

Watershed Farm & Forest

Stewardship Programs of the Watershed Agricultural Council



Rural Routes

Everyday, we depend upon a network of paved roads to take us where we want to go – to work and to school and to transport what we need from all over the country. Storm water runs off quickly from these “impervious” surfaces, carrying dangerous pollutants like gasoline and oil into our streams, lakes and wetland areas. On the farm and in the forest, our “country roads” are unpaved, but without care in planning and maintenance, these dirt roads can contribute to pollution risks too. Erosion and instability on livestock or timber harvest roads can cause sediment and other pollutants to enter waterways.

SEDIMENT: a word geologists use to describe minerals and rocks that enter flowing water.

This issue of *Watershed Farm & Forest* is designed to show the many ways that agriculture and forestry program participants prevent erosion by utilizing the watershed protection tools available through the Watershed Agricultural Council. On working farm and forest land, people, livestock, logs and vehicles move over land and water on roads (often built more than a century ago) for crop and pasture access, or for harvesting maple sugar, timber and firewood. In addition to describing the best management practices designed to reduce and eliminate erosion from everyday activities, we list a number of resources available for learning more about these practices. So, let's hit the road together and see how proper roadways protect the New York City watershed.



*Whole Farm Plan Summaries

Click Here for Rapid Transit

If you think a Solar Calf House is where baby cows get a suntan or that a Patch Cut is the latest hairstyle, you might want to take a minute at your computer and travel to the WAC web-site www.nycwatershed.org. The Virtual Farm & Forest Tours, located on the home page, have been expanded to illustrate the many conservation tools available on farms and in the forests of the Catskill/Delaware and Croton Watersheds. Many WAC participants have entered through either the farming or forestry programs, so taking the tour is a great way for them to discover new stewardship opportunities that may be available to them. The tours also give countless upstate and downstate landowners, students and decision makers an opportunity to get a glimpse of our programs, which have set a standard for voluntary, partnership-based watershed protection.

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<http://www.nycwatershed.org>



Bridle Trail Project Bridges Gap

With farms and forests on over 6,000 acres in the East of Hudson/Croton watershed, the WAC team in Yorktown Heights has met hundreds of landowners and their managers. Most agriculture in the region today is dominated by the equine industry, which includes horse boarding, breeding, training and riding instruction. Hundreds of equestrians in the region utilize over 300 miles of bridle trails that comprise a historic trail network that dates back to the early 1900s. These trail networks are managed and maintained by several groups who have expressed a great interest in managing their trails in ways that protect water quality.



WAC's Yorktown Heights office is currently developing a pilot project on a 240-acre conservation area in the Muscoot Reservoir Basin in Westchester County. Initial meetings were successful in gaining landowner interest to install culverts, water bars and erosion control fabric on spots along the trails needing repair to prevent erosion.

The first step will be for the group to identify an eroded stream crossing, a trail area that needs re-surfacing and an unstable slope to repair. Repairs will focus on low-tech, easy to install, cost-effective solutions that can be replicated

by volunteers in other areas in the future. The voluntary participants plan to assist in the installation and maintenance activities, adding to the hands-on nature of this project. A coordinated outreach effort is planned to keep those who use the trails informed about the project.

For more information on the Bridle Trail BMP Project, please contact Carrie Davis at 914-962-6355.

Watershed Farm & Forest is a newsletter of the Watershed Agricultural Council (WAC), a not-for-profit 501(c)3 organization whose mission is to support the economic viability of agriculture and forestry through the protection of water quality and the promotion of land conservation in the New York City Watershed region. WAC is funded by The New York City Department of Environmental Protection, USDA Forest Service, W.K. Kellogg Foundation, and other federal, foundation and private sources. Letters to the Editor should be addressed to Karen Rauter, Communications Director.

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Over The River

Rolling pastures are one of the things that make living in farm country so beautiful. To manage these pastures, local farmers use a system of unpaved roads to move livestock and equipment. Dairy, livestock and vegetable farms need a fresh clean water source just as a city dweller depends on his or hers from the tap. Our region's small family farms settled close to the watercourse for just this reason. Farm access roads, along with farm practices in close proximity to waterways, present conservation challenges.

With the start of the Watershed Agricultural Program, farmers in the watershed began to take a second look at how their farm roads might be affecting water quality. Through the process of Whole Farm Planning, farmers and their agricultural planning teams address these water quality concerns without adversely affecting their farming enterprise. The conservation solution for each location is unique, but all seek to minimize erosion and sediment entering the streams that wind their way through the region.

One of the easiest ways to decrease erosion is to properly site, grade and pack a Cattle Laneway. The laneway is a path for livestock of hard packed material that simplifies manure collection and reduces erosion while directing the animals away from streams and springs. Directing cattle onto these improved paths goes a long way towards keeping unwanted manure and sediment from entering nearby water ways.

If access to the pasture requires crossing a stream, a good choice is to install concrete Cattle Slats which provide a stable, non-slip surface for the livestock to cross in dry times and can withstand fast flows during floods. Pipe culverts are also used when appropriate. These stream crossings help prevent erosion while providing reliable, safe roads for moving animals to and from barnyards and pasture.

When there is no practical alternative to crossing a stream, a bridge can be installed. In a few cases, farm planners have used a US Forest Service bridge designed for logging vehicles. The good news is that researchers who compare water upstream and downstream from farms - "before and after" the installation of these erosion best management practices - have identified reductions in certain target pollutants over time.

Operation & Maintenance Recommendations For Water Quality

- **Obey** weight limits for bridges
- **Scrape** accumulated manure from bridges and access lanes as needed, on a monthly basis as a minimum.
- **Add** fill material to access road, ramps and bridge surface to maintain grade
- **Maintain** the natural flood relief channel for high water conditions.
- **Inspect** stream bank, concrete block or stone abutments and deck often.
- **Check** culvert pipe opening and remove debris as needed
- **Check** outflow pipes for erosion after storm events and repair as needed
- **Inspect** cattle slat crossings periodically and clean out accumulated sediment and debris.
- **Remove** any obstructions such as stones, tree limbs, leaves, vegetation and gravel deposits from edges of animal trails that may slow or prevent the drainage of surface runoff.

NUTRIENTS: Nitrogen, phosphorus and potassium are nutrients essential for growing healthy crops of hay, animal feed grains and vegetables. Farmers can time nutrient soil enhancements to maximize their uptake by plants and minimize excess nutrients that escape into waterways.



Through The Woods

Seeps, also called springs, are the natural places where groundwater comes to the surface and creates a wet area. They're easy to see on winter walks because they are covered in snow and usually stay green all year around. A common sight in the New York City watershed, seeps are important for maintaining stream levels during dry times of the year. Poorly built roads that don't account for this water, which can cause erosion, rutting, and damage to the forest floor.

In the Catskill Mountains, the steep terrain makes road construction challenging, but there are many simple techniques that can help minimize erosion, protect water quality, and maximize the safety and durability of forest roads. The first is proper road design that directs run-off from steep slopes across roads, not straight down them.

The pipe culvert is a device installed underneath a forest road to divert large volumes of running water. Pipe culverts come in a variety of lengths and opening sizes (from several inches to several feet in diameter), and they are usually manufactured from corrugated metal or heavy-duty plastic. Water will follow the "path of least resistance" and bypass improperly placed culverts, but a properly installed culvert will minimize erosion and sedimentation.

TURBIDITY: term used by hydrologists - and trout fishermen - to describe the cloudiness of stream water.

Geotextile fabric is an innovative best management practice (BMP) used during road construction as a soil reinforcement and filter medium. The fabric is a blanket-like material manufactured from synthetic fibers. It is placed over wet areas and poorly drained soils to reduce the impacts of heavy equipment on roads, landings and streamside areas.

When the road needs to cross a waterway, a temporary bridge should be considered. This enables heavy machinery to cross streams without damaging streambeds, banks, aquatic life, and equipment - and water quality. Bridges should cross at right angles to streams and leave enough clearance for flood conditions.

Winter roads need adequate drainage to prevent or minimize erosion and sedimentation into wetlands and open water. With much of the timber harvest occurring during the big freeze, it's important to prepare roads before the high water flows of the spring melt. If designed and constructed properly, forest roads will direct water safely and cleanly, accommodate heavy machinery safely, and provide access to the forest for many years.



In A Rut?

Follow these simple steps from the New York State Forestry BMP Field Guide:

- **Construct** temporary stream crossings where practical using timber bridges, log materials and rubber mats.
- **Soil** fill should not be used on these structures
- **Construct** crossings to prevent water from backing up.
- **Install** all temporary structures that could block water flow so that they can be easily removed prior to breakup.

For a copy of the New York State BMP Field Guide,

contact WAC at 607-865-7790 ext 101 or via email: hhilson@nycwatershed.org

The Beaten Path

Soil erosion can damage or destroy forest roads or skid trails, making them impossible to use during or after timber harvests. Sedimentation and turbidity caused by erosion can damage fish habitats, spawning areas, and water quality. Minimizing erosion through proper stewardship during a timber harvest is the surest way to avoid these impacts. Good conservation practices also help neighbor relations. WAC's Forestry Program offers forest landowners two opportunities to care for roads on their land.

WAC's Forest Roads Remediation Program

helps landowners fix existing erosion problems on old logging roads. Private forestland owners within the New York City watershed with a current Forest Management Plan, and documented erosion problems on an existing forest road, can apply for cost-sharing on these important repairs.

WAC's Timber Harvest Roads Program

aids loggers in preparing roads during a harvest and stabilizing them afterward. Watershed Qualified Foresters or Timber Harvesters who conduct 25% of their work in the New York City watershed are eligible for this program, which offers cost-share incentives for installing practices for erosion control and road stabilization. Timber Harvesters who participate in New York State's voluntary Trained Logger Certification Program receive extra incentives.