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N.C. Forest Service
A division of the N.C. Department of Agriculture and Consumer Services
Steve Troxler, Commissioner

BMP Newsletter

Best Management Practices for Water Quality & Soil Conservation

This edition's cover photo is of the atamasco lily, Zephyranthes atamasca, (also known as the rain lily). North Carolina's native white lily, it's commonly found in wet bottomland forest or meadows. It tolerates seasonal flooding and prefers wet organically rich soils. It's a wetland indicator species in North Carolina for the eastern mountains, piedmont and coastal plain (Lichvar 2013).

Inside this issue:

Preparing and recovering forest lands from hurricane impact

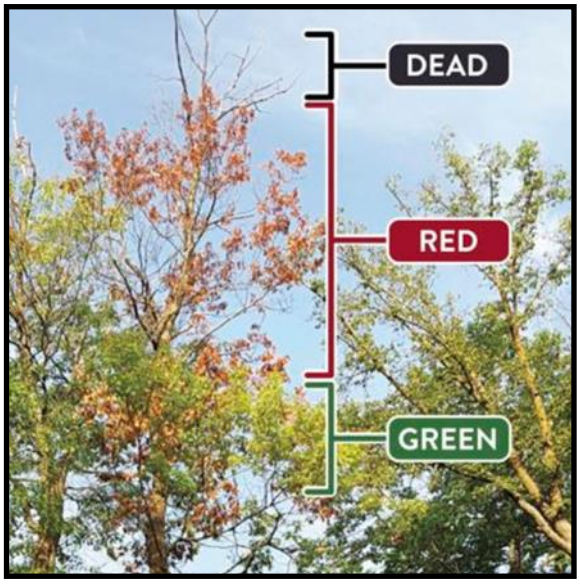
Tropical storms and hurricanes can cause large scale damage to forestland, with the average hurricane reaching 500 miles in diameter (Anthes et al. 1978). In addition to decreasing timber value and infrastructure loss, storm damaged forests can create water quality challenges. After the storm, provided adequate safety, assess your land for damages and consider working with a natural resource professional to assist. Monitoring the site after a heavy rainstorm is helpful to evaluate and repair damages to roads and stream crossings. Doing so is key to minimizing lasting sources of water pollutants.

Hurricane Florence seen from the International Space Station in the Atlantic, September 2018.Credit: NASA.

Local NCFS rangers can assist woodland owners with assessing severe storm damage. Additionally, the USDA Farm Service Agency (FSA) administers the Emergency Forest Restoration Program (EFRP) to help non-industrial private woodland owners restore forests damaged by natural disasters. The EFRP does this by authorizing payments that restore disaster-damaged forests. For more information, see https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/emergency-forest-restoration/index.

Hot weather and dry soil

It's no mystery to North Carolinians that the entire state has faced high summer temperatures with little rain. With noticeable impacts such as brown grass, dusty cars and wilting gardens, it begs the question: what impact does this have on our trees and soil?



Signs of drought stress and symptoms of borer infestation in an oak tree. (Source: County News Review, 2022)

June 2024 was the driest on record for the month (Davis, 2024). As of July 2, 2024, lack of rain paired with extreme heat has resulted in nearly 75% of the state being in moderate or severe drought (Davis, 2024). These intense dry periods can cause drought stress in trees. Drought stress is simply a plant's reaction to an extended period without receiving adequate water. Common signs of drought stress are wilting leaves, discoloration or scorch spots, defoliation and dieback. While many trees have the ability to tolerate drought, when a tree is already stressed due to lack of water, it becomes more susceptible to pests and/or pathogens. Drought stress can be a major concern for younger, recently planted trees.


Cracks in soil caused by drying and shrinking soil.

Drought can also cause changes in soil. During extended periods without rain, soils may dry and shrink. This shrinking can effectively compact and harden the soil, sometimes resulting in "cracking" on the soil surface. With hard compacted soils, water is slower to infiltrate. When rain finally falls, these compacted soils are more likely to erode. Additionally, tree seedling roots can struggle to establish themselves in compacted soil, especially in drought. Recognizing soil types and their physical characteristics can help you assess how water may move on your site and estimate future tree growth.

If there is a silver lining to drought, it's that dry conditions present an opportunity to harvest timber in ways that would otherwise be difficult in wet conditions. Generally, soils with a greater water content are more susceptible to intensive soil disturbance. Forest roads and mechanical site prep BMPs recommend operating when soil moisture is dry enough to prevent negative impacts on soil structure and infiltration. Additionally, when channels such as ephemeral or intermittent streams become dry, pole crossing becomes a viable crossing option.

Rain will come again, but in the meantime, consider how BMPs can be applied in dry conditions and be sure to drink water when out in the woods!

Heavy machinery located on sandy soil that is dry enough to support the equipment weight without rutting.

New N.C. Forest Service water quality forester

We are pleased to announce **John Willis** as the division's newest water quality forester, beginning, May 1, 2024.

Please join us in welcoming John to his new role with the N.C. Forest Service.

John is serving the eastern area of NCFS Region 3 and can be contacted at 704-827-7576 or john.a.willis@ncagr.gov. See John's coverage area on Page 4.

Temporary Bridges for Forestry Crossings Program

The N.C. Forest Service recently received funding to administer a cost share program for temporary bridges.

This program will assist in the purchase of a new temporary steel or wooden bridge to be used for the purpose of temporarily crossing stream channels during forestry operations.

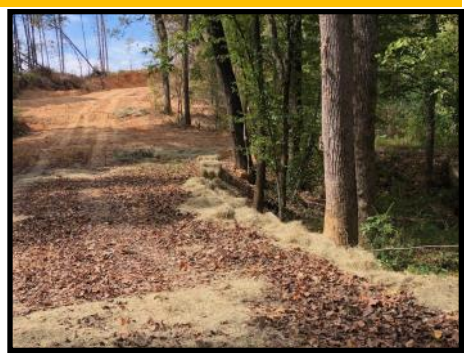
When crossing a necessary stream during forestry operations, a temporary bridgemat, such as the one pictured above, may be used to maximize water quality protection.

Applications are being accepted June 3, 2024 through July 31, 2024. Submitted applications will be randomly selected and upon confirmation, the N.C. Forest Service will provide cost share reimbursement to the applicant. The cost share amount will be the lesser of 75% of invoiced costs or $12,500.

For terms, conditions and application instructions, please see the N.C. Forest Service website at https://www.ncforestservice.gov/Managing_your_forest/temporarybridges.htm. Please thoroughly read all text and related resources.

Seeding and mulching

Seeding and mulching go hand in hand. Applying seed is an investment for future stabilization once the seed has germinated and extended its roots, helping to hold soil in its place. Spreading a layer of mulch such as straw over a bare area retains moisture for the seed to germinate, shields seed from wildlife browsing and provides immediate cover that slows erosion. Fast moving or accumulated runoff can dislodge and transport the mulch, exposing bare soil. Slowing down and spreading out runoff is necessary to establish ground cover on steep slopes. Straw should cover at least 75% of the seeded area, but not completely smother the seed.



Right: Seeding applied as erosion control during forestry operation. Source: Alabama Cooperative Extension Service

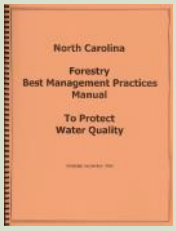
Anthes, R.A., Panofsky,H.A., Cahir,J.J., Rango,A. 1978. *The Atmosphere*. Charles E. Merrill Publishing Company.
Davis, C. 2024. *A Record Dry June Accelerates Drought's Arrival.* North Carolina State Climate Office.
Lichvar, R.W. 2013. *The National Wetland Plant List: 2013 wetland ratings.* Phytoneuron 2013-49: 1-241.

For recorded and live webinars related to forestry and/or erosion control, check out:

The Forestry & Natural Resources Webinar Portal

How the River Flows Podcast

N.C. Forest Service BMP Videos



Contact your local N.C. Forest Service county office for a copy of the 2021 updated BMP manual!

N.C. Forest Service - Water Quality
www.ncforestservice.gov/water_quality/water_quality.htm

Healthy trees, healthy lives
www.healthytreeshealthylives.org

N.C. Forest Service

Water Resources Branch
1616 Mail Service Center. Raleigh, NC. 27699-1600

Protect, manage and grow your forest
www.ncforestservice.gov

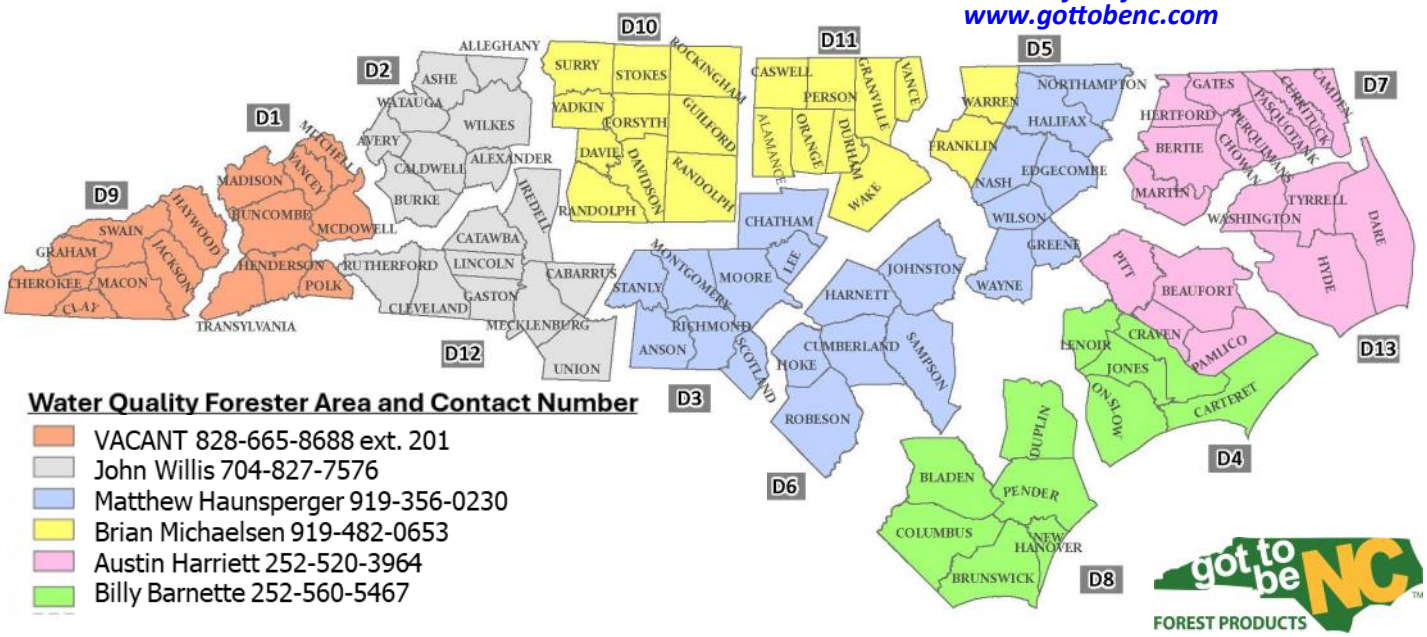
Purchase NCFS forest tree seedlings
www.buynctrees.com

NCDA&CS Agricultural Services
www.ncagr.gov

Keep your home safe from wildfire
www.resistwildfirenc.org

Go out and learn in the forest
www.ncesf.org

Locate North Carolina farm products
www.ncfarmfresh.com
www.gottobenc.com



Water Quality Forester Area and Contact Number

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- John Willis 704-827-7576
- Matthew Haunsperger 919-356-0230
- Brian Michaelsen 919-482-0653
- Austin Harriett 252-520-3964
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