MOUNTAINS

New bee discovered after fire

Word From the Smokies
Frances Figart
Columnist

New pollinators like the cellophane-cuckoo bee have moved into the Smokies after the Chimney Tops II fires. COURTESY OF WILL KUHN

Great Smoky Mountains National Park has a new bee. It's a variety of cellophane-cuckoo bee called Epeolus inornatus discovered by researchers studying how the 2016 Chimney Tops II fires affected the park.

This little newbie (new bee) brings the Smokies species tally to 21,081 for Discover Life in America (DLiA) which manages the All Taxa Biodiversity Inventory (ATBI), a groundbreaking effort that began almost 23 years ago to identify and try to understand every species living within the park.

"This is the first time that this bee species has ever been reported in Great Smoky Mountains National Park," said Will Kuhn, DLiA's director of science and research. "While it's probably been around the park before now, it was only discovered because we wanted to know how the park's ecosystem is recovering from the fires."

Those fires swept across the landscape in late November of 2016, opening up hillside slopes that had been forested before. As a result, more flowering plants are beginning to flourish in new territory, attracting a new group of diverse pollinators to those charred woods, among them Epeolus inornatus.

"It's a new record for the park," said Kuhn, "but it's also a fairly new species, described in 2018 from across the eastern U.S. There's very little known about that species, but it belongs to a genus of well-known bees called the cellophane-cuckoo bees."

"Describing a species" refers to the process whereby a species is formally named and brought to the attention of the scientific world. A scientist writes a paper that tells what makes this species unique from other similar species, where it lives, any known natural history information, and what specific insect specimen "represents" the species. That specimen is called the "holotype."

Cellophane-cuckoo bees are so named because their behavior somewhat mimics that of the parasitic cuckoo bird, which leaves its own eggs in other birds' nests for them to raise as their own. Cellophane-cuckoo bees are all "cleptoparasites" of the cellophane bees (genus Colletes).

Unlike the social honey or bumble bees, cellophane bees are solitary. Female cellophane bees dig little nests in the ground for their offspring. They make a tiny cell, fill it with pollen for their larvae to eat, then lay an egg and seal the cell up with a glue-like material that dries to resemble cellophane. It protects their eggs from mold and moisture.

Like the notorious cuckoo, cellophane-cuckoo bees cheat the system. They sneak into Colletes nests, cut a little hole in a cell's cellophane wrapper, lay their own egg, reseal, and leave without collecting any pollen to provide for the larva. The cellophane-cuckoo bee egg hatches first and devours its host's egg and all the delicious pollen they left for their own young.

The newbie cellophane-cuckoo bee species ranges across the southeastern US from east Texas all the way up into New England. There is not much known about it yet, including exactly to which cellophane bee species it plays the cuckoo. At this point, it is known to associate with the flowers of two plants: farkleberry (Vaccinium arboreum, a relative of blueberries) and a kind of red oak called turkey oak (Quercus laevis).

"Our record of this species is from an event called the Fire Recovery Bioblitz, which we held in summer 2019," said Kuhn. "We were trying to compare insects between a heavily burned site and a minimally burned one. I posted a photo of this bee on iNaturalist, and it was identified by Thomas Onuferko, who is the scientist that first described Epeolus inornatus. Our observation is the first record of this species on the easy-to-use iNaturalist app!"

Through bioblitzes and other events, some of the world's leading scientists have contributed to the ATBI, along with park staff, educators, and volunteer citizen scientists. Together they have found 10,412 species new to the park and 1,028 species completely new to science! Researching little-studied life forms — like the newbie cellophane-cuckoo bee — helps park leaders make better management decisions for enjoyment of future generations.

"Major events like the Chimney Tops II fires have cascading effects, and we don't always know which way things will turn out," said Kuhn. "This is a testament to the importance of the All Taxa Biodiversity Inventory. We need to learn how the park's ecosystems bounce back from previous natural disasters so that we can predict the effects of future disturbances, like climate change."

Frances Figart is the editor of Smokies Life magazine and the Creative Services Director for the 34,000-member Great Smoky Mountains Association, an educational nonprofit partner of Great Smoky Mountains National Park. Learn more at smokiesinformation.org and reach the author at frances@gsmassoc.org.

Resources

- Learn about DLiA's ongoing research at dlia.org.
- Families and classrooms can learn about DLiA through the Smokies Species-a-Day perpetual calendar, found at smokiesinformation.org.

How should NC DOT change these Asheville corridors?

Joel Burgess
Asheville Citizen Times
USA TODAY NETWORK

Xpand Fest was held June 9, 2018. The festival was on the South Slope and featured music, vendors, kids activities and more. COLBY RABON/CITIZEN TIMES

ASHEVILLE - The city is asking residents how two of its major corridors should be changed, potentially increasing density, affordable housing and multimodel transportation options.

Asheville planning and transportation staff are studying the corridors along Biltmore Avenue and McDowell Street, which link the popular South Slope of downtown to Biltmore Village in the south. As part of the study, the city is asking residents and other stakeholders to participate in a survey, according to a city release.

"The Biltmore Avenue and McDowell Street corridors connect downtown Asheville and Biltmore Village-two very walkable areas with a variety of land uses and destinations," according to language of the survey. "Both roadways are maintained by the North Carolina Department of Transportation (NCDOT). The City of Asheville is working with the NCDOT, a consulting team and other agencies to review a range of potential transportation improvements."

The study will consider a range of changes and make recommendations to improve access for "motorists, bicyclists, pedestrians, and transit riders." The study is expected to conclude in the summer of 2021.

A-B Tech, Asheville High, Mission Hospital and McCormick Field are some of the important community features in the study area. There are also multiple new multifamily resident developments, including the in-progress overhaul of Lee Walker Heights.

Both roads funnel into the historic Biltmore Village near the main entrance of the Biltmore Estate.

The survey can be found at: publicinput.com/F7111.

Such studies can give the city important leverage when DOT moves to make changes on state roads.

In 2018, state transportation staff proposed widening part of Merrimon Avenue, an important northern corridor. But city officials pushed back, pointing to a study they had done recommending a reduction in car lanes and improvements for pedestrians and cyclists.

Facing public opposition, in 2019, the DOT shelved the widening plans, saying they would conduct a new study with city recommendations in mind.

Joel Burgess has lived in WNC for more than 20 years, covering politics, government and other news. He's written award-winning stories on topics ranging from gerrymandering to police use of force. Please help support this type of journalism with a subscription to the Citizen Times.

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