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UNH Researchers Identify Five New Truffle Species

Monday, April 24, 2017

(HTTPS://WWW.UNH.EDU/UNHTODAY/NEWS/2017/04/24/UNH-RESEARCHERS-IDENTIFY-FIVE-NEW-TRUFFLE-SPECIES)

DURHAM, N.H. – University of New Hampshire researchers supported by the NH Agricultural Experiment Station (<http://colsa.unh.edu/nhaes/>) have identified and described five new truffle species, including two that have been found only in New Hampshire. Although these “deer truffles” are not considered the prized gourmet edibles, they are a key food source for animals and play an important role in forest health.



Despite the importance of truffles, scientists lack basic information about them in New England, including what species occur in the region. “Mycorrhizal fungi are key components to forests, and a high diversity helps maintain forest health,” said Ryan Stephens, a doctoral student in natural resources and the

DOCTORAL STUDENT RYAN STEPHENS (FRONT) AND UNDERGRADUATE STUDENT TYLER REMICK DIG FOR TRUFFLES IN THE BARTLETT EXPERIMENTAL FOREST.

environment at UNH.

“These fungi form a symbiotic relationship with tree roots and supply trees with water and nutrients and, in exchange, trees supply the fungi with sugars.”

Stephens works with Rebecca Rowe (<https://colsa.unh.edu/faculty/rowe>), assistant professor of wildlife and conservation biology, who was the principal investigator on this project. Stephens and Rowe partnered with Michael Castellano of the U.S. Forest Service on this project.

The five new species of truffles were found in the Bartlett Experimental Forest where the research took place and are members of the genus *Elaphomyces*. They are *E. americanus*, *E. bartlettii*, *E. macrosporus*, *E. oreoides*, and *E. remickii*. The two species that have been found only in New Hampshire are *E. remickii*, which is named after Tyler Remick, a UNH undergraduate who helped collect the truffles as part of his honors thesis, and *E. bartlettii*, which is named after Bartlett Experimental Forest. Additionally, the scientists named *E. oreoides* after Oreo cookies because when cut in half, it has a dark/light/dark pattern similar to an Oreo cookie and has a sweet odor. *Elaphomyces americanus*, *E. macrosporus*, and *E. oreoides* are distributed widely in eastern North America, but until now have not been formally described by scientists.

Almost all New England tree species require mycorrhizal fungi for growth and establishment, but the ability of these fungi to colonize new areas is limited because they occur underground. Fungi disperse to new areas by producing fruiting bodies that may be above ground (mushrooms) or below ground (truffles). Unlike mushrooms, which disperse spores through the wind, truffles require animals to excavate them, consume the edible portion that contains microscopic spores, and disperse these spores through scat.

“Because truffles fruit underground, they are difficult to observe compared to mushrooms,” said Stephens. “As a result, truffle diversity in New England is poorly documented. We are trying to better understand which truffle species occur in the region and the factors that structure their distribution and abundance. Ultimately, this information is necessary for unraveling the complex interactions among truffles, animals, and trees that help keep our forests healthy.”

This material is based upon work supported by the NH Agricultural Experiment Station, through joint funding of the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award numbers 0229197 and 1006881, and the state of New Hampshire. The North American Truffling Society also supported this research. This research is presented in IMA Fungus in the article “*Elaphomyces* species (*Elaphomycetaceae*, *Eurotiales*) from Bartlett Experimental Forest, New Hampshire, USA.” (https://urldefense.proofpoint.com/v2/url?u=http-3A__www.ingentaconnect.com_content_ima_imafung_pre-2Dprints_content-2Dm4-5Fvol8-5Fno1-5Farticle4&d=DwMFaQ&c=c6MrceVCY5m5A_KAUkrdoA&r=43nhFYk7Lgb9QdQ_EwZ2RfOaAn9EEDYKO5BGcXFWdG0&m=MwZiG2OpGEZ3XBaAoYS8n_J4tXipPJ_G3f5FMxfHdhMRjnyWWz-Bgk&e=)

Founded in 1887, the NH Agricultural Experiment Station (<http://colsa.unh.edu/nhaes>) at the UNH College of Life Sciences and Agriculture (<http://www.colsoa.unh.edu/aes>) is UNH’s original research center and an elemental component of New Hampshire’s land-grant university heritage and mission.

The University of New Hampshire is a flagship research university that inspires innovation and transforms lives in our state, nation and world. More than 16,000 students from all 50 states and 71 countries engage with an award-winning faculty in top ranked programs in business, engineering, law, health and human services, liberal arts and the sciences across more than 200 programs of study. UNH’s research portfolio includes partnerships with NASA, NOAA, NSF and NIH, receiving more than \$100 million in competitive external funding every year to further explore and define the frontiers of land, sea and space.

Editor’s Notes:

PHOTOS AVAILABLE FOR DOWNLOAD

<https://colsa.unh.edu/nhaes/sites/colsa.unh.edu.nhaes/files/media/images/diggingfortruffles.jpg>

(<https://colsa.unh.edu/nhaes/sites/colsa.unh.edu.nhaes/files/media/images/diggingfortruffles.jpg>)

Doctoral student Ryan Stephens (front) and undergraduate student Tyler Remick dig for truffles in the Bartlett Experimental Forest. (Credit: UNH)

<https://colsa.unh.edu/nhaes/sites/colsa.unh.edu.nhaes/files/media/images/foundtruffle.jpg>

(<https://colsa.unh.edu/nhaes/sites/colsa.unh.edu.nhaes/files/media/images/foundtruffle.jpg>)

Ryan Stephens finds a truffle in the Bartlett Experimental Forest. (Credit: UNH)

https://colsa.unh.edu/nhaes/sites/colsa.unh.edu.nhaes/files/media/images/e_remickii.jpg

(https://colsa.unh.edu/nhaes/sites/colsa.unh.edu.nhaes/files/media/images/e_remickii.jpg)

E. remickii (Credit: Tyler Remick/UNH)

https://colsa.unh.edu/nhaes/sites/colsa.unh.edu.nhaes/files/media/images/e_bartlettii.jpg

(https://colsa.unh.edu/nhaes/sites/colsa.unh.edu.nhaes/files/media/images/e_bartlettii.jpg)

E. bartlettii (Credit: Michael Castellano/ U.S. Forest Service)

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