

MOUNTAINS

Community scientists discover 70+ new species



Will Kuhn
Word from the Smokies

Over the past few years, national park visitors helped document a slew of new species records in the Smokies using a community science app called iNaturalist.

Thanks to the app and a community science project called Smokies Most Wanted, more than 70 species were recently added to the list of over 21,000 species known to Great Smoky Mountains National Park. A project of Discover Life in America, Smokies Most Wanted encourages visitors to record the life they encounter in the park. In doing so, participants help find new species in the park, fill in gaps in our knowledge of where and when known species occur, track nonnative species, and more.

“One of the big ideas behind Smokies Most Wanted is that it gets more eyes out in the park,” said Todd Witcher, DLiA’s executive director. “It’s a huge place and we can’t be everywhere at once, but visitors are out and about all day, every day, and they help us complete the big picture.”

Recently, park entomologist Becky Nichols and I culled through more than 71,000 observations added to iNaturalist over the past several years as part of the Smokies Most Wanted project. They included records of more than 4,000 different species and we wanted to know if any were undocumented. Even after eliminating a number of misidentified or unverifiable records, we came up with a whopping 77 species that hadn’t been documented in the park yet. While all these species were known outside the park, they represented new species records for the Smokies.

What are these new species? They include 33 different kinds of wasps, 15 fly species, 10 beetles, and many others. The only non-arthropod on the list so far is an intriguing fungus called green beetle hanger (*Hesperomyces virescens*), an external parasite of the exotic Asian ladybird beetle.

“Some of the newly discovered arthropods have unusual life histories,” said Nichols. “There are 17 wasps, flies, and mites that form galls on different kinds of plants — they essentially hijack a plant’s defenses, inducing the plant itself to make a little home for their young. There are also four kinds of flies whose larvae ‘mine’ through leaf tissue, leaving these zig-zagging trails along the leaf as they feed and grow.”

Some species are common, like the green lynx spider. Though camouflaged



Eggs of the tiny fly known as the gall midge laid in the stem of a wingstem plant induce oblong galls that serve as both shelter and a food source for the developing fly larvae. PROVIDED BY JULIE ELFIN

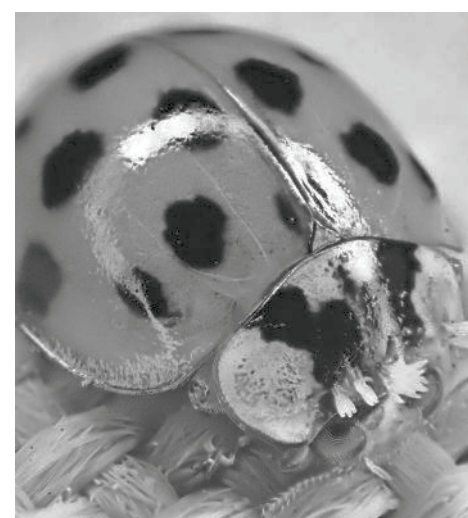
to blend in with the green vegetation where it waits for pollinator prey, this stunning park denizen is very common in open areas like the meadows of Cades Cove. It’s a wonder that it has not been documented in the park until now.

Where did these species come from? Most of them are native and have probably been in the park for a very long time. One nonnative species was also discovered: the oriental beetle, which is native to Asia but is now common across much of the eastern US after its accidental introduction into North America.

Who made these discoveries? Forty different iNaturalist users contributed

to this batch of new species records: six DLiA staff, interns, and board members; three scientific researchers working in the park; one park staff member; and 30 other members of the iNaturalist community, including casual observers and avid naturalists. Many other folks — ranging from taxonomic specialists to enthusiastic amateurs — helped identify these species. These observers and identifiers are part of the robust community of iNaturalist users who work toward increasing our understanding of the natural world.

“It’s really fun to be part of a community where anyone can make meaningful scientific contributions with just a



Looking like bits of yellow-green pollen stuck to the abdomens of Asian ladybird beetles, green beetle hanger is actually an ectoparasitic fungus spread by contact between these beetles. PROVIDED BY COLE SHOEMAKER ON INATURALIST

camera and an interest in nature,” said Graham Montgomery, who has made over 900 observations in the park as part of his research in the Smokies for his Ph.D. at the University of California-Los Angeles.

“Sites like iNaturalist also foster and inspire interest in the life around us,” he continued. “Without online communities like these, I probably wouldn’t be a scientist!” Among Montgomery’s finds were nine new species discoveries.

“What I like most about iNaturalist is that it helps me to slow down and take notice of the tiny treasures while I’m out exploring,” said Callia Johnson, Executive Assistant at Great Smoky Mountains National Park, who discovered two of the new park records.

Teresa Nelson of Texas was vacationing with family when she recorded a new beetle species in the park. “It is amazing to think that with all the people hiking in the Smokies and photographing nature that I would find an insect that has not been recorded yet,” she said.

You can contribute to the Smokies Most Wanted project simply by downloading iNaturalist to your smartphone and using it to document the life you find in the park. Up for a challenge? DLiA has a running list of target species for which it needs more iNaturalist observations. View the list and find out more at dliia.org/smokiesmostwanted.

Will Kuhn is the Director of Science and Research at Discover Life in America, which seeks to discover, understand, and conserve the biodiversity of Great Smoky Mountains National Park. Learn more at dliia.org and reach the author at will@dliia.org.

School funding plaintiffs ask NC Supreme Court to weigh in

ASSOCIATED PRESS

RALEIGH — Plaintiffs in long-running North Carolina school funding litigation have asked the state’s highest court to decide whether a trial judge’s directive to send \$1.75 billion from government coffers to state agencies to address inequities is lawful.

Lawyers representing school districts and parents on behalf of their children filed two separate appeal notices dated Wednesday with the state Supreme Court.

They are unhappy with last month’s decision by a Court of Appeals panel that blocked Superior Court Judge David Lee’s order to send the money from being enforced, and want the justices to

get involved.

Lee is overseeing the litigation known as “Leandro,” named for one of the plaintiffs in the original lawsuit filed in 1994.

The judge declared last month that he had authority to direct funds from the state treasury because elected officials had failed repeatedly to comply with previous Supreme Court rulings that declared the state constitution gives children the “opportunity to receive a sound basic education.”

The \$1.75 billion would cover two years of a remedial spending plan. It was developed by an outside consultant with input from Gov. Roy Cooper’s office and the State Board of Education.

Republicans leading the General As-

sembly said Lee had no such power, since appropriating state funds rests solely with the legislature. A majority on a Court of Appeals panel, responding to a request for intervention by State Controller Linda Combs, agreed Nov. 30 that Lee overstepped his bounds and blocked the transfer.

The plaintiffs’ lawyers question whether the appeal panel’s quick ruling ran counter to rules of appellate procedure, as well as to the state constitution and Supreme Court opinions. Lee wrote last month that a portion of the constitution addressing the right to education in part gave him the authority to appropriate funds for education without a specific law of the General Assembly.

“The children of North Carolina have

waited long enough for vindication of their constitutional right to the opportunity for a sound basic education and deserve no less,” wrote Melanie Dubis, one of the plaintiffs’ lawyers, to the Supreme Court.

Last week, House Speaker Tim Moore and Senate leader Phil Berger asked Lee that they be allowed to formally intervene as defendants in the Leandro case. Lee’s order effective challenges the state budget that the General Assembly approves, as well as the legislature’s constitutional authority, the GOP leaders’ attorneys wrote.

Cooper a Democrat, sought unsuccessfully for the remedial plan to be funded in the recently passed budget law.

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