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Will Kuhn, left, director of science and research at Discover Life in America, guides volunteers as they load a centrifuge at a DNA-barcoding workshop. PROVIDED BY DLIA

Teens charged in attempted robbery

3 accused of breaking into Leicester home

Will Hofmann
Asheville Citizen Times
USA TODAY NETWORK

ASHEVILLE - Three teenagers have been charged in the breaking and entering and attempted robbery of a Leicester home Feb. 9, which resulted in the shooting of a juvenile, according to a Feb. 15 news release from the Buncombe County Sheriff's Office.

Noah Berry McDade and Jayden Saleem Smith, both 19, were charged with felony breaking and entering, felony conspiracy and felony attempted armed robbery. Both live in Buncombe County, sheriff's office spokesperson Aaron Sarver told the Citizen Times.

As of 6:36 p.m. Feb. 15 both McDade and Smith were in custody, Sarver told the Citizen Times. They are being held

See **CHARGED**, Page 4A



Three masked individuals broke into a Leicester home Feb. 9.
ANGELA WILHELM/ASHEVILLE CITIZEN TIMES

Mystery solved

DNA barcoding confirms firefly species in the park



Word from the Smokies
Jamie Matzko
Columnist

Anyone who watches murder mystery TV shows or listens to true-crime podcasts has probably heard of the use of DNA analysis in forensic science to exonerate or implicate a suspect. But what if DNA analysis could also be used to solve the mystery of who lives in Great Smoky Mountains National Park?

Some scientists working on species discovery in the Smokies had that exact same question and recently began to use DNA (deoxyribonucleic acid) barcoding technology to better identify some of the small charismatic species that call the park home. Already one firefly species "mystery" has been solved, and the case is closed.

"We can now officially say that the spring four-flasher, *Photuris quadrifluga*, is here in the Smokies — one of the 19 firefly species documented so far," said Will Kuhn, director of science and research for Discover Life in America.

Great Smoky Mountains National Park is renowned for its biodiversity and is home to many species that are still undocumented and, in fact, new to science. Since 1998, scientists working in the Smokies as part of the All Taxa Biodiversity Inventory have documented 1,079 new-to-science species. Discover Life in America conducts this type of research as part of managing the ATBI, which is an effort to catalog and understand ev-



At least 19 species of fireflies are known to live in Great Smoky Mountains National Park. This firefly in the *Photuris versicolor* complex is nearly indistinguishable from the spring four-flasher (*Photuris quadrifluga*) by appearance alone, but DNA barcoding recently confirmed that the spring four-flasher is indeed present in the park.
PROVIDED BY ABBOTT NATURE PHOTOGRAPHY

ery single species living in the park.

"The spring four-flasher has long been presumed to be in the Smokies — enough that the ATBI has been counting it as 'present' based on museum specimens highly resembling the species," Kuhn said.

The problem was that *Photuris quadrifluga* is nearly impossible to identify

"We at Discover Life in America are excited to add DNA barcoding to our toolbox. We aim to publish new barcodes for Smokies species and to use this technology to help us find potential new species to science in the park."

Will Kuhn
Director of science and research for Discover Life in America

by appearance alone. The species was confirmed when Kuhn and DLiA interns Emerie Landers, Laura Dixson and RJ Smith used DNA to identify a sample Kuhn had collected near the Abrams Creek Ranger Station in May of 2023.

The spring four-flasher is a widespread species of firefly found in various grassy habitats, including hay fields and meadows, across the eastern United States. The most common flash pattern for this species is a string of three or four pulses of greenish-yellow light about a half second apart followed by four seconds of darkness. Males will begin to display in May and June and can be seen just above the vegetation in open areas and among the trees adjacent to these areas.

See **FIREFLY**, Page 5A

Ex-Buncombe sheriff deputy pleads guilty to solicitation

Ryley Ober
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ASHEVILLE — A former Buncombe County Sheriff's Office Deputy pleaded guilty to solicitation of prostitution in Buncombe County District Court Feb. 9 and is permanently barred from being a law enforcement officer in North Carolina, according to a Feb. 15 news release from District Attorney Todd Williams.

Deputy Chad Walker pleaded guilty in front of Judge Calvin Hill, who placed him on supervised probation for 12 months. Hill also ordered Walker to undergo a comprehensive clinical assessment, comply with all treatment recommendations, and pay a \$100 fine along with the costs of court, the release said.

See **GUILTY**, Page 5A



Firefly

Continued from Page 1A

Kuhn used equipment and supplies provided to DLiA by the DNA Learning Center at Cold Spring Harbor Laboratory in New York to sequence the “barcode gene” of this specimen’s DNA. He then compared it to an international database of sequences from known species. The specimen matched several sequences in the database, including one from a spring four-flasher that was identified by firefly expert James Lloyd as part of a 2007 study of the evolutionary relationships among North American fireflies. Through this match, the scientists were able to confirm that the spring four-flasher was indeed found in Great Smoky Mountains National Park.

“All animals, including humans, carry a particular piece of DNA, the COI gene, that’s pretty much unique for every species, like the barcode on an item in the grocery store,” Kuhn explains. “The process of DNA barcoding is to first determine the unique sequence of the four nitrogen bases in the DNA molecule, which are cytosine, guanine, thymine, and adenine. This sequence makes up an individual’s barcode that can then be compared to those from known species to find a match.”

Although many species found in the

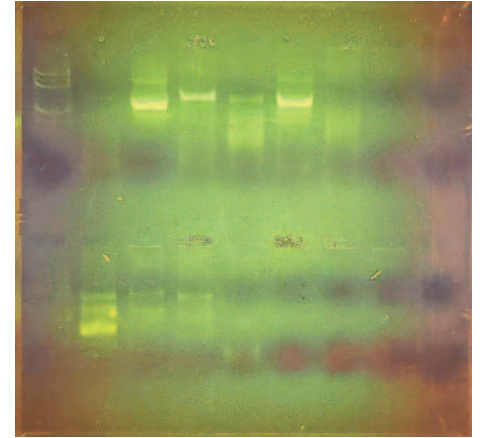


Emerie Grace, left, and RJ Smith review data during their 2023 summer internship at DLiA. Grace, Smith, and fellow intern Laura Dixson used DNA barcoding to confirm the presence of the spring four-flasher firefly in Great Smoky Mountains National Park. PHOTOS PROVIDED BY DLiA

Smokies are already represented in global DNA databases, scientists believe there are still quite a few park species that have yet to be analyzed and barcoded. This provides meaningful opportunities for discoveries in the Smokies to

contribute to the greater body of genetic knowledge and benefit researchers around the world.

“We at Discover Life in America are excited to add DNA barcoding to our toolbox,” said Kuhn. “We aim to publish



Gels and fluorescent dyes can be used to visually inspect DNA samples before sequencing. The greenish glow of this gel stain is not unlike that of some fireflies in the Smokies.

new barcodes for Smokies species and to use this technology to help us find potential new species to science in the park.”

Discover Life in America will be hosting its annual fundraising event, Fireflies at Norton Creek, June 6-9. Tickets are now available online at dlia.org/events/fireflies-2024.

Jaimie Matzko is the biodiversity program specialist for Discover Life in America, coordinating events, communications, and educational programming. Reach her at jaimie@dlia.org.

Guilty

Continued from Page 1A

As a part of his conditional discharge agreement with prosecutors, Walker permanently surrendered his law enforcement certification “to ensure that he could not be employed by any other agency as a law enforcement officer,” the release said.

A copy of Walker’s surrender agreement, obtained by the Citizen Times, said, “...the officer agrees to permanently surrender his certification to the Sheriff’s Commission and further agrees that he shall be permanently banned in the future from obtaining any and all forms of law enforcement certification in the State of North Carolina from either the Criminal Justice Commission or the

Sheriff’s Commission.”

In exchange, the commissions agreed to “discontinue any investigation into the allegations of misconduct by the officer,” the agreement said. Walker, the director of the Criminal Justice Standards Division and the director of the Sheriff’s Standards Division signed the agreement on Jan. 26.

Walker may also be added to the National Decertification Index, which is maintained by the International Association of Directors of Law Enforcement Training and Standards, per the agreement.

Under N.C. state statute, a conditional discharge such as Walker’s allows defendants with little or no prior criminal history to plead guilty and be placed on probation “for the purpose of allowing the defendant to demonstrate (their) good conduct.”

“If Walker complies with all conditions of probation and successfully completes probation his plea will be withdrawn and the charge will be dismissed,” Williams said in the news release.

Walker was arrested on June 22, 2023, while APD officers were assisting Cherokee Indian Police Department officers in making an arrest at a hotel on the 100 block of Tunnel Road. While at the hotel, they observed what they said appeared to be human trafficking, including three different women at the hotel with multiple men coming in and out of rooms, the Citizen Times previously reported.

The deputy was one of four named people arrested on June 22 in connection to a suspected human trafficking ring, as announced by the APD. Walker was subsequently charged by APD with the offense of Solicitation of Prostitution.

Buncombe County Sheriff Quentin

Miller terminated Walker’s employment with the sheriff’s office the same day he was arrested.

APD spokesperson Samantha Booth recently told the Citizen Times that the investigation into the suspected human trafficking ring is still ongoing.

One of the others arrested on June 22, Milo Jamemall Henderson, was further charged with human trafficking-related crimes on Feb. 5. A sixth person, De’Markria Marquell Miller, 32, was also arrested and charged Feb. 5 with human trafficking, sexual servitude, and promoting prostitution, Booth told the Citizen Times Feb. 7.

This story will be updated.

Ryley Ober is the Public Safety Reporter for Asheville Citizen Times, part of the USA Today Network. Email her at rober@gannett.com and follow her on Twitter @ryleyober



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