and samples collected between 1997 and 1999 found that watersheds in and around the ANF are becoming more acidified due to a significant reduction in base *cations*.

South Branch Kinzua Creek (SBKC) Acid Remediation Project (a.k.a., "The Road to Brook Trout Recovery") included construction of innovative alkaline road runoff channels (ARRC), which were completed in concert with routine Forest Service road maintenance.

The ARRC's supply buffering capacity to the watershed via the road ditch lines. Buffering materials included in roadside channels serve as a means of adding alkalinity during rain and snowmelt events, using the road and its storm water system as a passive treatment system. CDGR designed the road segments and Dr. Rachel Brennan, Penn State University (PSU), analyzed the Acid Neutralizing Media, limestone sand and crab shell chitin, to be used within the passive treatment systems.

Alkaline road runoff channel in road ditch lines along Forest Road 279 to supply buffering capacity to tributaries of South Branch Kinzua Creek.

Construction was completed in July 2009 with several sections of Forest Road 279 resurfaced using a limestone based Driving Surface Aggregate (DSA). In addition, roadside ditches were retro-fitted with passive treatment systems containing either limestone sand or crab-shell chitin as treatment media.

In the summer 2011, USFS and PFBC used stewardship contracting and Eastern Brook Trout Joint Venture funding to construct 10,000 feet of new ARRC's passive treatments were constructed in one tributary of the SBKC watersheds. Almost 400 tons of limestone sand were placed in ditches 12" wide and 4 to 6" deep. Additional materials were placed on 1800 feet of the existing ARRC's originally constructed in 2009 to bring them up to specification and improve performance. Finally, road surfaces were improved by placing limestone DSA at select locations within 300 feet of stream crossings. DSA also provided the added benefit of reducing sedimentation from road surfaces near stream crossings. A total of 7800 feet of limestone DSA (3572 tons) was applied to Forest Roads 279, 279G, 279H, 295, and 587 at 13 perennial, intermittent, or ephemeral stream channels.

Biological and water quality monitoring efforts continue with the assistance of the McKean County Conservation District, Clarion University of Pennsylvania, Western Pennsylvania Conservancy, and WINs Coalition volunteers.

The results have been promising. Improvements in water quality have been documented in each of the treated stream reaches. Alkalinity and pH levels rose sharply and then leveled off to adequate levels during the first year following treatment.

Water quality parameters show sustained improvement in all treatment reaches. Brook trout young-of-the-year production has begun in two of three treatment reaches. Two native minnow species have re-colonized one treatment reach. Brook trout *redd* surveys documented spawning effort in treatment reaches.

South Branch Kinzua Creek Stream Connectivity and Road Decommissioning

Partner/Sponsor: US Forest Service

In conjunction with the alkalinity remediation, four Forest Road 279 stream crossing were replaced to allow for aquatic organism passage. All four crossings were in-stream barriers that prevented fish and other aquatic organisms from moving upstream to available habitat. As a result of the project fish, including eastern brook trout, are now able to access two additional miles of stream.

Aquatic organism passage restored on a tributary to SBKC

A fifth aquatic organism barrier was eliminated when ½ mile of FR485 was decommissioned and recontoured to the natural topography of the area.

Key Partners included Center for Dirt and Gravel Roads, McKean Co. Conservation District, Penn. State University, Clarion University of Pa., Western Pa. Conservancy, and the Cornplanter Chapter of Trout Unlimited.

Sugar Run Stream Connectivity and Road Decommissioning Project

Partner/Sponsor: US Forest Service and US Fish and Wildlife Service

In 2012, two aquatic organism passage (AOP) projects were eliminated from Sugar Run, a High Quality Coldwater drainage. Tributary to the Allegheny Reservoir, the watershed holds a good population of native brook trout.

On Shingle Mill Run an Eastern Brook Trout Joint Venture grant and a USFS stewardship contract were utilized to eliminate a historic fish passage barrier. An existing, undersized culvert was replaced with a bottomless arch culvert reconnecting approximately 2 miles of habitat for native brook trout.

BEFORE: Aquatic organism passage barrier culvert on Shingle Mill.

AFTER: A new bottomless culvert installed in 2012 to accommodate aquatic organism passage on Shingle Mill.

The second portion of the project involved the decommissioning of Forest Road 182 in July 2012. An AOP barrier was eliminated when the FR 182 crossing was removed from the mainstem. Approximately one mile of road was decommissioned and recontoured with the natural topography.

FR 182 has been re-contoured and planted with trees to fully decommission this road.

During the FR 182 decommissioning a culvert was removed to restore aquatic organism passage on Sugar Run.

Pre-project fish surveys were completed (2009 – 2011) and post-project surveys are ongoing.

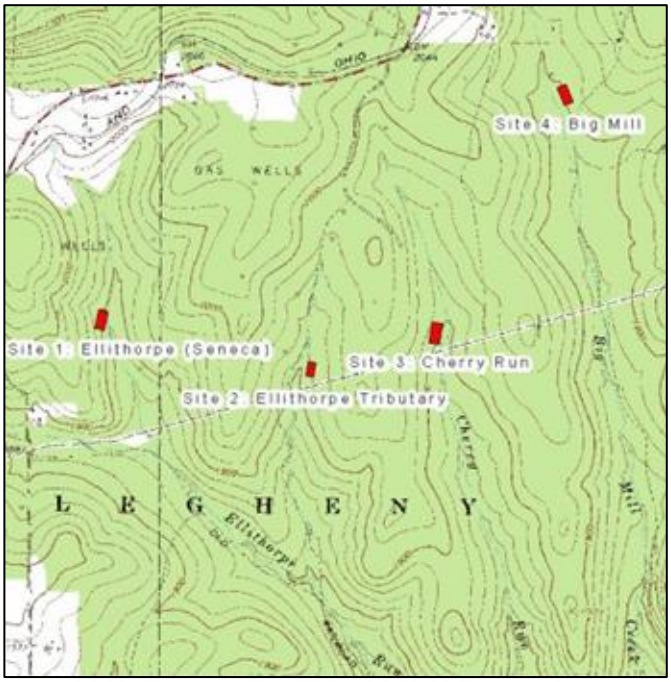
Clarion River Watershed Projects

Big Mill Creek Watershed Restoration Project

Partners/Sponsors: Elk County Freshwater Association and Elk County Conservation District

The Elk County Conservation District (ECCD) and the Elk County Freshwater Association (ECFA) are proud to report that the Big Mill Creek Watershed Restoration Project was completed in December 2011. Post project monitoring is ongoing!

Big Mill Creek is located in Elk County, PA, and is a tributary to the Clarion River. Historically, the watershed supported a population of wild brook trout and large numbers of stocked trout (Brown, Brook and Rainbow). Unfortunately, Pennsylvania Fish and Boat Commission records dating back to the 1940's reveal over time the long-term acidification of Big Mill Creek and its tributaries have resulted in marked decline in fish populations.



Locations of (4) Passive Treatment Systems constructed in the headwaters of Big Mill Creek

With the help of many partners, the group installed four Passive Treatment Systems (PTS) on the headwaters of Big Mill Creek and several tributaries where acidification effects were most severe. The project was complete in 2011.

Funding for all four projects was obtained by ECCD/ECFA from various sources including a County Environmental Initiative Grant, The Stackpole-Hall Foundation, Foundation for PA Watersheds, The DEP Growing Greener Program, and the DCNR Community Conservation Partnerships Program (C2P2) totaling approximately $1.1 million. In-kind services were provided by the ECCD, ECFA, USFS, and Dietz-Gourley Consulting.

Each PTS is a combination system utilizing aerobic limestone basin (AeLB) and anaerobic vertical flow wetland (AVFW) that are diverts, treats, and returns portions of the flow to the stream. The treated then water contains elevated alkalinity sufficient to mitigate both chronic and episodic acidification in the tributaries with the combination of projects preventing episodic acidification in the lower Big Mill Creek; maintain base flow pH > 6.5 and storm flow pH > 6. In total, the four systems will restore water quality and aquatic health for >20 miles of stream.

1st - Water being diverted from the stream channel enters the treatment system through an intake pipe

2nd – Water enters the first pond (aerobic limestone basin) where it flows through limestone and begins chemical reactions that will neutralize its acidity.

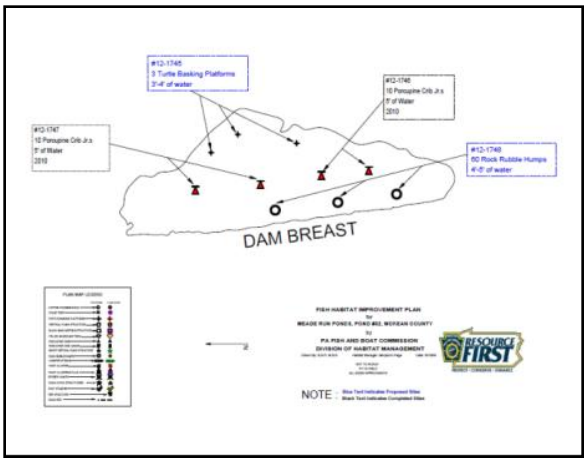
3rd – Partially treated water flows into a second pond (anaerobic vertical flow wetland) lined with limestone and a mushroom compost substrate, where additional alkalinity is generated through dissolution and bacterial sulfite reductions.

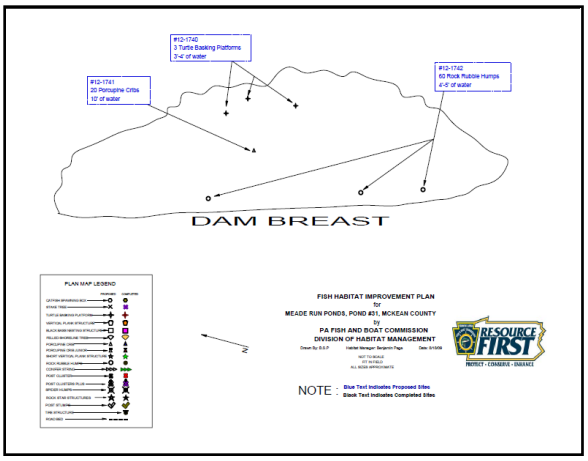
4th - Treated flows back into the stream channel where the alkaline based water mixes with the calciteun treated acidic water, thus neutralizing the water that bypassed the system.

Meade Run Ponds Project

Partner/Sponsors: PA Fish and Boat Commission, PA Game Commission, US Forest Service, Mt. Jewett Sportsmen's Club, and the Boy Scouts

USFS Bradford District received funding from the Sinnemahoning Creek Watershed Restoration Grant to replace/repair outflow boxes and intake pipes that control water levels at three impoundments known as the Meade Run ponds. While the ponds were lowered for repairs, the grant funds were used to install 21 duck boxes, to install fish structures (rock rubble humps, ACQ posts for vertical structure, porcupine cribs), improve and/or re-surface access for fisherman, install osprey nesting platforms, install turtle basking platforms, and reshape and/or reseed the dam breasts.

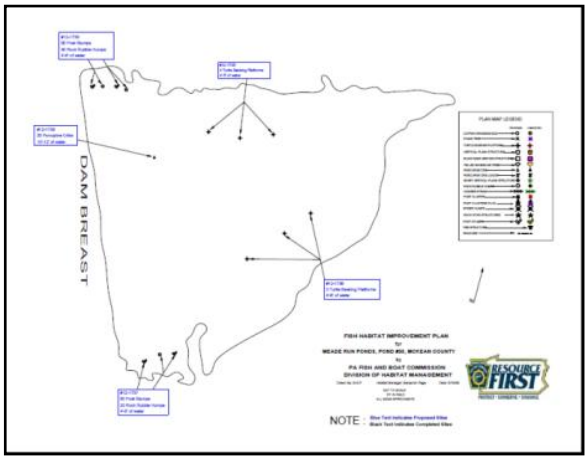




Presently, partners have installed 21 duck boxes, fish structures through 200 posts and 180 tons of R4 riprap, two osprey nesting poles and a perch pole, 65 porcupine cribs in two of the three ponds, repaired/reseeded the dam breasts, installed culverts, surfaced entry ways to ponds and have begun surfacing the parking areas.

In 2012 the Mt. Jewett Sportsmen's Club held a work day and built the remaining porcupine cribs on the third pond. The Boy Scouts also built and installed several turtle basking platforms.

Funds were used to purchase supplies and rent equipment. Partner work days were scheduled to complete habitat projects. The project is ongoing through 2012.



Ross Run Fish Habitat Improvement Project

Partner/Sponsor: Pennsylvania Fish and Boat Commission (PFBC), Kellettville Sportsmen's Club, US Army Corps of Engineers (USACE), and Collins Pine Company

In August of 2012, Kellettville Sportsman's Club (KSC) and PFBC started the fourth phase of what now is a five year plan. The Ross Run fish habitat improvement project is located in Kingsley Township, Forest County. This year's project was located immediately downstream of last year's project and involved the placement of log and stone devices within a 400 foot reach of the main stem. The fourth phase was not completed, but will be completed in August 2013 to complete the five year plan. A new design may be considered to continue the partnership and install fish habitat throughout the entire kids' section.

There were approximately 30 club members who provided volunteer labor and were supported by other partners including, Collins Pine Company, Trout Unlimited, and US Army Corps of Engineers.

Log devices placed in Ross Run to provide pool and overhead cover habitat

Spring Creek Watershed Restoration Project

Partner/Sponsor: Western Pennsylvania Conservancy and US Forest Service

The Spring Creek watershed in Forest and Elk counties is a major tributary of the Clarion River, a federally designated Wild and Scenic River that forms the southern boundary of the Allegheny National Forest. The forests and waters of the Spring Creek watershed are recovering from decades of unsustainable timber harvest and industrial development. Today the watershed is prized for its recreational resources, its timber base, and its coldwater fishery.

The goal of the project is to restore and improve riparian and in-stream habitat throughout the drainage by reducing sedimentation, rehabilitating riparian areas, and removing barriers to fish passage. Specific objectives of the project included: reconstructing Forest Roads to improve drainage and reduce sedimentation; eliminating multiple fish passage barriers associated with inadequate road crossings; hardening and decommissioning dispersed camp sites; hardening existing parking to reduce sedimentation while improving access to the stream; and addressing soil and water impacts associated with approximately 80 miles of user- created horse trails.

Construction of Modified Mudsills

Root wads placed in Spring Creek

Since 2006, partners of the WINs Coalition have completed numerous projects including fish habitat projects, culvert replacement for aquatic organism passage (AOP), correcting runoff and erosion problems related to roads, and correcting horse trails. In October 2012, the US Forest Service (USFS), Western Pennsylvania Conservancy, and Pennsylvania Fish and Boat Commission (PFBC) completed a second fish habitat improvement project on Spring Creek. The project included the installation of 25 devices, including multi-log vane deflectors, modified mud sills, bank cribs, and root wads, to stabilize 550' of eroding stream banks and improved cover and improved in-stream habitat for fish and other aquatic organisms.

In 2012, 38 miles of horse trails were improved or relocated to reduce erosion and sedimentation problems. In addition, over 70 horse trail fords through stream channels were armored with rocks to reduce impacts on water resources. Other improvements included broad based dips and grade brakes to reduce storm water runoff. At the end of the structures, dry wells were constructed to increase infiltration and control runoff. This project was funded by the American Recovery and Reinvestment Act.

Future activities include:

- In 2013, USFS will decommission 0.4 miles of snowmobile trail along a tributary to Wolf Run and reconstruct this trail away from this stream to reduce sedimentation.

- In 2013-2014, USFS will replace 6 road-stream crossings for AOP using stewardship contracting. This project will also place limestone surfacing at each of these crossings to reduce erosion and runoff.

Tionesta Creek Watershed Projects

East Branch Tionesta Creek Aquatic Organism Passage Project

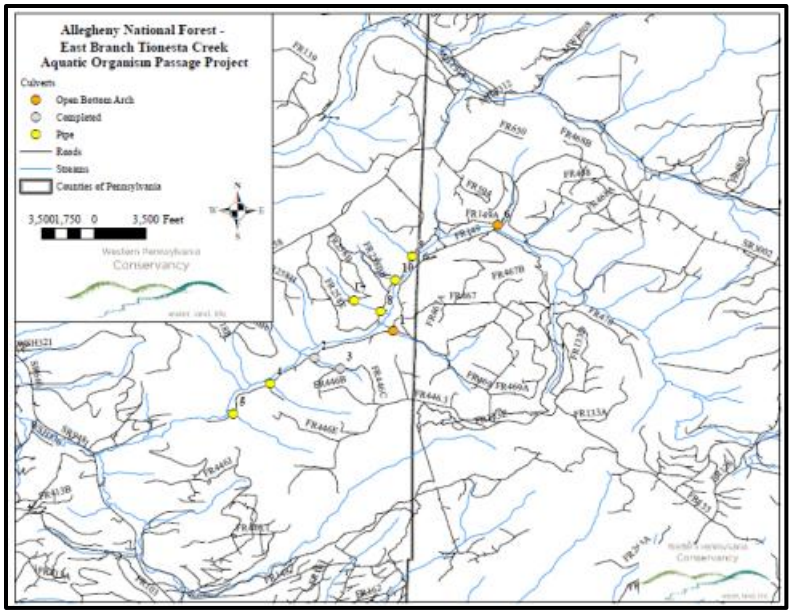
Partner/Sponsor: US Forest Service and Western Pennsylvania Conservancy

Working with the National Forest Foundation, USFS identified 1,200 acres for restoration activity in the East Branch Tionesta Creek (EBTC) watershed. They then teamed up with the National Wild Turkey Federation, Western Pennsylvania Conservancy, and National Fuel Gas Company to implement a series of restoration activities throughout the drainage including replacing ten undersized stream crossings to allow for aquatic organism passage to eight tributaries.

Outlet of the "Five Pipes" stream crossing on an unnamed tributary to East Branch Tionesta Creek 'before' and 'after' replacement

Completed in 2012, this collaborative project: decreased erosion and sedimentation; improved water flow and quality thereby restoring passage for native fish and expanding spawning and nesting habitat; and improved stream habitat.

In 2013, aquatic organisms will be surveyed at each site for post-construction results of upstream passage. Stream flow dynamics through the newly replaced culverts will also be monitored and substrate materials will be adjusted as needed to facilitate passage.



Stream crossings replaced in the East Branch Tionesta Creek drainage

Tionesta Lake Clean-up - Second Annual

Partners/Sponsors: US Army Corps of Engineers, Forest County Sheriff's Office, Forest County Probation Office, the Boy Scouts, local citizens, and US Forest Service

The 2012 edition of the Tionesta Lake Clean-up was held on Saturday, April 28. A total of 171 folks joined the effort, with 154 of those being local Boy Scouts. These Boy Scouts were from Tionesta and the local Col. Drake District of the French Creek Boy Scout Council. In true Boy Scout fashion, they braved the cold temperatures over the weekend and camped at Tionesta Lake both Friday and Saturday nights.

Volunteers and boat loads of trash at the 2012 Tionesta Lake Cleanup

At least 200 bags of garbage were hauled off of the lake and surrounding park areas, along with numerous tires, gas tanks, barrels, old lawn chairs and all manner of other debris. The less than ideal weather did not deter the volunteers. The day was a huge success!

Monitoring and Assessments

Eastern Hellbender Surveys and Assessment

Partner: Western Pennsylvania Conservancy

Eastern hellbenders can grow to 30 inches long and are the largest salamander species found in the United States. Hellbenders are a totally aquatic species that inhabit large streams and rivers. Their distribution in Pennsylvania is limited to the Ohio, Allegheny, and Susquehanna watersheds, with most animals being found in tributaries to these large systems due to water quality issues and habitat degradation. In the Allegheny National Forest, we found hellbenders in four previously unknown locations, which add greatly to our knowledge of this reclusive animal's distribution in Pennsylvania.

Hellbenders are difficult to find for several reasons. First, hellbenders require exemplary water quality in order to survive and reproduce. Habitat loss due to dams, poor agricultural practices, heavy logging, and acid mine drainage has greatly reduced hellbender populations. Second, hellbenders live under large, heavy rocks that require numerous people to lift.

Western Pennsylvania Conservancy (WPC) is spearheading efforts to study and protect the eastern hellbender salamander by working with partners to ascertain the status of the hellbender in western Pennsylvania. In addition to WPC's academic partners, 15 volunteers representing eight organizations donated 276 hours to aid with survey efforts in 2011. In addition to documenting hellbender locations, WPC is also working to protect and improve the quality of streams that harbor hellbenders.

Catching a hellbender is similar to blindly trying to grab a water balloon covered with mucus underwater — definitely a learned skill.

Water Quality Monitoring Network

Partners: Iron Furnace, Cornplanter, and Seneca Chapters Trout Unlimited, and Elk, McKean, and Warren County Conservation Districts

The rapid expansion of Marcellus extraction activities on primarily public lands has prompted WINs Coalition partners to initiate a three-tiered program to help monitor activities and protect important water resources where needed. Our first effort (Tier I) in this initiative is the deployment of TU trained Coldwater Conservation Corps volunteers to monitor local watershed activities in our region. In addition, more intensive water quality monitoring will be conducted in the Allegheny National Forest through the operation of a network of stations in smaller sub-watersheds using data loggers (Tier II) and in larger basins using permanent multi-parameter real-time stations (Tier III) in areas targeted for Marcellus development. The monitoring approach is based on the successful network currently in use in the Susquehanna River watershed by the Susquehanna River Basin Commission.

Stake and data logger (left) and real-time monitoring station (right).

In support of these efforts the Colcom Foundation has awarded grants to Iron Furnace Chapter of Trout Unlimited, $150,000. to Elk Co. Conservation District $146,000 from Colcom and $65,000 from the Stackpole Hall Foundation of St. Marys, Elk County, and to McKean Co. Conservation District, $23,600 to continue monitoring water quality in at-risk watersheds. Iron Furnace TU's network installed five real-time monitoring stations and upwards of 10 data loggers in sub-basins in the Clarion River and Tionesta Creek drainages covering the eastern half of Forest County. The real-time results of this monitoring can be viewed at ironfurnacetu.net. Elk County Conservation District set up 11 real-time monitoring stations in municipal drinking water watersheds, including Big Mill Creek on the ANF, and 12 data loggers throughout Elk County. McKean County Conservation District also deployed 8 data loggers throughout McKean County.

In 2013, IFTU will be working with the West Virginia Water Research Institute via the Three Rivers Quest Program to sample at ten locations in the Upper Allegheny Basin. IFTU will also be collecting grab samples on a bi-weekly basis over the next year. This data will supplement data collected by Duquesne University in the Lower and Middle Allegheny and by Wheeling Jesuit University in the Monongahela Basin. This project is also funded by ColCom.

The ColCom Foundation *Marcellus Environmental Fund* was established in 2010 to provide assistance to western Pennsylvania communities as they work to assess and mitigate negative impacts of development and drilling in Marcellus Shale Regions and to preserve natural resources.

Education and Outreach

Trout in the Classroom

Partner/Sponsor: Cornplanter and Iron Furnace Chapters, Tout Unlimited

In 2006, Pennsylvania Council of Trout Unlimited (PATU) and the Pennsylvania Fish and Boat Commission began to lay the groundwork for a statewide Trout in the Classroom program. The Pennsylvania Department of Education (PDE) - Department of Environment and Ecology is also a supporter of the program through funding and curriculum assistance.

Keystone High School students, Knox, Clarion County

Through this program, Allegheny WINs partners and TU members team up to work with the youth to ensure that they understand why it is important to protect and restore our coldwater resources. Trout Unlimited chapters currently sponsor 167 classrooms statewide, 29 of which are located in the northwest region.

Trout in the Classroom (TIC) is an environmental education program in which students in grades 3 through 12 raise trout from eggs to fry, monitor tank water quality, study instream habitat, learn to

appreciate water resources, begin to foster a conservation ethic, and grow to understand ecosystems. Trout Unlimited members work hand-in-hand with teachers and students to implement the program.

Most programs end the year by releasing trout in a state-approved stream near the school or within a nearby watershed (not into Class A trout streams). During the year, each teacher tailors the program to fit his or her curricular needs; therefore, each program is unique. TIC has interdisciplinary applications in science, social studies, mathematics, language arts, fine arts, and physical education. TU provides the school with funding for all of the necessary equipment and training to start the program through grants. PATU offers two different grant opportunities, startup grants and existing program grants. Grants are awarded to applicants who are (501)c3 organizations that have developed a partnership with a teacher.

Trout and Clean Streams Expo - Fifth Annual

Partner/Sponsor: Cornplanter Chapter, Tout Unlimited

The fifth annual Trout & Clean Streams Expo held in Sheffield, PA, featured environmental education and outdoor recreational activities that were enjoyed by over 150 participants.

Visitors to the Expo were treated to a variety of demonstrations, displays, and interactive events including: fly tying, fly casting, spin cast fishing clinic, seminars, Trout in the Classroom, and stream side insect & water quality sampling.

Attendees also enjoyed the displays of WINs Coalition partners that addressed the many programs and projects in our area.

Expo visitors are treated to a variety interactive events including a fly tying clinic

The goal of the annual Expo is to provide an opportunity for our friends and neighbors to become more aware of current watershed projects and environmental issues we face.

The Cornplanter Chapter hopes to gain the motivation and commitment of the community to work collectively to improve our watersheds.

Volunteer Contributions by Project in 2012

Project	Objectives	Partners	Volunteers	Hours
Tionesta Creek Watershed Projects				
Ross Run	Fish habitat improvement	Kellettville Sportsmen's Club, PFBC, and USACE	32	256
Tionesta Reservoir Cleanup (2nd Annual)	Collect trash from 12.6 miles of reservoir shoreline	USACE, USFS, and others	171	1,026
Upper and Middle Allegheny River Watershed Projects				
Allegheny Reservoir Fish Habitat Improvement Projects	Construct and install pine tree and porcupine crib structures	KFWA, USFS, USACE, and PFBC	132	789
Allegheny Reservoir Cleanup (8th Annual)	Collect trash from 38 miles of reservoir shoreline	USFS, USACE, PFBC, and 9 other orgs.	88	704
Allegheny River Cleanup (4th Annual)	Collect trash from 37 miles of the river and two major tributaries	CCWA, USACE, USFS, WCAPP, and 68 other organizations	372	3,056
Anders Run Trail Reroute	Trail reroute and reconstruction	USFS, DCNR, and Student Conservation Corps	20	144
Brook Trout Refuge Areas	Maintain boundary wires and signage	KFWA and PFBC	25	94
Morrison Run Watershed Restoration	Fish habitat improvement	CCTU, PFBC, and USFS	14	84
Monitoring and Assessment				
McKean County Water Quality Monitoring	Monitoring of potential shale gas impacts on area streams	McKean County Conservation District	20	120
Hellbender Surveys	Ascertain the status of the hellbenders in western PA	WPC and USFS	55	364
TOTAL VOLUNTEERS			**929**	**6,637**

Since 2008, WINs partners have recorded 22,969 hours donated by 3,107 volunteers in support of a wide range of watershed restoration efforts. Without all of those wonderful volunteers and their gracious donations of time and energy, WINs could not succeed.

Allegheny WINs Partners

Partnerships and volunteers have made the WINs coalition the success that it is. Credit is due to various individuals from the organizations and government agencies listed below.

Non-profits	**Acronyms**
Allegheny Outdoor Club	AOC
Brokenstraw Watershed Council	BWC
Conewango Creek Watershed Association	CCWA
Elk County Freshwater Association	ECFA
Kellettville Sportsmen's Association	KSA
Kinzua Fish and Wildlife Association	KFWA
Penn Soil Resource Conservation and Development Council	PSRCD
Pennsylvania Council of Trout Unlimited	PATU
Pennsylvania Council of Trout Unlimited – Cornplanter Chapter	CCTU
Pennsylvania Council of Trout Unlimited – Iron Furnace Chapter	IFTU
Pennsylvania Council of Trout Unlimited – Jim Zwald Chapter	JZTU
Western Pennsylvania Conservancy	WPC
County Agencies	
Elk County Conservation District	ECCD
Forest County Conservation District	FCCD
McKean County Conservation District	MCCD
Warren County Adult Probation and Parole	WCAPP
Warren County Conservation District	WCCD
Warren County Planning and Zoning Commission	WCPZC
State Agencies	
Pennsylvania DCNR – Bureau of State Parks	DCNR BSP
Pennsylvania DCNR – Bureau of Forestry	DCNR BOF
Pennsylvania DEP – Northwest Regional Office	DEP
Pennsylvania Fish and Boat Commission – Division of Habitat Management	PFBC
Pennsylvania Game Commission – Bureau of Wildlife Habitat Management	PGC
Pennsylvania State University – School of Forest Resources	PSU
Federal Agencies	
US Army Corps of Engineers – Kinzua and Tionesta Dams	USACE
US Forest Service – Allegheny National Forest	USFS ANF
US Forest Service – Northern Research Station	USFS NRS
US Fish and Wildlife Service – Pennsylvania Field Office	USFWS

ALLEGHENY WINs PROJECT FUNDING (April 2007 – April 2013)				
CLARION RIVER WATERSHED				
Project	**Objectives**	**Sponsor**	**Grantor**	**Funding**
Big Mill Creek Acid Remediation	construct passive treatment pond systems	Elk County Freshwater Association	Department of Environmental Protection (DEP) - Growing Greener	$ 414,000
			Dept of Conservation and Natural Resources (DCNR)	$ 250,000
			Stackpole Hall Foundation	$ 50,000
			DEP - Growing Greener	$ 393,000
Clarion River Dispersed Recreation	eliminate erosion, sedimentation, and sanitation concerns	Elk County Commissioners	DCNR	$ 107,700
Spring Creek Watershed Restoration	eliminate aquatic organism passage (AOP) barriers, decommission roads, repair and add limestone to dirt and gravel roads to improve drainage and reduce sedimentation; improve instream and riparian habitat	US Forest Service (USFS)	USFS K-V funds	$ 118,860
			Garden Club Federation	$ 7,500
			USFS Stewardship End Results Contracting (SERC)	$ 110,000
		Western Pennsylvania Conservancy (WPC)	National Forest Foundation (NFF)	$ 15,000
			WPC	$ 50,000
		PA Fish & Boat Commission (PFBC)	PFBC Cooperative Habitat Improvement Funds (CHIP)	$ 6,000
		PA Game Commission (PGC)	WPC	$ 20,000
Clarion River Watershed Subtotal				**$ 1,542,060**

tables continue on following pages

TIONESTA CREEK WATERSHED				
Project	**Objectives**	**Sponsor**	**Grantor**	**Funding**
Bobbs Creek	eliminate (3) AOP barriers, reduce erosion and sedimentation	USFS	USFS SERC	$ 200,000
			National Wild Turkey Federation	$ 10,000
East Branch Tionesta Creek Aquatic Organism Passage (AOP) Project	eliminate (10) AOP barriers on tribs	USFS	NFF	$ 211,000
			National Fuel Gas	$ 90,000
Ross Run	Fish Habitat Improvement Project (FHIP)	Kellettville Sportsmen Club (KSC)	KSC	$ 4,230
			Collins Pine	$ 650
		PFBC	PFBC CHIP	$ 11,315
Tionesta Reservoir Cleanup (2011 - 2012)	remove trash & litter from impoundment	US Army Corps of Engineers (USACE)	mulitple	$ 1,000
West Branch Tionesta Creek Watershed Restoration	eliminate AOP barriers, reduce erosion and sedimentation, link and enhance local recreational resources	USFS	USFS - American Recovery and Reinvestment Act	$ 250,000
		PGC	PGC	$ 50,000
		DCNR / Penn Soils RC&D	Northwest Greenways	$ 11,300
	Chapman lake bank stabilization project	DCNR	DCNR	$ 12,510
			PFBC	$ 2,000
	FHIP	USFS (Farnsworth)	USFS watershed funds	$ 5,914
			PFBC CHIP	$ 1,500
		PGC (SGL29)	PGC	$ 1,680
			PFBC CHIP	$ 2,138
		DCNR (Chapman SP)	DCNR	$ 1,640
			PFBC CHIP	$ 1,076
Tionesta Creek Watershed Subtotal				**$ 867,953**

tables continue on following pages

UPPER AND MIDDLE ALLEGHENY RIVER WATERSHED				
Project	**Objectives**	**Sponsor**	**Grantor**	**Funding**
Allegheny Reservoir Cleanup (2005 - 2012)	clean & maintain impoundment	USFS	Corporate Donations	$ 4,500
Allegheny River Cleanup (2009 - 2012)	remove trash & litter from 37-mile section of the Allegheny River, Conewango Creek, and Brokenstraw Creek	USFS / Allegheny Outfitters	Allegheny Outfitters	$ 8,000
			Veolia	$ 8,000
			National Public Lands Day Grants	$ 3,000
			Corporate Donations	$ 9,000
Big Bend Recreation Area	Bird Viewing Platform - construct a bird-viewing platform and a Riverside Watchable Wildlife Trail overlooking the Kinzua Dam and Allegheny River to provide an environmental education and recreation opportunity	Allegheny Outdoor Club (AOC)	DCNR - Lumber Heritage Region	$ 25,000
			Community of Found. Warren Co.	$ 7,500
			Northern Allegheny Conservation Association	$ 2,000
			Boy Scouts of America (Eagle Scout project)	$ 1,950
			Warren Co. Council of Sportsman	$ 1,500
			AOC	$ 955
			Eastern National Forest Interpretive Association	$ 500
			Water Resources Education Network	$ 280
			Corporate Donations	$ 23,880
		USACE	USACE	$ 18,683
				$ 3,000
	Boat Launch - improve boater access and address safety concerns	AOC & USACE	Community of Found. Warren Co.	$ 15,000
			USFS	$ 7,500
			Corporate Donations	$ 12,000
Dutchman Run	dam removal	USFS	American Rivers	$ 15,000
	reduce erosion and sedimentation		USFS	$ 1,500

table continues on following page

UPPER AND MIDDLE ALLEGHENY RIVER WATERSHED (continued)				
Project	**Objectives**	**Sponsor**	**Grantor**	**Funding**
Watershed Restoration	conservation and restoration	WPC	Colcom Foundation	$ 100,000
Riparian Tree Plantings	riparian tree plantings in priority watersheds	WPC	Richard King Mellon Foundation (1/3 on ANF)	$ 100,000
Brook Trout Surveys and Habitat Restoration	unassessed waters brook trout surveys and habitat restoration	WPC	National Fish & Wildlife Foundation	$ 48,000
	fish and physical surveys of culverts		USFS	$ 15,000
	AOP restoration		NFF ($50,000 pending)	$ -
McKean County FHIP Efforts	stabilize 7,618 feet of streambank, create 2 miles of riparian area, plant 900 trees	McKean County Conservation District (MCCD)	DEP - Growing Greener	$ 150,000
			DEP - Stream Improvement Program	$ 117,020
			PFBC - Sinnemahoning Watershed Grant Program	$ 255,000
			Casella	$ 52,300
Brokenstraw Creek	streambank stabilization	WPC	Constellation Energy	$ 5,000
			Foundation for PA Watersheds ($15,423 pending)	$ -
Meade Run Ponds Project	replace/repair outflow boxes and intake pipes, fish and wildlife habitat improvements	USFS / PFBC / PGC	PFBC - Sinnemahoning Watershed Grant Program	$ 20,000
			PFBC / PGC	$ 18,480
			USFS watershed funds	$ 6,968
Rain Barrel Workshop	environmental education	Warren County Conservation District	DEP - Environmental Education	$ 1,019
Sugar Run AOP Project	Shinglemill Creek (FR271) crossing replacement	USFS	USFS SERC	$ 30,000
			EBTJV	$ 80,000
	Sugar Run (FR182) crossing & road decommissioning		USFS SERC	$ 15,000

table continued on following page

UPPER AND MIDDLE ALLEGHENY RIVER WATERSHED (continued)				
Project	**Objectives**	**Sponsor**	**Grantor**	**Funding**
Morrison Run Watershed Restoration	decommission heavily eroded ford	CCTU	First Energy	$ 1,000
			PA General Energy	$ 1,000
			CCTU	$ 800
	fish habitat improvement	PFBC	CHIP (2009 - 2011)	$ 3,200
	Streambank stabilization (BPRR trestle)	USFS	USFS	$ 2,500
			Gas & Oil Management	$ 500
	dam removal (lower) and bridge replacement	CCTU	PGC	$ 25,000
			USFWS	$ 16,000
			CCTU	$ 1,200
	streambank stabilization (lower dam site)	WPC	USFS RAC Title II	$ 30,000
	aquatic organism passage restoration (FR156 crossing replacement)		CHP	$ 10,000
			PA American Water ($10,000 pending)	$ -
	upper dam removal & FR 156 crossing replacement	CCTU	Eastern Brook Trout Joint Venture (EBTJV) - $41,000 pending	$ -
South Branch Kinzua Creek	Phase I - construct acid precipitation PTS, reduce sedimentation, and replace undersized culverts	PFBC	PA Fish and Boat Commission	$ 120,000
			EBTJV	$ 25,000
		USFS	Road maintenance funds	$ 104,482
	Phase II	USFS	USFS - capital improve. and road maintenance funds	$ 60,000
Willow Bay	Fish habitat improvement and wetland restoration	WPC	USFS KV and watershed funds	$ 44,650
Upper and Middle Allegheny River Watershed Subtotal				**$1,627,867**

table continued on following page

MONITORING AND ASSESSMENT				
Project	**Objectives**	**Sponsor**	**Grantor**	**Funding**
Brokenstraw Creek Conservation Plan	Establish baseline dataset, document threats, develop recommendations	WPC	Coldwater Heritage Partnership (CHP)	$ 5,000
Browns Run Conservation Plan				$ 5,000
"Rainmaker" Sediment Production Study	quantified sediment production roads impacted by the shallow oil and gas production on the ANF	USFS	US Dept. of Energy - National Energy Tech. Laboratory	$ 75,000
			USFS, Northern Area Research Station	$ 5,000
			USFS, ANF	$ 12,000
Water Quality Monitoring and Stream Assessments	monitoring water quality and flow and assessing streams before, during, and after Marcellus Shale gas drilling operations	Elk County Conservation District	Stackpole Hall Foundation	$ 65,000
			Colcom	$ 146,000
		McKean County Conservation District	Colcom	$ 23,600
			SM Energy	$ 6,151
			DEP Environmental Education Grant	$ 7,500
			DEP (604B) "stimulus money"	$ 25,955
		Trout Unlimited, Iron Furnace Chapter	Colcom	$ 150,000
Shale Gas-Related Monitoring	monitoring of focus areas across the entire Marcellus and Utica shale gas regions of PA (partially for ANF depending on site selection)	WPC	Richard K. Mellon Foundation (1/4)	$ 170,000
Hellbender Surveys	ascertain the status of the hellbenders in western PA; habitat restoration	WPC	DCNR - Wildlife Resource Cons. Grant	$ 36,271
			Colcom	$ 17,500
Monitoring and Assessment Subtotal				**$ 749,977**
TOTAL EXTERNAL FUNDING				**$ 4,787,857**