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Wild pigs can impact water quality

February 27, 2020



Wild pigs within the paddock, enjoying lunch. Photo credit: Jane Dentinger.

The southern portion of the United States has suffered through a drastic expansion of wild pigs, causing dramatic destruction of prime farmland and cash crops. This disruption could be accompanied by water quality contamination concerns, particularly from nutrients, pathogens, and antimicrobial-resistant bacteria.

In an article recently published in the *Journal of Environmental Quality*, researchers report on a preliminary study whereby wild pigs were captured and held in a paddock to observe their abiotic (nutrients) and biotic (bacterial fecal indicators, pathogens, and antimicrobial resistance genes) influences on immediate horizontal water runoff and surface water located beyond a riparian buffer.

The team found that while wild pigs increased bacterial levels in the immediate runoff water, it appeared that the riparian buffer was effective in reducing the horizontal transport of nutrients, pathogens, and antimicrobial resistance genes. Levels of fecal indicators and pathogens found in runoff water, collected immediately below the paddock, were greater than 100 times the levels collected above the paddock following rain events. Time appeared to influence the levels of nitrogen compounds and bacteria in runoff below the paddock, which may have been influenced by pig numbers. Antibiotic resistance genes were found in all waters, suggesting there were extra-experimental influences, not necessarily associated with pig presence. Runoff water bacterial fecal indicators and pathogens were all present at levels greater than surface water levels as would be expected.

Overall, it appears that wild pigs potentially pose a threat to water quality, but only if they have direct access to the water, which in many cases, is highly likely. Pathogens and fecal indicator bacteria were significantly associated with wild pigs, but riparian

buffers limited water quality impairment while genes and bacteria associated with antimicrobial resistance were not influenced by wild pig presence.

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Brooks, J.P., Smith, R.K., Aldridge, C., Chaney, B., Omer, A., Dentinger, J., Street, G.M., & Baker, B.H. (2020). A preliminary investigation of wild pig (*Sus scrofa*) impacts in water quality. *Journal of Environmental Quality*, *49*.
https://doi.org/10.1002/jeq2.20036

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