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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

Rolling dip refresher

A rolling dip is a cross between a water bar and a broad-based dip. Like broad-based dips, they have a reverse grade, formed immediately on the downhill edge of the dip. However, this reverse grade is generally shorter and the outlet is narrower. Like water bars, they have a mound of dirt at the downhill end that is angled to divert runoff.

A. Rolling dip. Photo by N.C. Forest Service

B. Schematic of a rolling dip

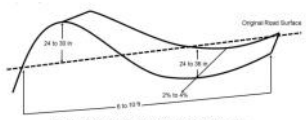


Figure 6F: An idealized schematic of a rolling dip.

C. Recommended spacing of rolling dips

Slope Grade (*percent*)	Rolling Dips (*feet*)*
16 +	120
11 to 15	135
6 to 10	150
0 to 5	180

Inside this issue:

Forestry seeding options

<<< Helpful Hint #1 >>> These seeding recommendations have been field-tested and were selected because they are relatively low-cost, readily-available, easy to apply, widely adaptable for many soil conditions, and provide erosion control while still allowing native vegetation to re-establish.

<<< Helpful Hint #2 >>> Grains are usually sold by weight (in pounds) or by volume (in bushels):

- Wheat may come in a 50-pound bag, or a 1-bushel sack weighing about 60 pounds.
- Rye may come in a 1-bushel sack weighing about 55 pounds.
- 'Certified' seed oats may come in a 2-bushel sack weighing about 65 pounds.
- Whole feed oats may come in a 50-pound bag. These are lower cost than Certified oats and can be used with the Spring Application Mix.
- Oats are not as cold-tolerant as wheat or rye, and therefore may die in the winter.
- When seeding with grains, 1 bag or sack (from 50 to 60 pounds total) should be adequate on most sites. If there is steep slope or loose soil, consider applying 2 bags or sacks of seed.

<<< Helpful Hint #3 >>> If a soil analysis is not done, below are generic soil amendment recommendations that may benefit groundcover establishment during all seasons of application:

- Fertilizer: 400 pounds per acre of 10-10-10.
- Lime: 2,000 pounds per acre of ground agricultural lime.

Conversions to obtain the pounds of fertilizer that provides 1 pound (#) of nitrogen per 1,000 sq. feet:

20# of 5-5-5	20# of 5-10-5	20# of 5-10-10
10# of 10-10-10	12.5# of 8-8-8	6.25# of 16-0-0

Table 10-1: Seeding Options for North Carolina Forestry Operations

Spring Application Mix	Seeding Rate
Creeping Red Fescue	20 pounds / acre
Red Clover	10 pounds / acre
Oats	1 to 2 bags / acre
Summer Application (Temporary Cover)	**Seeding Rate**
German Foxtail or Browntop Millet	25 pounds / acre
Early Fall Application Mix	**Seeding Rate**
Creeping Red Fescue	20 pounds / acre
Red Clover	10 pounds / acre
Wheat	1 to 2 bags / acre
Late Fall Application Mix	**Seeding Rate**
Creeping Red Fescue	20 pounds / acre
Annual Ryegrass	10 pounds / acre
Rye	1 to 2 bags / acre
Winter Application (Temporary Cover)	**Seeding Rate**
Annual Ryegrass	20 pounds / acre

Forestry education in the works!

N.C. State University students, who are part of a *Forest Operations and Analysis* class and a *Forest Soils* class, recently visited a logging operation on Jordan Lake Game Lands in Chatham County. Also in attendance was Mike Powell (NCFA), Jimmy Williams (J.M. Williams Timber Company), Mike Harris (Canfor Southern Pine) and A.J. Lang (N.C. Forest Service).

Photo courtesy of N.C. Forest Service and NCFA.

FPG spotlight of the quarter
02 NCAC 60C .0201
Streamside Management Zone

A SMZ shall be established and maintained along the margins of intermittent streams, perennial streams and perennial waterbodies. The SMZ shall confine visible sediment resulting from accelerated erosion.

See your BMP Manual or BMP Field Guide for additional details.

Retirement in the NCFS water resources branch

A career comes to a close

Richard Cockerham, water resources staff forester retired from the N.C. Forest Service (NCFS) effective June 1, 2026.

Cockerham, a Surry County native, knew he had a desire to work for the NCFS since high school. The draw of working outdoors felt like the right thing to do. Unsure of what a career with the NCFS required, Richard accepted a time limited position in NCFS District 8 (Whiteville) as a BMP forester. The variety of work and respect for co-workers who loved their job quickly turned into a long term career, which included four years in NCFS District 6 (Fayetteville) and 17 years in NCFS District 2 (Lenoir) as a service forester. Ironically, the water quality path came full circle as he entered the job of water quality forester in NCFS Districts 2 and 12 (Mount Holly) until 2023. Richard spent the last few years of his career helping train water quality foresters and a new generation of NCFS employees. When asked what he will miss the most, Richard stated that he would miss visiting with loggers on timber harvests and helping implement forestry best management practices (BMPs).

Richard is well known for his sense of humor and easygoing personality that makes employees and the public feel welcome. His future plans are to continue enjoying the outdoors and playing bluegrass music as often as friends are around to play or listen.

Here's to muddy boots and clean water! Thank you, Richard for more than 30 years of dedication and commitment to the citizens and forests of North Carolina.

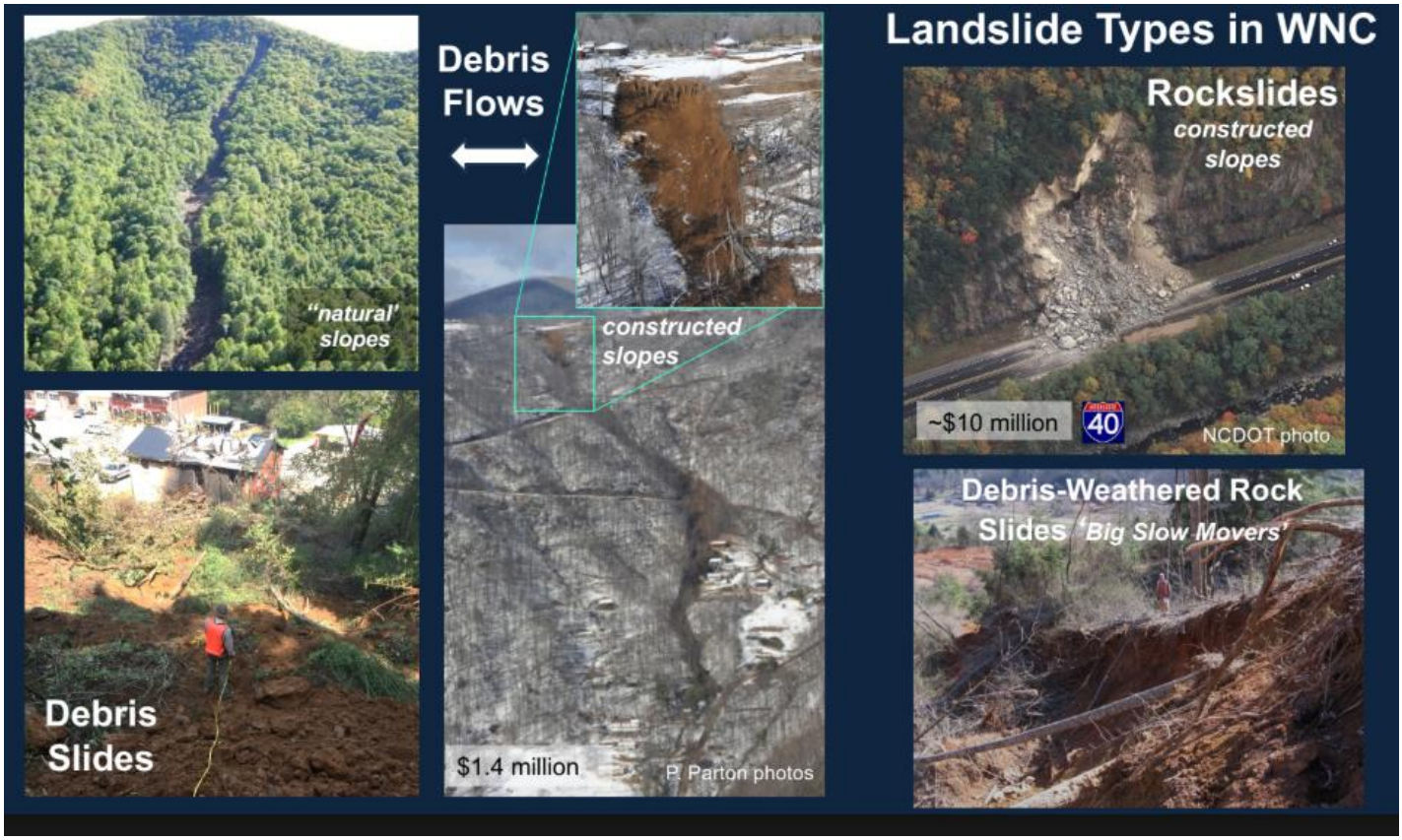
Landslides in North Carolina

NCFS Water Resources Branch (WRB) staff recently attended two separate days of workshops in Western NC on the topics of landslides and streambank repair. These were hosted by N.C. State Extension and held at Black Mountain and Spruce Pine.

Below are some highlights noted by NCFS WRB staff:

- Mountainsides with highly permeable soils leading to solid bedrock beneath are commonly prone to landslides.
- A common landslide trigger is when two major rainfall events occur closely together. The first event saturates soil and allows time for water to infiltrate to the bedrock. In the absence of time to allow that water to drain out naturally, a second event or excess water at the bedrock can lead to an upward force against the soil above, which can initiate a landslide.
- Indicators on the ground that could be signs of a future slide include trees with a bend at the base (bent knees or pistol-butt trunks) or an organization of large rocks atop of each other. Large cracks in the soil or roadways can also indicate movements are occurring over time.
- When the soil is wet (high antecedent moisture condition) on slopes exceeding 70% and we see more then three inches of rain within 24 hours, this is a watch-out situation!
- Some slides can be very long in length. The Dobson Mountain debris flow from April of 2020 was around 4,000 feet long and 16.5 acres in size.
- Where does a typical landslide start? It can vary depending on the site. The example at Black Mountain was the slide beginning at the top and then snowballing downhill, taking other things with it.
- Grass is vegetation but never as good as trees/forests. Choosing native seed mixes over fescue blends would likely be the best alternative. Sowing native grass will surely work on many slides, however certain steepness and finding alternatives are difficult and expensive.

See here for additional information: [NC State Extension]



Photos courtesy of N.C. Cooperative Extension and N.C. State Extension

BMPs for fire lines on prescribed burns

☐ Install the fire line only as deep and/or wide as necessary to contain the prescribed fire.

☐ Minimize erosion and prevent runoff from directly entering waterbodies. Install water diversions.

☐ Set the fire line along the contour. Avoid straight uphill/downhill placement when possible.

☐ Fire line slope should be kept to 25% or less if possible.

☐ Stay out of marsh areas.

☐ Promptly remove debris or soil that was deposited into a stream during fire line installation.

☐ Revegetate exposed soil in fire lines where needed to control erosion.

A skillfully bladed fire line for a site prep burn.

Note: Only enough vegetation was scraped off the surface to create a fire line.

Excessive digging, plowing and pushing of soil is usually not needed for a temporary fire line.

N.C. Forest Service - Water Quality
https://www.ncagr.gov/divisions/nc-forest-service/water-quality

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