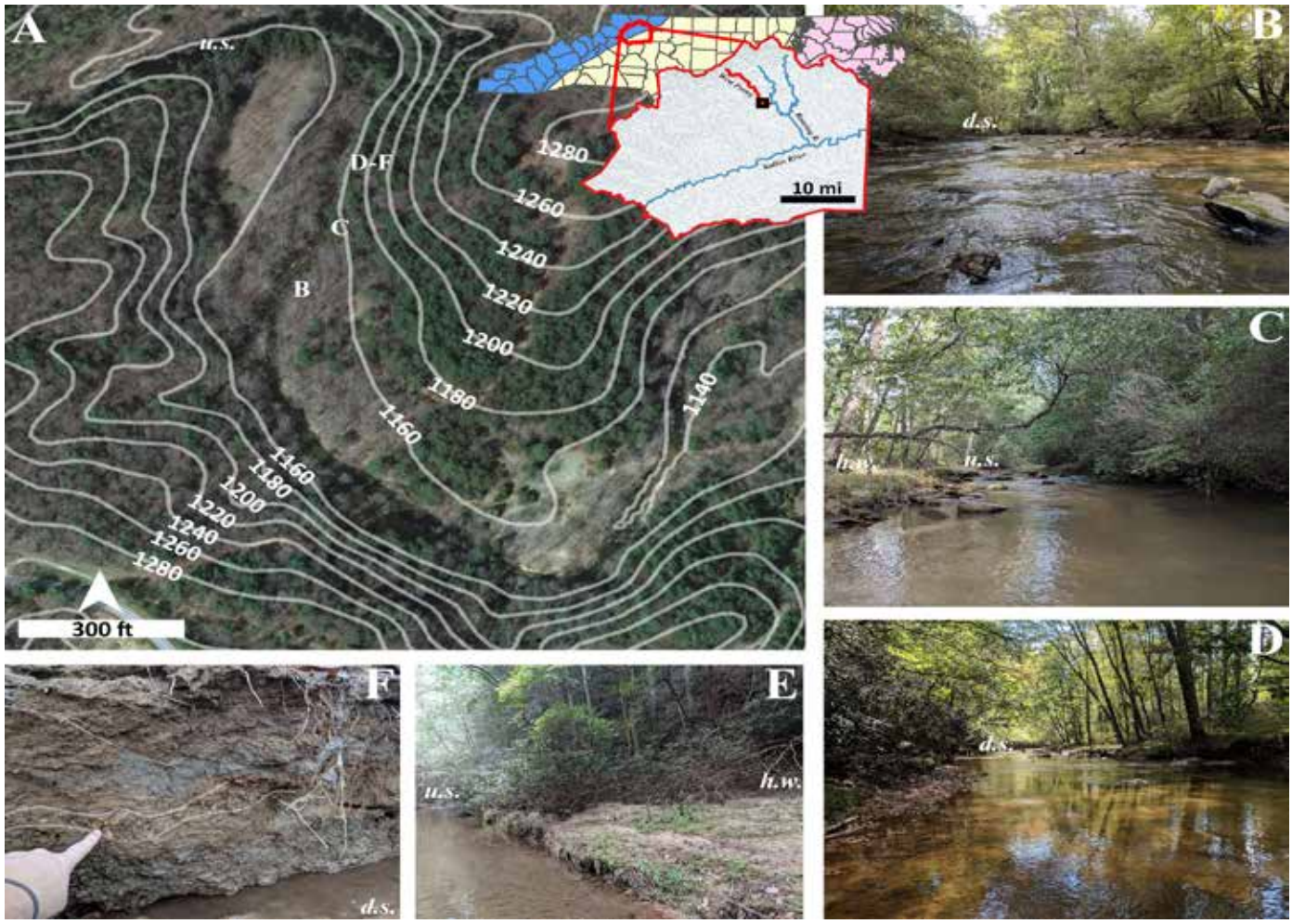
West Prong Roaring River after Florence: New Storm Reveals Old



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Most days, the gently bubbling West Prong of the Roaring River in Wilkes County, NC (A; contours and 2010 imagery from www.nconemap.com) seems undeserving of its title, which dates back to at least 1785. Only after heavy rainfall does the reason became apparent—the sound of its waters during flash floods. Beginning as a bedrock stream in the Alligator Back Formation of the Blue Ridge Belt, the West Prong displays riffle (B), pool (C) and run (D) morphology in its lower stretches. The photos in this figure were taken in October 2018, two weeks after the passage of Hurricane Florence (B-F; u.s. = upstream, d.s. = downstream, and h.w. = recent high water). Drift lines and other hydrologic indicators suggest that water levels rose as much as 3 to 4 feet above stages shown here, when they had largely receded back to seasonal norms (in the area of the photos, on the order of 20 CFS with a watershed size of ~14,200 acres). Of special interest, high flows had scoured a bar along the pool-run (E), revealing a distinctive gravel layer in the otherwise fine deposits—an old storm revealed by the new (F). The West Prong's flow is generally southeast and runs for about 12 miles before joining the Middle Prong and 5 miles later the East Prong to form the Roaring River proper. Extending the discharge time series for the downstream main-stem of the Roaring River (USGS 02112120, discontinued 2014) via linear regression with the nearby Reddies River (USGS 02111500), estimated mean discharge at the main-stem the day of Florence's passage is 2,160 ft^3/s (95% CI 1,490 ft^3/s to 3,140 ft^3/s; R2 = 0.91; DF = 18,445); compare this to a typical November flow at the main-stem of less than 200 ft^3/s and against USGS peak estimates for the region's Great Floods of 1916 and 1940 at, respectively, 45,000 ft^3/s and 31,000 ft^3/s. The storm that generated the gravel deposit (F) is unknown, but the Great Floods, which devastated numerous mountain communities and generated much larger deposits, are unlikely culprits. Nevertheless, Florence's high waters, and the deposit they revealed, demonstrated the destructive potential of even a small river under a hurricane's wrath.