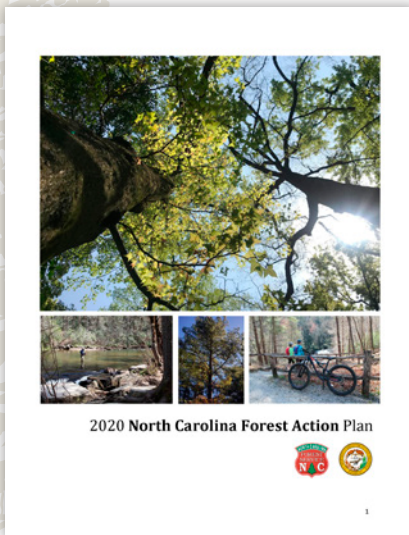


2020 Year in Review

Success Stories and Accomplishments

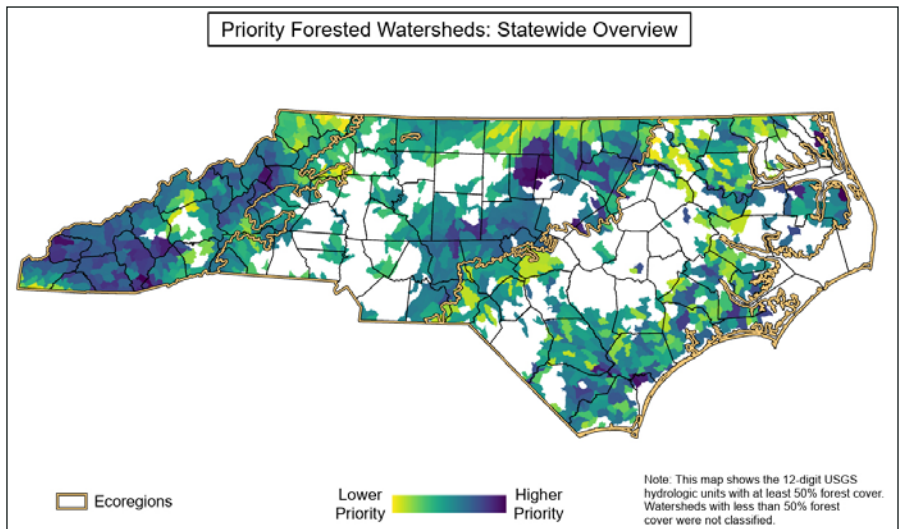
N.C. Forest Service, Nonpoint Source & Water Quality programs



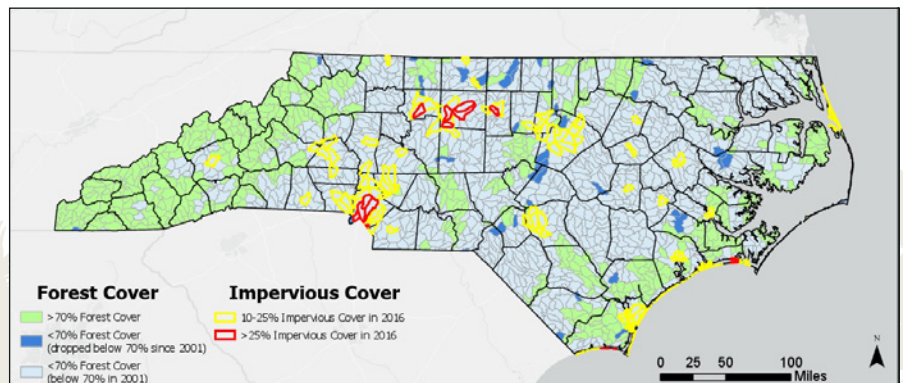
2020 North Carolina Forest Action Plan: Water Goals

Water Resources Branch staff engaged stakeholders in the development of statewide water goals within the Forest Action Plan (FAP) this past year. The FAP includes goals and objectives that offer actions for the next 10 years that are needed to address key findings detailed in the document.

The figures to the right are examples of water-related map products included in the FAP. To learn more about the 2020 FAP's specific water-related strategies and maps developed through a multistakeholder approach, visit www.ncforestactionplan.com.



Priority scores for selected North Carolina watersheds as calculated by the North Carolina FAP model



Forest and impervious land cover changes in North Carolina between 2001 and 2016, according to the National Land Cover dataset



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BMP Implementation Assessment and Estimating Soil Erosion at Stream Crossings Projects

Data collection for the fourth cycle of the BMP implementation assessments and the soil erosion estimates at stream crossings projects were completed this past year. Water Resources Branch staff visited 216 active or recently completed forestry operation sites across the state and collected data for both projects using ESRI™ ArcCollector and Survey123 platforms on smartphones and tablets.

The BMP implementation assessment provides a feedback mechanism for future refinement or development of forestry BMPs as they appear in the BMP Manual and supplemental publications. Data from the soil erosion estimates at stream crossings will help characterize BMP efficiencies. Both projects will help inform the forestry community about how and where BMPs are being implemented, and the level of risk to water quality that occurs if BMPs are not implemented or are implemented improperly.

Analysis and project reports are expected to be completed in 2021. Prior BMP implementation assessment publications and associated products can be found in the water quality section of the N.C. Forest Service (NCFS) website at www.ncforestservic.gov.



Several measures of streamside management zone widths are taken at each site.



Sites are frequently visited alongside local staff.

Bridgemat Loan and Education Service

The NCFS has provided portable, temporary bridgemats to loggers as a service to demonstrate how well they can protect water quality on stream or ditch crossings. During this past year, our bridgemats were used on eight logging jobs to protect 10 water crossings and provided access to an estimated 703 acres of timber for harvesting.

Bridgemats were also used for an emergency response purpose in November. The NCFS delivered a set of bridgemats to a community in Davidson County that was cut off from a storm-induced culvert failure. This temporary fix provided access to more than 50 homes.



Left: NCFS bridgemats were deployed after flooding washed out an NCDOT roadway in Davidson County.



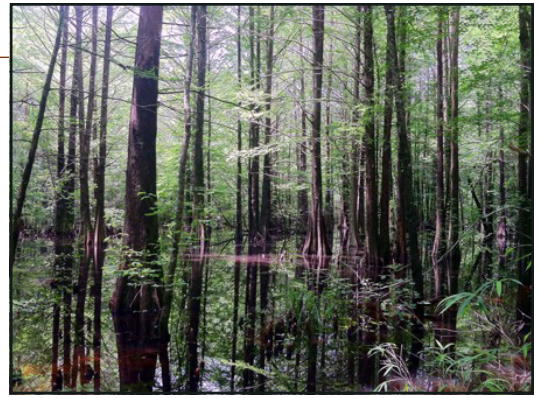
Right: Bridgemats on a logging job near the town of Marks Creek

Education, Outreach and Training

Bottomland swamp website and publication

The NCFS webpage on bottomland swamps has:

- Newly added photos and links to new related resources and the NCFS Forestry Leaflets focus series on bottomland swamp forests;
- A bibliography of online references related to bottomland swamp forest regeneration;
- Archived program, presentations, and field tour guide from the 2017 Bottomland Swamp Forest Symposium hosted in Wilmington; and,
- A featured peer-reviewed publication about a regeneration study led by NCFS personnel
 - ▶ Slye, J.N.; Lang, A.J.; Gerow, T.A., Jr.
A Limited Rapid Assessment of Forest Regeneration in 24 Cypress and Tupelo Bottomland Swamps Following Clearcutting and Shovel Logging in the Coastal Plain of North Carolina. *Forests* 2020, 11, 854.



Cypress swamp at Bladen Lakes State Forest



Revised Forestry Leaflets

The N.C. Forest Service produces and revises short, easy-to-read publications about important forestry topics. This past year, forestry leaflets explaining streamside management zones and riparian buffer rules were updated. The revisions provide a cleaner appearance, streamlined text and the addition of photos. It is a useful resource for sharing with landowners and others.

www.ncforestservice.gov/publications.htm

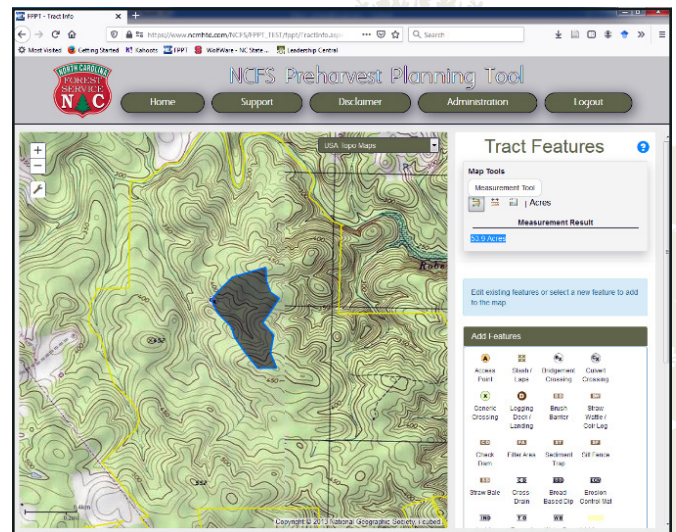
Other Training, Education and Outreach

Notable events that included a significant contribution of information about BMPs, water quality or forest watersheds:

- **101 college students** participating in classroom and/or virtual instruction and field labs
- **50 attendees** of the virtual Geographic Information Systems Day; Presented “Assessing Implementation of Forestry BMPs in North Carolina Using GIS”
- **43 attendees** of the annual meeting for the NCAS&WCD Natural Environment Committee.
- **25 water professionals** at the winter meeting for the Southern Group of State Foresters, Water Resources Committee
- **22 attendees** of the state’s Surface Water Identification and Training Certification Course

Forestry Preharvest Planning Tool

The free and online accessible Forestry Preharvest Planning Tool (FPPT) gained 37 new users this past year, bringing the total number of registered users to 318. An additional 100+ tracts were created this past year allowing its users to learn more about the site characteristics of their properties and the surrounding environment. One important site characteristic that can be measured within the FPPT is watershed size. This was among several features demonstrated to college students this past year.



Users can calculate watershed size within the FPPT.

Stream Restoration

Roughly 3,000 bare root seedlings were planted along the banks of the Linville River restoration project site, located on Gill State Forest, this past year. Tree species included green ash (*Fraxinus pennsylvanica*), persimmon (*Diospyros virginiana*), buttonbush (*Cephalanthus occidentalis*), sweetgum (*Liquidambar styraciflua*), wild pear (*Pyrus communis*), white oak (*Quercus alba*), and pin oak (*Quercus palustris*).

N.C. Forest Service staff monitored seedling success and provided some intermediate treatments to improve tree seedling survival. One such treatment was stomping competing vegetation around the planted seedlings.



Competing vegetation stomped around a white oak seedling in the riparian area of the Linville River Stream Restoration Project



One of 500 green ash bareroot seedlings planted in the riparian area of the Linville River Stream Restoration Project

Water Quality and Erosion and Sediment Control Site Inspections

For state fiscal year 2019-2020, the following results were observed by the North Carolina Forest Service while conducting inspections of forestry-related, land-disturbing activities to determine compliance with the standards of the *Forest Practice Guidelines Related to Water Quality* ("FPGs": 02 NCAC 60C .0100 to .0209) as part of the N.C. Sedimentation Pollution Control Act.

Type of Operation	In-Compliance	Out-of-Compliance	Total
Timber Harvest: Active	2,333	21	2,354
Timber Harvest: Completed	841	13	854
Reforestation and Site Prep	150	0	150
Other*	128	4	132
Subtotal	3,452	38	3,490
Reinspections, All types	n/a	n/a	4,133
Grand Total, All Inspections	n/a	n/a	7,623

**Other activities include silvicultural management practices such as precommercial thinning, crop-tree release, herbicide or fertilizer application, prescribed burning or forest road construction not associated with a timber harvest.*

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