Horticultural News and Research Important to American Gardeners

Calamint produces clouds of white flowers.

2021 PERENNIAL PLANT OF THE YEAR®

Calamint *(Calamintha nepeta* ssp. *nepeta)* has been chosen as the 2021 Perennial Plant of the Year® by the Perennial Plant Association (PPA), a trade organization based in Raleigh, North Carolina. Blooming summer into fall with clouds of tiny white flowers occasionally touched with blue, calamint is an undemanding, full sun perennial in USDA Zones 5 to 7. It thrives in full sun and good drainage. At about 18 inches high and wide, it can be woven through beds or line a hot sunny border. Pollinators flock to calamint and its minty foliage repels rabbits and deer. For more on the PPA and the Perennial Plant of the Year, visit *www.perennialplant.org.*

ANTS: GARDENERS OF WILDFLOWERS

Many of our beloved spring ephemeral woodland wildflowers such as trillium, wild ginger, and violets delight us due to ants. At the Ecological Society of America's annual meeting in August, researchers reported on a series of studies that examined the role ants play in dispersing wildflower seeds.

Ants have an important seed dispersal role in about 11,000 species of plants. As part of their evolution, these plants have developed a calorie-laden appendage called an elaiosome on their seeds that ants seek out as a food source. It also provides a handy way to tote seeds sometimes larger than the ants back to their nests. After the ants consume their tasty reward, seeds are able to germinate in place, so you may find violets slowly but steadily moving across the garden year after year.

Researchers studying the relationship between ants and trillium found that the insects are choosy in their seed selection. They only picked seeds with the right combination of compounds. The study found that certain trillium species are common because ants chose their seeds the most. Ants in the genus *Aphaenogaster* are common seed-dispersers, but they also secrete antimicrobial chemicals to protect themselves and fellow ants. One research team found that ant-handled seeds of wild ginger, bloodroot, and twinleaf, exhibited antimicrobial effects and plants harbored fewer pathogens.

How can you assist our ant friends in their gardening endeavors? Leave the leaves. Ants thrive in leaf litter and logs where they have plenty of cover. For more information about the study, visit *www.sciencemag.org/news/2020/08/don-t-crush-ant-it-could-plant-wildflower.*

Research shows that ants play a role in dispersing the seeds of *Trillium cuneatum.*

BROOKLYN BOTANIC GARDEN SELECTS NEW PRESIDENT AND CEO

Adrian Benepe, former New York City Parks Commissioner, will join the Brooklyn Botanic Garden (BBG) as its new president and CEO, becoming the seventh leader in the New York garden's 110-year history. Over the last four decades, Benepe has been recognized as one of the nation's most accomplished leaders in green spaces, gardens, and parks. He has led a variety of government and nonprofit organizations focused on open spaces and preserving plant communities. During his tenure as Park's Commissioner from 2002 to 2012, Benepe oversaw a major expansion of New York's green spaces, adding more than 800 acres of new parkland. He has served the past eight years as senior vice president for the Trust for Public Land. He initiated and led a national drive to ensure every city-dweller in the U.S. has a high-quality park within a 10-minute walk.

Adrian Benepe

Founded in 1910, BBG is regarded as one of the world's leading botanic gardens. The garden recently finished a major $125 million capital campaign to create new gardens and landscapes.

DECLINES IN CROP BREEDING PROGRAMS COULD JEOPARDIZE FOOD SECURITY

A new study from Washington State University (WSU), published in *Crop Science*, demonstrates that public plant breeding programs are declining across the United States. A team led by Kate Evans, a WSU horticulture professor specializing in apple and pear breeding, found that these programs are seeing marked decreases in funding and personnel.

LEFT TO RIGHT: WALTER'S GARDENS, INC.; COURTESY OF TOM HARVILLE; NORTH CAROLINA NATIVE PLANT SOCIETY; TRUST FOR PUBLIC LAND

Conducting a survey of 278 plant breeding programs across the U.S., Evans and her colleagues looked primarily at federal programs run by the U.S. Department of Agriculture or based at public research universities. They found an estimated 21.4 percent decline in funded full-time employee time over the past five years and an estimated 17.7 percent decline of technical support personnel. The team also found that retirement is on the horizon for a significant number of plant breeding program leaders. Of the respondents, over a third reported having leaders over the age of 60 and 62 percent are led by those over 50.

These statistics are alarming as these programs have a direct impact on food security. "Plant breeding is a long-term, sustainable way to address concerns over having enough food and keeping our food sources secure," says Evans, who is based at WSU's Tree Fruit Research & Extension Center in Wenatchee. It includes breeding for disease and pest resistance, drought tolerance, increased yield, and introducing new varieties. Pathogens are always adapting, and plant breeding programs help growers stay ahead or respond to these threats.

University programs also can specialize in developing crops that thrive in local conditions. Expense is a key reason for programs' decline. It takes many years to develop new plants and crops and that means funding a program for that long is a significant expense. For details about the study, visit *https://news.wsu.edu/2020/08/07/decline-plant-breeding-programs-impact-food-security.*

Kate Evans, a specialist in apple and pear breeding, led a study showing a decrease in plant breeding programs in the U.S.

NEW REPORT CALLS FOR EXPANDED PLANT COLLECTIONS, FINDS INCREASED EXTINCTION RISKS

Newly released, *The State of the World's Plants and Fungi 2020* is the result of an international collaboration organized by the Royal Botanic Gardens, Kew in the United Kingdom to show how people are currently using plants and fungi, what useful properties are being neglected, and what is at risk of being lost. In our era of climate change, herbarium collections are increasingly important. An herbarium is a collection of plants and plant parts that have been pressed, dried, and preserved for study including where, when, and by whom specimens were collected. There are currently 3,324 active herbaria in the world

with nearly 400 million preserved specimens. Herbaria specimens have proved to be an invaluable resource for scientists as they become more digitized. They also can be used for DNA sampling. Researchers have called for an increase in support for digitizing collections, as only about 21 percent have been scanned. They have also recommended expanding collections of plants from Africa, tropical Asia, and the Pacific, that are underrepresented.

In 2016, the report had estimated 21 percent of plant species were at risk for extinction. The new edition shows that the extinction risk may be up to 39.4 percent due to more sophisticated conservation assessments and new analytical approaches to correct biases in current data. The report authors recommend using artificial intelligence to help identify areas for priority conservation. The demand for naturally derived medicines has risen globally, threatening some species. The data reported shows that of the 5,411 medicinal plants that have been assessed for their conservation status (out of 25,791 documented medicinal plants), 723 (13 percent) are categorized as threatened.

There is good news. The Kew report demonstrates there are 7,039 edible plant species that have potential as future foods. Right now, just 15 species provide 90 percent of humanity's food energy intake, and four billion people rely entirely on three crops—rice, corn, and wheat. With global population only increasing, scientists are looking for overlooked and underutilized crops. They are also examining plant species that would be good sources of fuel or bioenergy and identified 2,500 species that could aid in that effort. To see the complete report, visit *www.bioversityinternational.org/e-library/publications/detail/state-of-the-worlds-plants-and-fungi-2020.*

DROPLETS FOUND ON PLANT LEAVES SERVE AS NUTRIENT-RICH FOOD FOR INSECTS

A new study led by Rutgers University researchers has determined that droplets which form on blueberry leaves serve as a nutrient-rich food source for insects. Many plants perform 'guttation', secreting fluid or drops of xylem sap from pores at the edges of their leaves. It is commonly sipped by bees, wasps, and flies and biologists had considered them a water source. The Rutgers study has demonstrated that the droplets are also rich in carbohydrates and proteins that are essential for many insect species. The researchers used several blueberry fields to study the phenomenon. They found that the abundance of beneficial insects doubled in fields with the droplets. "These findings are important for the conservation of beneficial insects because they can find and feed on droplets when pollen, nectar, hosts or prey are scarce," says senior author Cesar Rodriguez-Saona, a professor and Extension specialist in the Department of Entomology in the School of Environmental and Biological Sciences at Rutgers University-New Brunswick, New Jersey. To read more, visit *www.sciencedaily.com/releases/2020/09/200929123528.htm.*

PABLO URBANEJA-BERNA, RUTGERS UNIVERSITY

Droplets on the edge of leaves may be a source of important nutrients for insects.

Written by Associate Editor Heather Prince.

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I certify that all information furnished above is true and complete.

—David J. Ellis, Editor