



The Water Bar



Water Quality Update
for Loggers and other Forestry Professionals

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Serving Northwest North Carolina

Skid Trails: Where do you put the Water?

Because skid trails create bare compacted soil, they can be a large source of sediment on logging operations. If that sediment enters the stream, there are problems. Why? The long answer involves loss of habitat for stream dwelling critters and fish, down stream flooding and increased cost of removing that sediment for drinking water treatment. The short answer is, because it is an FPG violation and you can be referred if you don't fix the problem. Recent surveys by the Division of Forest Resources indicate that when BMPs weren't used on skid trails in the mountains, there was a risk to water quality over 40% of the time. Four

factors that will help you avoid FPG problems are location, ground cover, slope and water placement.

1) Location - Whenever possible, avoid the risk of sediment entering streams altogether by keeping skid trails as far away from them as possible. Remember, the fastest way for water and sediment to get into a stream from the upland is ephemeral channels and gullies, so do your best to avoid them as well.

2) Ground cover - Leaves, vegetation and brush all protect bare ground from the erosive force of rainfall. They also soak up water and prevent it from flowing downhill. Maintaining good groundcover on skid trails can be done by packing brush in the trail on your way back from the deck.



A skid trail that has been well-protected with packed brush.

3) Slope - Anyone one who has ever put their thumb over the end of the hose to wash dirt off their driveway already knows that faster moving water will move more sediment because it has more energy. Locating skid trails on gentler slopes will slow the speed of the runoff and reduce the erosion caused by runoff.

4) Water placement - Another way to reduce the speed of runoff and divert it from the trail is the use of water bars. Properly installed water bars will slow the downhill momentum of water and turn it off into the litter where it will disperse. Of course, below each water bar the water will eventually build back up a head of steam, which is why a string of water bars is usually necessary to be effective. Water gains speed faster on steeper slopes and that is why water bars must be placed closer together on steep slopes. One last point, in order for water bars to work you need to have a place to put the water. That means you need an area downhill from your trail long enough to allow water to soak back into the ground. So if you put your skid trail right next to a stream, the only place to put your muddy water is in the stream. Likewise, if you run your trail right up the bottom of a hollow, you have nowhere to put your



Possibly the worst location for a skid trail. Not only are these trails excessively steep, they have been located in a dry hollow where it meets a perennial stream.

water because the hill slopes up on both sides of you. In that situation, you can build water bars all day long but all you'll get is a sloppy mess that is aimed right for the stream.



If you locate a skid trail in the bottom of a dry hollow like this, be prepared to do whatever is necessary to prevent sediment from following the trail to a stream. In this case the logger had to pack the entire hollow full of brush.

Well placed and maintained skid trails last longer, provide more protection for water quality, reduce the risk of costly FPG violations and save time and money in site rehabilitation when the job is done. Keeping location, ground cover, slope and water placement in mind when you build trails and remembering to properly close out trails as soon as you are finished with them will save you time and trouble in future.

-Will Summer

Bridge Mats Available

The Forest Service has both wood and steel portable bridges that are available for loggers to borrow. The 3-piece bridgemats are 24 feet long and will make a 12 foot wide bridge suitable for a skid trail or truck road. Contact Water Quality Forester, Roger Miller (828-757-5611) or your local county ranger about borrowing the bridges.



Wooden bridge mats on a stream crossing in Caldwell County.

Tailgate Training

The Forest Service is available to provide an on-site "Tailgate BMP Training for Logging Crews". We can come to you logging job and give a 1-2 hour customized program for your entire crew to help you avoid, identify and correct water quality problems. The training qualifies for ProLogger re-certification credits. There is no charge for this service. Contact Roger Miller (828)757-5611 to set up an appointment for training for your crew.

Your comments are appreciated.

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Before-and-After B.M.P.'s



Stream crossing in Watauga County had a culvert too small to leave in this large stream. Project closeout required culvert removal, re-sloping of stream banks, and seeding/mulching of entire area within SMZ.



A skid trail in Ashe County located in the bottom of a dry hollow (ephemeral stream) required packed brush along its entire length to keep sediment from reaching a spring. Required during active logging.



This Avery County bridge had a deep fill that extended down to the edge of the stream. A cross-road drain culvert had its outlet at the top of the fill. There was severe erosion of the fill. Stabilization required re-sloping the fill material, and seeding/mulching the slope. The culvert was extended to the bottom of the fill and rip-rap was placed at the culvert outlet.