

EDUCATION

A ROOMBA FOR TICKS?



KENDALL WARNER, THE VIRGINIAN-PILOT

The TickBot, designed and operated by members of the Old Dominion University Tick Research Team, travels down a trail in the Preserve on the Elizabeth neighborhood of Chesapeake on Monday, July 27.

ODU researchers pilot remote-controlled tick prevention

NATALIE ANDERSON
The Virginian-Pilot

As Virginia sees an uptick in tick-related illnesses, a Roomba-type technology dubbed the TickBot may be the answer to fighting off the pesky parasites.

A group of researchers at Old Dominion University in Norfolk called the ODU Tick Research Team has set out to test a new technology intended to kill ticks without harming the surrounding environment or wildlife by using a remote-controlled robot on four wheels. The robot is armed with a cloth treated with permethrin, a chemical insecticide typically sprayed on military uniforms and boots. The chemical is a neurotoxin that kills ticks within 45 minutes of exposure to the treated fabric while posing little risk to other critters.

“The huge advantage of this is that it’s self-contained, and the moving vehicle will scare off the most beneficial insects,” said Holly Gaff, who heads the tick research team and chairs the school’s biological sciences department. “They’ll fly away from something moving.”

Since 2012, the researchers have collected at least 350,000 ticks across Hampton Roads, aiming to better understand health risks, prevention strategies,

diagnostics and treatment. Current efforts come as Virginia, and most of the rest of America, is seeing an increase in emergency hospital visits for tick bites.

Trails within the Preserve in the Elizabeth neighborhood in Chesapeake are among the first sites in the pilot program. Researchers have also tested the technology at Hoffer Creek Wildlife Preserve in Portsmouth and NASA’s Langley Research Center in Hampton.

The TickBot models a typical tick collection, which involves waving a white permethrin-treated cloth over vegetation and leaf litter where many ticks hang out to find a host. Researchers are relying on the Chesapeake neighborhood to test the technology so it can eventually be commercialized into an accessible tool for people to perhaps use in their own backyards. The ongoing research also helps to better understand the risks ticks pose to humans by studying their habits and pathogens.

A robot that operates on the ground is ideal — despite a common myth, ticks live and move on the ground, not in trees.

“From that initial idea of some very small-scale surveillance, it’s kind of blown up into this entire team of really understanding what’s going on in our neck of the

woods,” Gaff said. “It’s kind of like Roomba for ticks in your backyard.”

Tick bites pose a significant health risk for pets and humans, spreading illnesses such as Lyme disease, Rocky Mountain spotted fever and alpha-gal syndrome. In Virginia, the most common are black-legged ticks, lone star ticks, American dog ticks and Gulf Coast ticks.

In the 2000s, Virginia became a “batleground” state for Lyme disease, which can cause rashes, fatigue, headaches, fevers, muscle and joint aches, and swollen lymph nodes that worsen if untreated. Rocky Mountain spotted fever has some of the same symptoms and can even be fatal if untreated.

A condition that needs more research, but is a growing concern in Virginia, is alpha-gal syndrome. It can often be mistaken for food poisoning, as it often results in a serious intolerance to red meat that sets in months after a tick bite. The reaction comes from a sugar carbohydrate found in ticks that’s foreign to humans, according to Emily Owens Pickle, an assistant professor in epidemiology, biostatistics, and environmental health in the Joint

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CRIME

‘We need to find him’

Suspect on the run after triple shooting injures 3 outside Charlottesville Wawa

HAWES SPENCER
The Daily Progress

“We got an active shooting at the Wawa.”

That urgent radio call from a Charlottesville police officer sent officers racing to the Fifth Street Southwest fuel station and convenience store shortly after 1:37 a.m. Thursday. There, they found three people suffering from gunshot wounds and a chaotic scene that included reports of a barricaded employee, another employee shot



Gardner

in the leg, a vehicle strike and a search for a suspect who police say opened fire during a parking lot altercation.

The suspect, 20-year-old Nysoun Malik Gardner, remained at large Thursday afternoon after police obtained warrants charging him with three counts of malicious wounding, three counts of use of a firearm in the commission of a felony and one count of possession of a firearm by a convicted felon.

Police released a grainy surveillance image of Gardner and asked the public for help locating him.

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CAL CARY, THE DAILY PROGRESS

Charlottesville Police Chief Michael Kochis addresses the media outside the Charlottesville Police Department on Thursday, Oct. 5, 2023.