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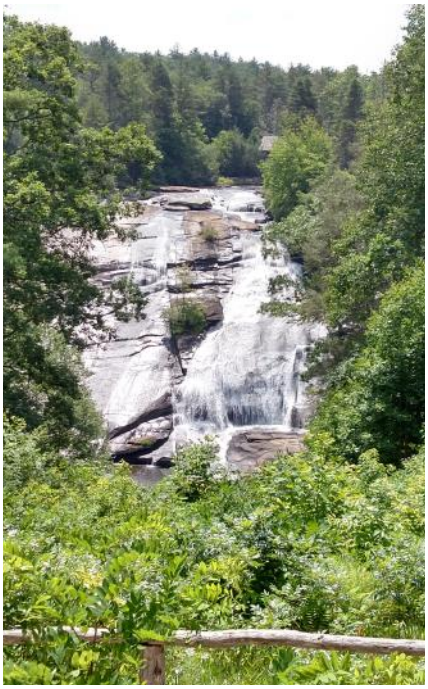
North Carolina Forest Service

An agency of the N.C. Department of Agriculture & Consumer Services

BMP Newsletter

Best Management Practices for Water Quality & Soil Conservation



High Falls at DuPont State Recreational Forest.

Inside this issue:

Stop by and see Smokey Bear

Always Be Prepared

The Scout motto is relevant to many disciplines. In forest operations, we should anticipate storms and always be prepared regardless of the season. Reduce areas of bare soil by planning and stabilizing exposed ground by implementing BMPs! Is your logging site armored and ready for winter?

Winter can be a challenging time to stabilize and cover exposed soil, however, it is important that it gets done. Grass seed doesn't grow well in the cold weather, but here are some other alternatives to grass cover this winter:

{Continued on page 2}

BMP Focus: Always Be Prepared

Regardless of the season, BMPs are most effective when planned before the operation and properly applied *during* and after an operation. Many loggers are aware and willing to implement BMPs following timber harvesting activities. However, BMP implementation can often be improved *during* the operation and will likely reduce rehabilitation work afterwards.

Particular attention should be paid to water control structures and covering areas of bare soils, especially at stream crossings. For example:

Install water turnouts

Armor ditches and cutslopes

Incorporate slash into trails

Use geotextile in “soft” areas

If you need BMP advice for your site, talk with the Water Quality Forester in your area

Western Region Focus

Bladed Skid Trail Stabilization Study Results

OCTOBER 1 @ Asheville
Forest Festival Day and John G. Palmer Intercollegiate Woodsmen's Meet

A study conducted by Virginia Tech in the western Ridge and Valley region of Virginia examined the differences in erosion rates from bladed skid trails with different soil cover treatments. The term "bladed" in this case means that the trails were cut into the earth by a bulldozer. These types of trails are often seen in areas with steep or off-camber slopes.

The take-home message from this study was that **all cover BMP treatments reduced soil erosion rates** over the bare soil, waterbar only (control) treatment. However, Slash and Mulch treatments performed better at reducing erosion rates than the seed only treatments. The table and photos below are from the study conducted by Andrew Vinson, a Master's student in Forest Operations at Virginia Tech.

Treatment	Avg. Erosion Rate (tons/ac/yr)	Minimum Erosion Rate (tons/ac/yr)	Maximum Erosion Rate (tons/ac/yr)
Control	6.8	2.5	15.3
Seed	2.6	0.3	6.4
Mulch	0.5	0.01	1.1
Slash	0.4	0.01	0.6

Piedmont Region Focus

NCFS Non-technical Summary Report Published

The N.C. Forest Service published a non-technical summary of a long-term (6 year) study that evaluated the effects of timber harvesting on headwater streams in the Piedmont region of North Carolina. This report distilled technical results into "take-home points" for forest management. The major sections covered in this document are hydrology, water quality, and riparian buffer characteristics.

This study consisted of monitoring stream flow and water quality in three "pairs" of similar forested watersheds. Each watershed was monitored at a specified stream location for a baseline period (approximately 3 years). Models were calibrated for each watershed pair using the preharvest baseline data. After the baseline model calibration period (preharvest), timber within one watershed of each pair was harvested using a clearcut logging method. The other watershed in each pair served as a non-harvested reference. The calibrated models were used to evaluate postharvest stream conditions as compared with the anticipated conditions had the timber not been harvested. Within each harvested watershed, a nominal 50-foot wide riparian buffer zone was retained along each side of the stream, and a specified amount of timber was harvested from within the buffer zone. Selective harvest within the buffers followed North Carolina's Neuse Buffer Rule. Streams were monitored for approximately 3 years following timber harvest (postharvest).

HYDROLOGY

Stream discharge increased following the timber harvest. This illustrates the **need for installing and maintaining BMPs!**

WATER QUALITY

Small increases in nutrients and sediment were observed following harvest. However, these levels **never exceeded N.C. water quality standards and returned to preharvest levels in less than 3 years!**

RIPARIAN BUFFER CHARACTERISTICS

Harvesting the overstory provided more sunlight, which fostered the growth of more diverse ground cover and shrub vegetation within the buffer zone. **The intent of leaving trees within the buffer should be to provide long-term vegetative structure, soil stability, and stream shade.**

UPCOMING EVENTS

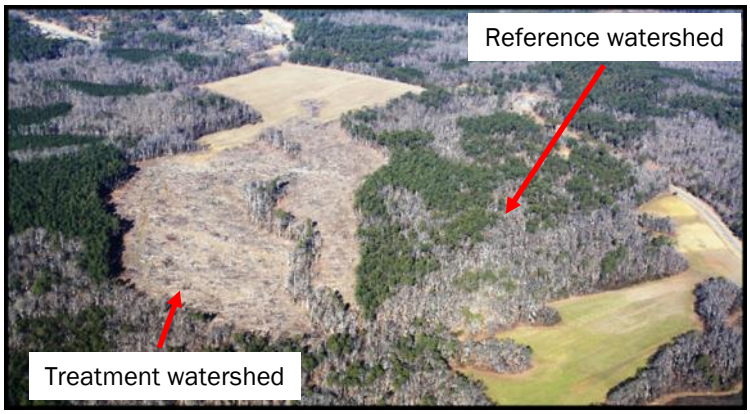
OCTOBER 10-14 @ Chapel Hill: Water and Health Conference

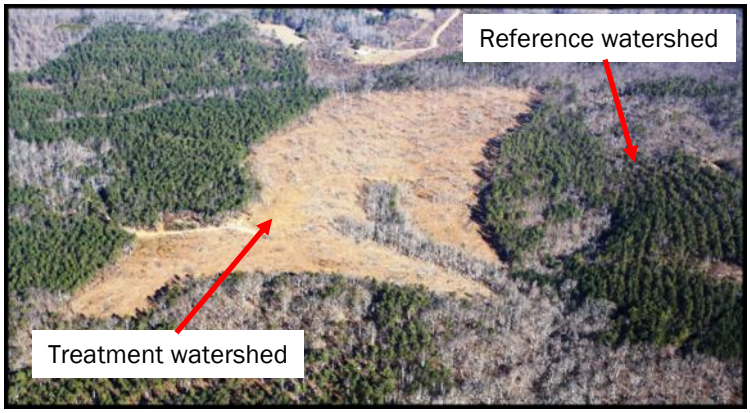
OCTOBER 11-13 @ Raleigh: 32nd Annual Onsite Water Protection Conference

OCTOBER 13-23 @ Raleigh: NC State Fair

NOVEMBER 7-9 @ Fuquay-Varina: Project learning Tree Bootcamp

NOVEMBER 15-18 @ Raleigh: Surface Water Identification





Postharvest aerial photographs of two watershed pairs in this study (one above and one below)

Eastern Region Focus

Why Keep Ditches Clear?

Few tree species can grow in soils that are constantly wet. Ditch networks improve site productivity in many poorly drained areas of the Coastal Plain. The presences of ditch networks is particularly important during stand establishment when seedling root systems are sparse and cannot draw the water table down.

UPCOMING EVENTS

OCTOBER 26-27 @ Trent Woods: Residential Coastal Construction

OCTOBER 26-28 @ Greenville: Eastern NC ISA Certification Review and Exam

After timber harvests, it is important to ensure that the ditch networks are free of debris. During harvesting operations, skidding across ditches without implementing BMPs can lead to blockages and/or sediment issues. If not corrected, blockages can alter the depth to the water table. In North Carolina, two state laws prohibit waterway obstructions. Blockages such as the one to the left must be corrected and often cost the logger time and money to come back and fix.

Don't forget that you should avoid crossing in the first place, if possible. However, if you need temporary access and need to cross a ditch or stream with steep banks and a short span (less than 25 feet), bridgemats are an excellent option. See example below.

The photo to the right is a good example of using bridgemats to cross a ditch. Notice that there are no obstructions in the ditch and there is ample ground for the bridgemats to sit upon.

North Carolina Forest Service

WATER RESOURCES BRANCH
1616 Mail Service Center. Raleigh, NC. 27699-1600

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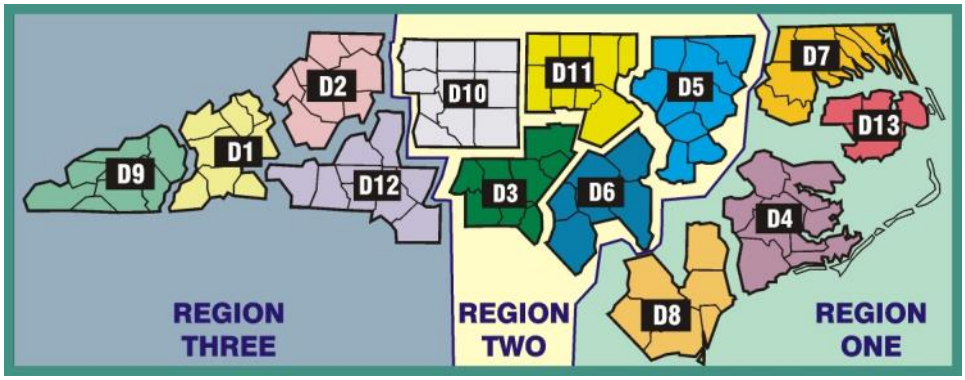

Western Region Water Quality Foresters

Western Mountains (D9, D1):
[vacant]
Office: 828-665-8688 (interim)

Foothills (D2, D12):
Beth Plummer: 704-616-0747

Piedmont Region Water Quality Foresters

Northern Piedmont
[vacant]
Office: 919-542-1515 (interim)

Southern Piedmont
Matt Vincett: 910-334-0025

Eastern Region Water Quality Foresters

Northern Coastal Plain:
[vacant]
Office: 252-520-2402 (interim)

Southern Coastal Plain:
Paul Mowrey: 252-520-2402

Webinar Events:

OCTOBER 5, 1 pm—2 pm ***Map Your Land and Other Tools for Landowners***

NOVEMBER 17 and DECEMBER 15, 1 pm—2 pm ***Your Legacy, Your Land Monthly Webinar***

National Forestry Events Outside North Carolina

OCTOBER 17-18 @ Charleston SC: Southern Forest Products Export Conference

NOVEMBER 2-6 @ Madison WI: ***SAF National Convention***

What's Wrong With This Picture?

Streamside management zones were not marked in this harvest. Several streambank trees that help maintain bank stability were cut and the tops were left within the channel.

Debris in the stream can alter or block the natural flow within the channel. This may cause the stream to cut out a new pathway and contribute additional sediment into the stream system. This particular situation was a violation of FPG .0202.