Fall 2013

MANAGEMENT UPDATE

Frederick Municipal Watershed

The Frederick Municipal Watershed is a 7,022 acre property owned by the City of Frederick. The property is located on the east side of Catoctin Mountain, 6 miles northwest of the City of Frederick. It is managed as a cooperative wildlife management area with MD DNR—Wildlife. Forest management activities are under the direction of the MD DNR—Forest Service.

Rainmaker Runs on Delauter Road to Study Impacts on Fishing Creek

Unpaved roads can contribute excess and nutrients to streams and other waterways, which can lead to declines in water quality.

In 2010, Maryland began its own Better Roads, Cleaner Streams initiative as a partnership between the Maryland DNR—Forest Service and The Nature Conservancy.

The "rainmaker" is a device developed by the PA Center for Dirt and Gravel Road Studies to test the amount of sediment contributed from a roadway during a typical 1 inch per hour rain event. The Nature Conservancy constructed Maryland's rainmaker device and Maryland Forest Service staff tested several sites on Green Ridge State Forest in 2011.

The device, constructed of PVC pipe with sprinkler heads, tests a 100' section of roadway. As the rainmaker delivers a calibrated, simulated rainfall, water samples are collected and flow is recorded at a catch point downhill from the testing section.

The samples are then analyzed by the Appalachian Environmental Lab in Frostburg, MD for sediment, nitrogen, and phosphorous.

In October of 2013, the rainmaker was run on Delauter Road in the Frederick Watershed, near the stream ford. This test run will provide baseline data for the sediment and nutrient contributions Delauter Road makes to Fishing Creek, one of Frederick County's few remaining native trout streams.

Runoff flows through the catch point, ready for sample collection
Photo: Heather Montgomery, Frederick Co Office of Sustainability and Environmental Resources

The goal is to apply environmentally sensitive maintenance practices, such as broad-based dips, turn outs, and engineered gravel surface (known as driving surface aggregate) to reduce the amount of sediment leaving the roadway and entering the stream.

The rainmaker set up on Delauter Road
Photo: Heather Montgomery, Frederick Co Office of Sustainability and Environmental Resources

Brook Trout in the Watershed

Contributed by: John Mullican, MD DNR—Fisheries

Brook trout *Salvelinus fontinalis* are members of a group known as charr, not trout as their common name implies. The term charr is the English name historically given to all members of the genus *Salvelinus*, including *Salvelinus* species such as lake trout and bull trout, also incorrectly referred to as trout. Species such as the commonly recognized brown *Salmo trutta* and rainbow *Oncorhyncus mykiss* trout as well as the Atlantic salmon *Salmo salar* and various Pacific salmon *Oncorhyncus spp*. are all considered members of the trout group. In physical appearance Brook Trout are distinguished from trout and other charrs by three principal characteristics, the absence of vomerine teeth (characteristic of all charrs), light body spots on a dark background (reversed on trouts), and the worm-like vermiculations on the back of the fish (unique to brook trout). In Frederick County Brook Trout are restricted to very small, headwater streams. In this environment, even mature brookies rarely exceed nine inches with only an occasional fish stretching to twelve. What they lack in size they make up for in stunning color.

Brook Trout are Maryland's only native trout (charr) species and have been apopular recreational angling resource since European colonization of North America. Brook Trout populations require relatively pristine conditions to thrive and typically cannot survive if water temperatures exceed 68° F or when stream gravel and cobble substrate is smothered by sediment. Clean gravel is necessary for creating redds. Redds are small depressions on the stream bottom swept clean by spawning trout during the fall, typically in early November. Eggs deposited in the redd are fertilized and subsequently covered with gravel. During incubation, the eggs will remain protected within the gravel while they develop during the winter months, hatching near the end of March through early April. Spaces between the gravel allow fresh, oxygenated water to reach the eggs. If sediment fills in these spaces, the eggs will suffocate and survival is reduced. Additionally, the abundance and diversity of macro invertebrates that serve as the primary food for brook trout require cobble-filled riffles to thrive.

Anthropogenic alterations to Maryland's environment over the last couple of centuries include the reduction of forest cover, establishing large agricultural areas, and urbanization. These activities have resulted in the extirpation of Brook Trout from 62% of their historic habitat in Maryland (2006 Maryland Brook Trout Fisheries Management Plan). Forested watersheds are crucial to protect the habitat and water quality required by Brook Trout. Time and again Brook Trout populations become extirpated when impervious surface area begins to exceed just 2% of the watershed. A major hurdle in managing brook trout resources is only 11% of all brook trout streams are fully within state lands, the vast majority of habitat is on private land and a mix of private/public lands.

The right and left forks of Fishing Creek and Clifford Branch within the Frederick City Watershed continue to support strong populations of native Brook Trout. The largely intact and properly managed watershed forest has served to protect valuable Brook Trout habitat. In its federally mandated Wildlife Diversity Conservation Plan, the Maryland Department of Natural Resources (DNR) has listed brook trout as a "Species of Greatest Need of Conservation". The Maryland DNR, Inland Fisheries Management Division, which is responsible for management of statewide freshwater sport fish species, surveys both Fishing Creek and Clifford Branch every other year. The surveys allow biologist to obtain population estimates for adult and young-of-year trout enabling them to identify population trends and potential environmental threats. Currently, the greatest threat to Brook Trout habitat within the Frederick City Watershed is the influx of sediment from gravel roads and trails carried by stormwater runoff. Inland Fisheries, the Maryland Forest Service, the City of Frederick, and the Frederick County Roads Department are working to address key stormwater issues in the watershed to assure the preservation of this unique and valuable population of native Brook Trout.

Invasive Species Management

Survey efforts began in early spring of 2013 to determine the extent of invasive plants in the watershed and gather more information to effectively apply control methods. Natural Resource Technicians Nathan Markline and Ben Stone continued survey efforts and spot treatment of invasive species in the watershed.

In a summary provided by Nathan, this year's survey and treatments focused on disturbed areas such as roads, trails, fields, log landings, and areas of the forest that have suffered mortality from gypsy moth infestations. Some areas had very few invasive plants, while other areas proved to be more problematic. To date, the entire area of the watershed north of Hamburg Road has been surveyed and a GPS map of invasive plant "hotspots" has been created to aid in more efficient treatment.

Multiflora Rose
James H. Miller, USDA Forest Service, Bugwood.org

This summer, a total of 13.5 acres of the watershed property were treated for a variety of invasive plants, using a variety of treatment methods. A total of 9.5 acres were spot treated using foliar spray of Garlon 3A for target species of tree-of heaven, bush honeysuckle, Japanese barberry, mile-a-minute, multiflora rose, and wineberry. In spot treatments of foliar spray, herbicide is applied to the target plant in specific locations.

The hack and squirt method, involving a hatchet and a spray bottle for precise herbicide application to individual trees, was used to treat 101 tree-of-heaven stems with Garlon 3A on a total of 3.5 acres.

Mechanical control was used on invasive plants in the watershed. Approximately 10 small bush honeysuckle plants were pulled in isolated areas. A 0.5 acre area of Japanese stilt grass along an old forest road was treated by cutting with a weed eater prior to seed production.

Japanese Barberry
Leslie J. Mehrhoff, invasive.org

The detailed survey efforts will continue beginning next spring in the area south of Hamburg Road, and further treatment of invasive plants will continue throughout the growing season. Should you find any infestations of invasive plants on the watershed, feel free to report them to the MD DNR Forest Service Watershed Forestry office at 301-791-4010.

Japanese Stiltgrass
Chris Evans, River to River CWMA, Bugwood.org

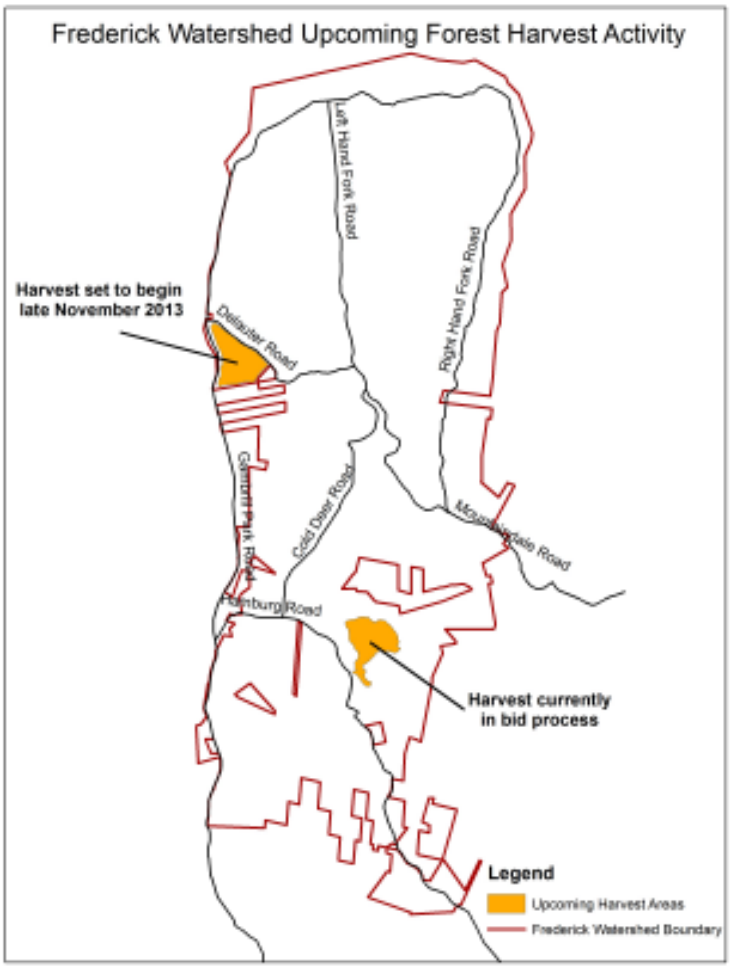
Silvicultural Management

The next silvicultural activity on the watershed (mentioned in the Spring newsletter) will take place near the intersection of Gambrill Park and Delauter Roads. The prescription for this stand is for a timber stand improvement harvest.

This sale was purchased by Red Rock, LLC in the spring. Work is slated to begin in late November.

Marking has been completed for a harvesting operation in the vicinity of the old Hamburg Tower off of Hamburg Road. This stand was heavily damaged by gypsy moth. Many trees are dead or dying and this harvest will allow the stand to regenerate. Many seedlings and saplings have begun to grow in the understory, and removal of mature and undesirable quality trees will allow those seedlings to be released for continued growth. Select good quality trees of various species will remain in the stand to serve as a seed source. Other trees noted as active den trees have also been selected to remain in the stand. This harvest is currently in the bidding process, and work will begin within the next 18 months.

Revenue generated by forest harvest operations is used to support other aspects of managing the watershed property, including invasive species control, boundary painting, and other maintenance. All harvest operations are reviewed by a group of natural resource professionals and are conducted in accordance with the forest stewardship plan for the property.



Recreation Management

The Frederick Watershed has long been a popular destination for many forms of recreation, ranging from hunting and fishing to birdwatching, hiking, mountain biking, and horseback riding. Over the years, many new, unapproved recreational trails have been developed. This has caused some concern, especially with recent findings of trail "booby traps" in the form of razor blades and other devices planted in a trail, as seen in the last newsletter.

An inventory of both official and unofficial trails on the watershed was completed this summer and fall by MD DNR Forest Service staff. The inventory included a GPS map of trails, as well as points of interest, such as ramps, jumps and other structures, fire rings, trash dumps, and areas experiencing severe erosion. The inventory was presented to the City in October, and discussion has begun on the management of recreation on the watershed property. The City is working with MD DNR Forest Service, Fisheries, and Wildlife and Heritage, with input from trail user groups, and other recreational user groups to develop a recreation management plan for the property.

Should you find any booby trap type devices on the watershed property, please note the location (with GPS coordinates if possible) and contact Frederick City Police Officer Greg Loftis at 240-674-8941.

FREDERICK MUNICIPAL WATERSHED MANAGEMENT UPDATE

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