Cameron on Transportation: Trains Slip Sliding on Wet Leaf Goo is a Bigger Mess Than You May Think

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What is more beautiful than fall in New England? The autumn leaves make even the most mundane daily commute seem idyllic — unless you're taking the train.

Yes, it's time for our annual battle against "slip slide," that dangerous rail condition caused by wet leaves on our tracks. Mind you, this is no small problem. In past years as many as 50 or 60 trains a week were delayed by the issue when sloppy, wet leaves turned steel rails into the railroad equivalent of a skating rink. The trains often couldn't stop, or in some cases, even start.

OK. We've sent a man to the moon, mapped the human genome and built super computers. Why can't we solve this leaf-goo problem? If only it was that easy.

Steel vs. Goo

It's really a matter of physics. The flanged steel wheel of a locomotive only makes contact with the rail at a spot about the size of a dime. That's why a train can usually ride so smoothly, gliding on a very small but stable area of friction.

But when fall arrives, the leaves fall, get wet and get mulched into one of the slipperiest substances known to man, creating a compound called pectin. When the train hits a slippery patch, its computer freaks out like a downhill skier encountering ice, and it tries to stop. This is called "dumping the air," as the train automatically drops its air pressure, engaging the brakes. When it happens you can actually hear it — and feel it as the train lurches to a stop.

Don't worry. The train is not going to fly off the tracks. But it also may not stop on a dime, sliding along the slippery track. Sometimes the air brakes are engaged so hard that the steel wheel is dragged along the track and ground into a flat spot. In some years, these flat wheel issues have seen 25 percent of the railcar fleet out of action for regrinding.

Slippery Slope

This leaf-caused slip-slide is at its worst on the Danbury branch, an almost continual uphill climb from Norwalk to "The Hat City," which is almost 400 feet above sea level. At its worst, the leafy goo means the diesel-pulled trains can't make their usual stop at Cannondale because they have to keep up momentum to climb the grade.

On mainline MU (multiple unit) electric trains every car is a locomotive, spreading out the traction power to all the wheels. But on a branch line train, a single locomotive weighing 137 tons has only eight wheels touching the track and needs enough traction there to pull an eight-car train. That's just eight, dime-sized friction points, each compromised by slippery leaf-goo.

Solutions: Electricity, Water, Chemicals — Even Lasers

Now, if the Danbury branch was electrified, as it once was, this problem would go away, or at least be minimized.

What can be done to battle the slippery scourge? Well, all trains carry sand which they can throw under their traction wheels, improving friction. But Metro-North has gone further, creating a car called "Water World" that blasts the tracks clean with high pressure hoses. And then the leaves keep falling.

This problem is not unique to Metro-North. Other railroads fight the leaf-wars too, but few travel through

such steep, wooded glens as the bucolic Danbury branch.

In the UK there's a scientist who proposes zapping the tracks clear with lasers. Others are trying chemicals. Clearly, people are working on this problem and have been for decades.

So take heart, dear commuter. Enjoy the ride and the foliage, slippery as it may be.

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